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FUNDAMENTALS OF PC SOFTWARE

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Overview of Base and its features as a database management tool, Launching Base and creating a new database, Navigating the Base interface and understanding the different components of the database window, Creating tables, forms, queries, and reports using Base's built-in tools.

COURSE INTRODUCTION

Welcome to the Fundamentals of PC Software course, where we will explore the core principles of computer software over fourteen comprehensive units. Our goal is to provide you with a well-rounded understanding of commonly used operating systems and productivity software, enabling you to navigate the digital world with confidence.

We begin our journey with an introduction to the essential functions and diverse types of Operating Systems, including the renowned MS DOS, MS Windows, and LINUX. As we delve deeper, you'll gain insights into their unique features and functionalities.

Next, we shift our focus to the versatile LibreOffice software suite, offering an in-depth exploration of its components. We'll walk you through Writer, where you'll master the art of creating and formatting documents, harnessing the power of templates and styles, and utilizing advanced formatting options.

In the realm of Calc, we'll equip you with the skills to handle data efficiently, working with functions, formulas, creating compelling charts, and performing data analysis that can prove invaluable in various scenarios.

Moving on to Impress, you'll learn the art of crafting captivating presentations. Discover how to create and modify presentations, enhance them with multimedia and animations, and even master the art of recording and rehearsing your presentations for maximum impact.

Our journey culminates with Base, where you'll dive into the world of database management. You'll learn to create and manage databases, design tables, forms, queries, and generate informative reports.

By the end of this course, you will not only have a solid understanding of commonly used operating systems and productivity software but also the practical skills to confidently utilize these tools.

While going through a unit, you will notice some along-side boxes, which have been included to help you know some of the difficult, unseen terms. Again, we have included some relevant concepts in ''LET US KNOW'' along with the text. And, at the end of each section, you will get "CHECK YOUR PROGRESS" questions. These have been designed to self-check your progress of study. It will be better if you solve the problems put in these boxes immediately after you go through the sections of the units and then match your answers with "ANSWERS TO CHECK YOUR PROGRESS" given at the end of each unit.

UNIT 1 : INTRODUCTION TO OPERATING SYSTEM

UNIT STRUCTURE

1.1 Learning Objectives

1.2 Introduction

1.3 Definition of Operating System

1.4 Functions of Operating System

1.5 Types of Operating System

- 1.5.1 Single User Operating System
- 1.5.2 Multi User Operating System
- 1.5.3 Single Tasking Operating System
- 1.5.4 Multi Tasking Operating System
- 1.5.5 Multiprogramming Operating System
- 1.5.6 Real Time Operating System
- 1.5.7 Network Operating System
- 1.5.8 Distributed Operating System

1.6 Let Us Sum Up

1.7 Further Reading

1.8 Answers to Check Your Progress

1.9 Model Questions

1.1 LEARNING OBJECTIVES

After going through this unit, you will be able to :

- learn about the basic definition of operating systems
- describe the different functions of operating systems
- distinguish between the various types of operating systems
- distinguish between network operating system and distributed operating systems.

1.2 INTRODUCTION

Operating systems have evolved through a number of phases during

the last half of a century or earlier. The earliest electronic computer developed in the mid-1940s had no operating system at all. At that time, the machines were equiped with a console consisting of toggle switches and display lights. There were no programming languages or translators for developing high-level language programs and converting them to machine understandable instruction. The scene was improved from 1960 onwards. A lot of new techniques and technology were developed and finally the concept of operating system came. Operating System is an important component of a computer. The primary objective of an operating system is to make computer system convenient to use and utilise computer hardware and various resources in an efficient manner. An operating system is a large set of software which is also an interface between users and computer systems. It is a system software. Operating system also manages resources of the computer system, such as memory, processor, file system and input/output devices.

The introductory concepts and principles of operating system will be the main issues for our discussion in this unit. Moreover, various types of operating system will also be covered in this unit.

1.3 DEFINITON OF OPERATING SYSTEM

A computer system is made up of hardware, operating system and user interface. Computer software can be divided into *system programs* which manage the operation of the computer itself and the *application programs,* which solve problems for their users. **Operating System i**s the most fundamental of all the system programs (or System Software). The operating system controls the entire computer's resources and provides the base upon which the application programs can be written.

We can define operating system in different ways. Some of the definitions are: An operating system is program that makes the computing power available to users by controlling the hardware. Another definition is that operating system is a program that controls the execution of application programs. It is a set of processes permanently or transitively resident within the computer that makes the resources of the computer system available

to the user in a consistent, reliable, friendly way.

Operating system can be divided into two parts: the *Kernel* and the *shell*. The kernel is the essential centre of a computer operating system, the core that provides basic services for all other parts of the operating system. A synonym of kernel is *nucleus*. A kernel can be contrasted with a shell, the outermost part of an operating system that interacts with user commands. *Kernel* and *shell* are terms used more frequently in UNIX. Users interact with operating system through *Command Line Interfaces* (CLIs) or *Graphical User Interfaces* (GUIs). The operating system thus contributes to the simplification of the human interaction with the computer hardware. They are responsible for linking application programs with the hardware, thus achieving an easy user access to the computers.

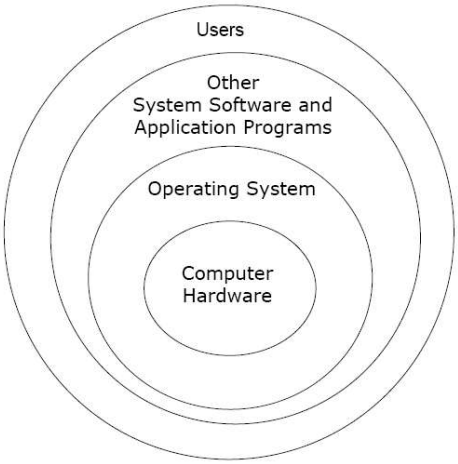


Figure 1.1: Computer System

1.4 FUNCTIONS OF OPERATING SYSTEM

There are various functions performed by an operating system. The basic functions are :

1. Input/Output management
2. Memory management
3. Process management
4. File and directory management
5. Security management
6. Command interpretation

1. **Input/Output management :** An operating system makes efficient usage of input and output devices and controls them properly. The input/output management module of the operating system coordinates and assigns different input and output devices, namely terminals, printers, disk drives, tape drives ete. It controls all input and output devices, keeps track of input and output requests, issues commands to these devices and takes measures which would ensure that data is transmitted efficiently and correctly to and from input and output devices.
2. **Memory or storage management :** Memory is an important resource for a computer system. So memory allocation and deallocation for programs and data is an another function of an operating system. Memory management module of an operating system takes care of allocation and de-allocation of main memory to various procsses. It allocates the main memory and secondary memory to the system programs, user programs and data.
3. **Process management :** Process can be defined as a program in execution. It is the job which is currently being executed by the processor (CPU). During its execution, a process would require certain system resources, such as processor time, main memory, files, input and output devices etc. UNIX operating system supports multiple processes simultanously. The process management module of UNIX takes care of creation and termination of processes, assigning required resources to different processes currently running, scheduling processor's time to different processes etc.
4. **Files and directory management :** Files and directories are also properly managed by an operating system. Data is stored in a computer system as files. The file management module of the operating system would manage files as well as directories held on various storage devices as well as transfer of files from one storage device to another device. Thus, file management takes care of organization, storage, retrieval, naming, sharing and protection of different files. It also allows files to be read and modified by using text editors or some other file

manipulation software packages.

5. **Security management :** It is also one of the most important function of an operating system to protect its various resources from the outer world. Security management module of the operating system which are executing concurrently in the memory, in such a way that system can ensure data security and integrity. That is, it protects data and program stored in the computer system from destruction and unauthorised access. It keeps different programs and data in such a way that they donot interfere with each other. Moreover, it protects files from being accessed or modified by unauthorised users.

Role of Operating System :

- Must communicate with the PC's hardware
- Works with the BIOS to provide access to devices such as hard drives
- Communicates with device drivers
- Provides a user interface

Let us explain these in details :

To ***communicate with the PC's hardware***, the operating system starts running immediately after the PC has finished its Power-On Self Test (POST), when it takes control of the PC. The operating system works with the BIOS to provide access to devices such as hard drives, floppy drives, keyboards, mouse, and basic video. If a user wants to access a file on a diskette in a floppy drive, the operating system passes the request to the appropriate set of BIOS instructions that tells the floppy controller to send the requested information to RAM.

If the BIOS is unable to talk with the hardware, the operating system talks to the hardware directly. For this capability, it needs some additional programming. Device drivers provide the code necessary for the operating system to communicate with specific hardware. Device drivers are written specifically for a particular operating system, usually by the hardware manufacturer.

In addition to ***communicating with hardware***, the operating system provides for some type of error handling and error notification. If a piece of hardware is not functioning properly, the operating system tries to fix the

problem or tries to communicate with the device a few more times. If it is still unable to communicate with the device, it provides an error screen notifying the user of the problem.

Providing a user interface is the second function of an operating system. Basically, the operating system organizes applications so that the users can easily access them, use them, and store application data. When an application is opened, the operating system lets the application provide the majority of the user interface. That is, the operating system disappears or moves away from the center of the screen. The operating system still has the responsibility of providing access to the hardware for whatever the application needs. If the program cannot function properly, the operating system again takes control, stops the application, and provides some sort of error message.

1.5 TYPES OF OPERATING SYSTEM

Operating systems are categorised based on the types of computers they control and the sort of applications they support. The types are:

1. Single User Operating System
2. Multi User Operating System
3. Single Tasking Operating System
4. Multi Tasking Operating System
5. Multiprogramming Operating System
6. Real Time Operating System
7. Network Operating System
8. Distributed Operating System

1.5.1 Single User Operating System

A computer system in which only one user can work at a time is called a single user operating system. The familiar Intel processor based Windows OS personal computer is an example of single user system. Such a typical system will have a single keyboard, mouse and monitor as I/O devices for the user to interact with the

system. Users apply command through the keyboard and mouse and the computer displays its responses (output) on the monitor.

1.5.2 Multi User Operating System

This type of operating system which is running on a computer will manage the work of different users, without letting them know that they all are actually working on a single computer. A multi user operating system allows a number to work together on a single computer. Each user will be provided with a terminal and all such terminals will be connected to the single computer. For example, UNIX, Linux, Windows XP etc.

A multi user operating system allows many different users to take advantage of the computer's resources simultaneously. The operating system must make sure that the requirements of the various users are balanced, and that each of the programs they are using has sufficient and separate resources so that a problem with one user does not affect the entire community of users. Unix, mainframe operating systems, such as *MVS*, are examples of multi user operating systems.

1.5.3 Single Tasking Operating System

It is a type of operating system which can execute a single job at a time and is known as Single Tasking operating system. For example, MS-DOS is a single tasking operating system because one can open and run only one application at one time in MS-DOS.

When a single program is allowed to run at a time, the system is grouped under a single-tasking system.

1.5.4 Multi Tasking Operating System

Multitasking is concerned with a single user executing more than one program simultaneously or concurrently. Now a days most of the operating systems such as UNIX, LINUX, OS/2 etc. are multi

tasking operating system.

Multi tasking can be of two types namely, pre-emptive and co-operative. In pre-emptive multitasking, the operating system slices the CPU time and dedicates one slot to each of the programs. Unix like operating systems such as *Solaris* and *Linux* support pre-emptive multi tasking. Cooperative multi tasking is achieved by relying on each process to give time to the other processes in a defined manner. *MS Windows* prior to *Windows 95* used to support cooperative multitasking.

1.5.5 Multiprogramming Operating System

In multiprogramming technique of processing, the CPU runs several programs at the same time. Multiprogramming is implemented in such a way that it appears as if many programs are being executed concurrently. Multiprogramming keeps the CPU busy, switching its attention from one program to another. For example, while one program is waiting for some input or output operation, another program can use the processor because of the high speed of the processor.

Multiprogramming is the rapid switching of the CPU between multiple processes in memory. It is done only when the currently running process requests I/O, or terminates. It was commonly used to keep the CPU busy while one or more processes are doing I/O. It is now mostly superceded by multitasking, in which processes also lose the CPU when their time quantum expires.

Multiprogramming makes efficient use of the CPU by overlapping the demands for the CPU and its I/O devices from various users. It attempts to increase CPU utilization by always having something for the CPU to execute.

The prime reason for multiprogramming is to give the CPU something to do while waiting for I/O to complete. If there is no DMA, the CPU is fully occupied doing I/O, so there is nothing to be gained (at least in terms of CPU utilization) by multiprogramming.

No matter how much I/O a program does, the CPU will be 100% busy. This of course assumes that the major delay is the wait while data is copied. A CPU could do other work if the I/O were slow for other reasons (arriving on a serial line, for instance). I/O operations are exceedingly slow (compared to instruction execution). A program containing even a very small number of I/O operations, will spend most of its time waiting for them. Hence, poor CPU usage when only one program is present in memory.

1.5.6 Real Time Operating System

Real time operating systems work towards providing immediate processing and also responding to user's commands in a very short period of time. This type of operating system is more commonly used in chemical industries for process control and scientific processing like airplane control and space vehicle control operations. The success of a real time operating system does not depend only on the correctness of the result but also on the timeliness of the result. For example: HP-RT and VTWorks etc. It is a multitasking operating system that aims at executing real-time applications. Real-time operating systems often use specialized scheduling algorithms so that they can achieve a deterministic nature of behavior. The main object of real time operating system is their quick and predictable response to events. They either have an event-driven or a time-sharing design.

An event-driven system switches between tasks based on their priorities while time-sharing operating systems switch tasks based on clock interrupts.

1.5.7 Network Operating System

Network Operating System (NOS) is an operating system specifically designed to establish network connections for workstations, personal computers (PC) accross the world via Local Area Network and internetworking. NOS provides support for

multiuser operating system as well as administrative, security and network management functions. Some examples of network operating system are Windows NT, Novell's Netware etc.

A network operating systems has to acknowledge and respond to requests from many workstations, managing network access, resource allocation and sharing, data protection as well as error control.

Features of Network OS :

All network ooperating system provide certain core functions such as connection to other computers on the network. Some of the significant features of NOS are as follows :

- It gives the features of basic (Operating System) such as protocols, processors, hardware detection and multi processing.
- It supports name and directory services.
- It provides file and print services over the network, back up and replication services, web services.
- It facilitates internetworking such as routing, switching, wireless set-up and WAN ports.
- It provides cluster and grid computing capabilities, fault tolerance and high availability systems.
- It provides user management services such as log on, logoff, remote access, auditing tools with Graphical User Interface (GUI) features and administration tools.
- It strictily provides security features such as authentication, authorization, log on restrictions for users and access controls etc.

1.5.8 Distributed Operating System

A distributed system is composed of large a number of computers connected by high-speed networks. The computers in the distributed system are independent, but they appear to the users as a single system. A distributed operating system hides the

existence of multiple computers which are interconnected by a network from the user. That is, the user remains unaware of the fact that many computers are being used to process the data. These computers may be located at many places around the globe.

Distributed Operating System provides single-system image to its users. All these computers work in close coordination with each other. Processes and systems resources are managed globally and controlled from specific locations.

An operating system that manages a group of independent computers and makes them appear to be a single computer is known as a distributed operating system. The development of networked computers that could be linked and communicate with each other, gave rise to distributed computing. Distributed computations are carried out on more than one machine. When computers in a group work in cooperation, they make a distributed system.

Advantages :

i) Data sharing : Allows data sharing access to common databases.

ii) Device sharing : Allows many users to share expensive peripherals like high resolution printers, scanners and digital cameras.

iii) Communication : Makes communication between users easier.

iv) Spreads the availability workload over independent computers of the system in cost-effective way.

Disadvantages :

i) Network communication is delayed due to saturation or other problems.

ii) Security : Needs tools and techniques for providing controlled access to sensitive data.



CHECK YOUR PROGRESS

Q.1: Choose the correct option :

(i) An operating system is a software that

(a) helps the operators who are maintaining a computer system.

(b) helps other programs to run.

(c) helps in resource management.

(d) all of the above.

(ii) UNIX is an example of

(a) batch processing operating system

(b) time sharing operating system.

(c) real time operating system.

(d) none of these.

(iii) The program which takes user input , interprets it and takes necessary actions is

(a) kernel (b) system calls

(c) shell (d) scheduler.

(iv) The main job of one of the following is to allocate CPU to process

(a) kernel (b) shell (c) sceduler (d) login

(v) The objective of a multiprogramming operating system is to

(a) minimize the net execution time.

(b) maximize the processor utilization.

(c) minimize the user response time.

(d) none of above.

(vi) In UNIX, a process is a

(a) program in execution.

(b) sub-program which can be called from other programs.

(c) sequence of commands required to run a program.

(d) none of above.

(vii) MS-DOS operating system is a

(a) time sharing operating system

(b) single user operating system.

(c) distributed operating system

(d) all of the above.

(viii) The example of real time operating system is

(a) UNIX (b) MS-DOS

(c) WINDOWS 2000 (d) HP-RT

(ix) Example of embedded operating system is

(a) FreeBSD (b) Unix

(c) MS-DOS (d) Linux.



1.6 LET US SUM UP

- An operating system is an important component of a computer system. The primary objecives of an operating system is to make computer system convenient to use and utilise computer hardware and various resources in an efficient manner. An operating system is a large set of software which is also an interface between users and computer systems. It is also a system software.
- **Input and Output management :** An operating system makes efficient usage of input and output devices and controls properly.
- **Memory or storage management :** Memory is an important resource for a computer system. So memory allocation and deallocation for programs and data is an another function of an operating system.
- **Process management :** Process can be defined as a program in execution.It is the job which is currently being executed by the processor (CPU).
- **Files and directories management :** Files and directories are also properly managed by an operating system.Data is stored in a computer

system as files.

- **Scheduling :** The operating system also establishes and enforces process-priority. That is, it determines and maintains the order in which jobs are to be executed by the computer system.
- **Security management :** It is also one of the most important function of an operating system to protect its various resources from the outer world.
- **Single user Operating System** the simplest operating system which allows only one user to work.
- **Multi user operating system** which is running on a computer will manage the work of all different users.
- **Multitasking operating system** allows the user to perform more than job at the same time on a computer.
- In **multiprogramming technique of processing ,** the CPU runs several programs at the same time.
- **Real time operating system** work towards providing immediate processing and also responding to user's commands in a very short period of time.
- **Network operating System (NOS)** is an operating system specifically designed to support interconnection of several computers.
- **A distributed operating System** hides the existence of multiple computers which are interconnected by a network from the user.



1.7 FURTHER READING

1) Tanenbaum, A. S., & Woodhull, A. S. (1987). Operating systems: design and implementation (Vol. 2). Englewood Cliffs, NJ: Prentice-Hall.

2) Deitel, H. M., Deitel, P. J., & Choffnes, D. R. (2004). Operating systems. Pearson/Prentice Hall.



1.8 ANSWERS TO CHECK YOUR PROGRESS

Answer to 1 : (i) (d), (ii) (b), (iii) (c), (iv) (c), (v) (b), (vi) (a), (vii) (b), (viii) (d), (ix) (a)



1.9 MODEL QUESTIONS

Q 1: What is an operating system? Why is it necessary to use operating system for a computer ?

Q 2: What is process? What are the main objectives of the process-management module of the operating system?

Q 3: Differentiate between multiprogramming and multi-tasking operating system.

Q 4: Describe the role of operating system in the computer system.

Q 5: What are different functions performed by an operating system?

Q 6: Describe different types of operating systems?

Q 7: What is virtual memory? Why is it so called? How is it used?

Q 8: What is network operating system? How is it different from the distributive operating system?

*** ***** ***

UNIT 2 : MS DOS OPERATING SYSTEM

UNIT STRUCTURE

2.1 Learning Objectives

2.2 Introduction

2.3 DOS Operating System

2.4 System Files of DOS

2.5 Concept of Booting

2.6 Files and Directory Structure

2.7 Concept of Paths

2.8 Internal and External Commands

2.9 Batch File

2.10 Let Us Sum up

2.11 Further Reading

2.12 Answers to Check Your Progress

2.13 Model Questions

2.1 LEARNING OBJECTIVES

After going through this unit, you will be able to :

- describe the DOS operating system
- identify the system files of DOS
- describe files and directory structure
- identify the internal and external commands
- identify the batch files.

2.2 INTRODUCTION

From the previous unit you are aware of the basic definition of an operating system including its functions and various types. In this unit, we will introduce you to the Microsoft Disk Operating System (MS DOS) which is a single user, single tasking operating system. We will also discuss about the system files of DOS, files and directory structure and internal and external commands of DOS.

2.3 DOS OPERATING SYSTEM

Microsoft Disk Operating System (MS-DOS) is the most popular single user operating system in the world. Microsoft Corporation of USA had released it in August 1981. First version of MS-DOS was a refined version of an operating system developed by Tim Peterson of Seattle Computers, which he had named as QDOS (Quick and Dirty Operating System) as he had developed it in record two months and could not introduce some good functions of process management and memory management into it. After the release of the first version of MS-DOS, every time some refinement is made, a new version of it is launched.

2.4 SYSTEM FILES OF DOS

The modern DOS operating system is distributed on 3-5 high density floppy disks. It comes with backup utilities and (depending on how the layers feel) disk compression drivers. However, all the stuff that goes into C:\DOS and its subdirectories are programs and utilities. The core DOS operating system consists of six files:

- The boot sector is a 512 byte record placed at the beginning of the C: drive when DOS was installed, or placed there subsequently using the “sys c:” command.
- Two “hidden” files are stored in the root directory of the C: drive. They do not show up in a DIR listing unless the /A switch is used. On IBM PC DOS systems, they are *IBMBIO.SYS* and *IBMDOS .SYS*. On MS DOS systems, they are called *IO.SYS* and *MSDOS.SYS*. These files form the kernel of the DOS system.
- *COMMAND.COM* is the “shell” or command interpreter. It prints out the “C:\&gt “ prompt and reads user commands. It also supports BAT files.
- The user configuration files are *CONFIG.SYS* and *AUTOEXEC. BAT*. The reader is assumed to be familiar with these files.

COMMAND.COM is initially stored in the C:\ root directory. The problem is that OS/2 and Windows NT have their own versions of

COMMAND.COM. To avoid confusion, each COMMAND.COM should be stored in the subdirectory that belongs to its particular operating system. In normal use, this means that the DOS version should be in C:\DOS. To relocate it, two statements must be added to the user configuration files:

"SHELL=C:\DOS\COMMAND.COM" is added to CONFIG.SYS.

"SET COMSPEC=C:\DOS\COMMAND.COM" is added to AUTOEXEC.BAT.

The hidden files IBMBIO, IBMDOS, IO, or MSDOS have names that do not conflict with each other or with any system file belonging to any other operating system. They can stay in the C:\ root directory no matter what gets added to the system. This means that the volatile part of the DOS system consists of the boot record, C:\CONFIG.SYS, and C:\AUTOEXEC. BAT.

2.5 CONCEPT OF BOOTING

The term 'boot' is used to describe the initial loading of an operating system or of some other program into a computer. The word "boot" comes from the term "Bootstrap". The loading of DOS into main memory involves loading of three essential files of DOS i.e. IO.SYS, MSDOS.SYS and COMMAND.COM into the main memory. Loading these files into main memory is called *booting up* of the computer. The booting up process is a step by step process as described below

a) As soon as the machine is switched on, POST (Power On Self Test) is performed which checks for integrity of all the components (CPU,RAM, I/O devices etc.) of a computer system. If any component is found faulty, an error message is displayed.

b) A chip called ROM-BIOS (Read Only Memory-Basin Input-Output Services) is read and executed. Then a check is performed for DOS files presence in the following order:

   i) First in 'A drive'; if found there, DOS is loaded from the drive A.

   ii) If not found in drive A, then 'C drive' scanned for the DOS files and if available there from the C drive DOS is loaded.

   iii) If DOS file could not be located, an error message is displayed.

c) If DOS files are found in a drive, its very first sector (called *boot sector*) is read which stores a small program called bootstrap loader in which instructions for booting up process are stored. The bootstrap loader is then loaded into the main memory and its instructions are executed and as a result DOS system files IO.STS, MSDOS.SYS and COMMAND.COM will be loaded into the main memory one by one.

Two files IO.SYS and MSDOS.SYS make the kernel of DOS which actually interacts with the hardware and the gets the work done. The user interacts with the shell of DOS which is COMMAND.COM. The shell in turn interprets user request and interacts with the kernel for carrying out the user request. Shell is resposible for user interface.

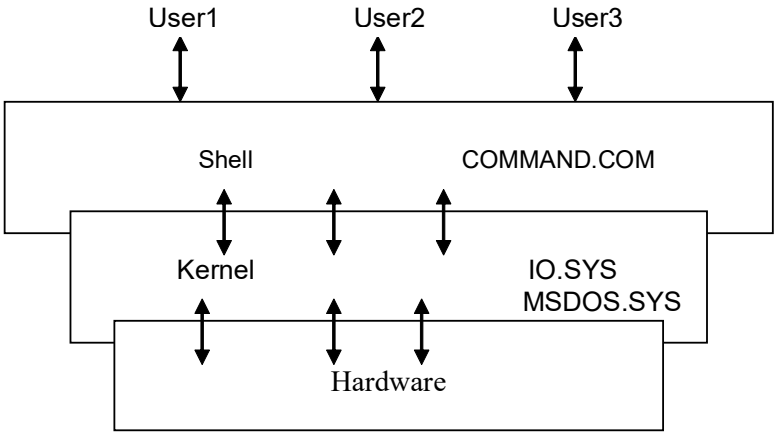


Figure 2.1 : Hierarchy of Interaction with MS-DOS

2.6 FILES AND DIRECTORY STRUCTURE

Files : Any information which is to be stored on the computer's secondary storage, would be stored as a file. A file is a logically related information, such as a file containing all details about mid-term exams, a file containing monthly sales data etc. Each file stored on the system is given a name. The file name has two parts : *primary file name* and *secondary file name* (also called extension). A primary file name consists of one to eight (1-8) characters in length. File extension consists of a period followed by zero to three (0-3) characters. Extensions are optional, but it is better to us as they are useful for describing the contents of a file. The primary file

name and file extensions can have any characters other than following :

[ ] / \ : , ; < > + " = ? |

Extension **.exe** specifies that it is an executable file, **.doc** specifies that it is a document file, **.bas** specifies it is a BASIC program file, .pas specifies that it is a PASCAL file.

Directories : In an office, the file cabinet is divided into shelves, shelves into boxes, boxes into drawers etc. and files are kept in them. Similar types of files are grouped and kept in the same drawer or box or shelf. In the same way files on the disk are stored. The disk (similar to file cabinet) is divided into sub-directories (similar to shelves); each sub-directory can further be divided into sub-directory (similar to box) and so on. DOS files with some similarity (e.g. belonging to the same project) are grouped together and a directory is formed for them under which they are kept.

So, directories let you group your files in convenient categories. These directories, in turn, may contain other directories (referred to as sub-directories). This organised file structure is referred to as multilevel or hierarchical directory system.

The first level in a multilevel directory system is root directory, which is created automatically at the time of the disk formatting. Within the root directory, additional directories and sub-directories can be created. Within each directory or sub-directory, new files or new sub-directories can be created.

Immediately after the booting, root directory is the current directory or working directory i.e. by default all operations will be performed under it unless you specify another directory or files for it. Working directories can be changed using CD or CHDIR command of DOS.

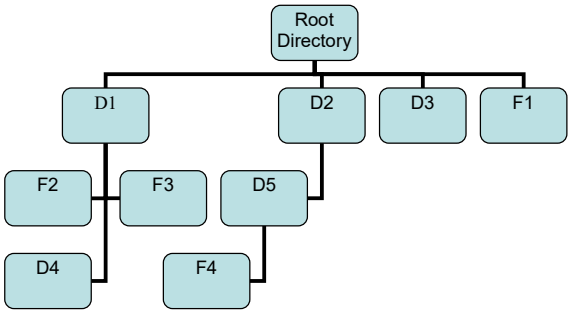


Figure 2.2: Example of Directory Structure

In the figure 8.2, D1, D2, D3 are sub-directories or child directories of root directory and root is the parent directory of D1, D2, D3. D4 is the child directory of D1 and D5 is the child directory of D2; D1 is the parent directory of D4 and D2 is the parent directory of D5. One thing, to be kept in mind is that, a directory can have many sub-directories (child), but a child directory can have only one parent directory, it cannot have more than one parent directory. Directory names follow the file naming rules.

2.7 CONCEPT OF PATHS

Full name of a file or directory consists of path ***primary name. extension***. Path is a sequence of directory names which give you the hierarchy to access a particular directory or file name. Let us consider the following directory structure :

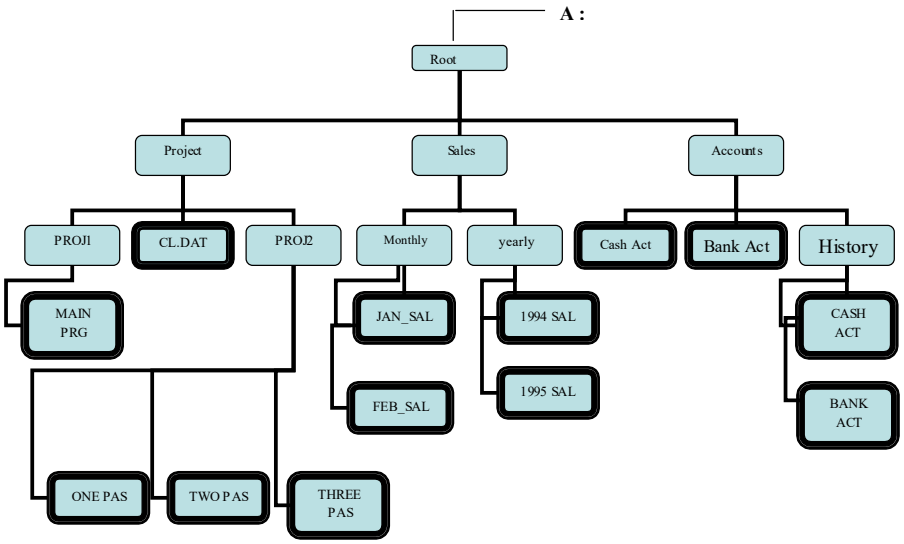


Figure 2.3 : Example of Path

Now, the full name directories PROJECT, SALES and ACCOUNTS will be

A: \PROJECT, A: \SALES and A:| ACCOUNTS respectively.

So format of path can be given as

Drive-letter: \directory[\directory.....]

Where first \ (backslash) refers to root directory and other ('\' s) separate a directory name form the previous directory name. Now the path of directory JAN SAL will be :

A: \SALES\Monthly\JAN SAL

As to reach JAN SAL the sequence one has to follow is under drive A, under root directory (first \), under SALES subdirectory of root, under Monthly subdirectories of SALES, there lies JAN SAL directory.

Similarly the full name of ONE PAS file under PROJ2 subdirectory will be :

A: \PROJECT\PROJ2\ONE PAS

Now, you can see that there are two files with the same name CASH ACT, one under the Accounts directory and the other under HISTORY directory but according to DOS rule no two files can have same names (path names). Both these files have same names but their path names differ, therefore, these can exist on system. So, the paths of the two files will be

A: \Accounts\CASH ACT

and A: \Accounts\HISTORY\CASH ACT

The above mentioned path names are *absolute path names* as they mention the paths from the top most level of the directory structure.

Relative path names mention the paths relative to current working directory. Let us assume that the current working directory now is, say, PROJ2. The symbol **.** and **..** can be used now in relative paths and path names. The symbol **.** can be used in place of current working directory and **..** denotes the parent directory.

So, with PROJ2 as current working directory, path name of TWO PAS will be :

.\TWO PAS (PROJ2 being working directory)

which means under current working directory, there is file TWO PAS. Similarly, path name for file CL DAT will be :

..\CL DAT (PROJ2 being working directory)

which means under parent directory of current directory, there is a file CL DAT. Similarly, path name for MAIN PRG will be :

..\PROJ1\MAIN PRG

that is under parent directory of current directory, there lies a file MAIN PRG.

2.8 INTERNAL AND EXTERNAL COMMANDS

We have seen that, user interface is the shell's responsibility. Therefore, a user passes its request (in the form of DOS command) to the shell i.e. COMMAND.COM. Whenever a request is passed to it, the shell interprets it and then searches for its specification i.e. what is to be done and how it is to be done inside COMMAND.COM. These specification of commands can either be found inside the shell or outside it, thus giving rise to two types of DOS commands:

i) ***Internal Commands :*** DOS commands for which specifications are available within the shell (i.e. COMMAND.COM) are called Internal Commands (as they are internally available in shell).

ii) ***External Commands :*** DOS commands for which specifications are not internally available within the shell (i.e. COMMAND.COM) are called External Commands. The specification for these commands are made available to the shell through external specification files. E.g. FORMAT is an external command and its specifications are available in FORMAT.COM, for DISKCOPY external command, specification file is DISKCOPY.COM and so on. The specification files are executable files i.e. files with extensions *.EXE* or *.COM*.

A) **Internal Commands :** The Internal commands include some of the following important commands :

File Commands – File commands are those commands which operate on files. Under file commands we will discuss the following commands –

1. COPY : Allows the user to copy one or more files to an alternate location.

Syntax :

Copies one or more files to another location.

COPY [/A | /B] source [/A | /B] [+ source [/A | /B] [+ ...]] [destination] [/A | /B]] [/V] [/Y | /-Y]

source Specifies the file or files to be copied.

/A	Indicates an ASCII text file.
/B	Indicates a binary file.
destination	Specifies the directory and/or filename for the new file(s).
/V	Verifies that new files are written correctly.
/Y	Suppresses prompting to confirm you want to overwrite an existing destination file.
/-Y	Causes prompting to confirm you want to overwrite an existing destination file.

The switch /Y may be preset in the COPYCMD environment variable. This may be overridden with /-Y on the command line.

To append files, specify a single file for destination, but multiple files for source (using wildcards or file1+file2+file3 format).

Examples :

copy *.* a:

Copy all files in the current directory to the floppy disk drive.

copy autoexec.bat c:\windows

Copy the autoexec.bat, usually found at root, and copy it into the windows directory; the autoexec.bat can be substituted for any file(s).

copy win.ini c:\windows /y

Copy the win.ini file in the current directory to the windows directory. Because this file already exists in the windows directory it normally would prompt if you wish to overwrite the file. However, with the /y switch you will not receive any prompt.

copy myfile1.txt+myfile2.txt

Copy the contents in myfile2.txt and combines it with the contents in myfile1.txt.

copy con test.txt

A user can create a file using the copy con command as shown above, which creates the test.txt file. Once the above command has been typed in, a user could type in whatever he or she wishes. When you have completed creating the file, you can save and exit the file by pressing **CTRL+Z**, and then press enter.

2. DEL : Del is a command used to delete files from the computer.

Syntax :

Windows 2000 and Windows XP syntax

Deletes one or more files.

DEL [/P] [/F] [/S] [/Q] [/A[[:]attributes]] names

ERASE [/P] [/F] [/S] [/Q] [/A[[:]attributes]] names

names- Specifies a list of one or more files or directories. Wildcards may be used to delete multiple files. If a directory is specified, all files within the directory will be deleted.

/P Prompts for confirmation before deleting each file.

/F Force deleting of read-only files.

/S Delete specified files from all subdirectories.

/Q Quiet mode, do not ask if ok to delete on global wildcard

/A Selects files to delete based on attributes

attributes R - Read-only files, S - System files, H - Hidden files, A - Files ready for archiving

Windows 2000 and Windows XP recovery console syntax

Deletes one file.

del [drive:][path]filename

delete [drive:][path]filename

[drive:][path]filenameSpecifies the file to delete.

Delete only operates within the system directories of the current Windows installation, removable media, the root directory of any hard disk partition, or the local installation sources.

Del and delete do not support replaceable parameters (wild cards).

del test.tmp = Deletes the test.tmp in the directory that you currently are in, if the file exists.

del c:\windows\test.tmp = Delete the c:\windows\test.tmp in the windows directory if it exists.

del c:\windows\temp*.* = (* is for wild character(s)) *.* indicates that you would like to delete all files in the c:\windows\ temp directory.

In the previous directory structure, to delete all the files having the .PAS extension under PROJ2, the command will be :

Del A:\PROJECT\PROJ2*.PAS/P

This command will be carried out by displaying all PAS file names for confirmation i.e.

ONE.PAS Delete (Y/N) ? Y

TWO.PAS Delete (Y/N) ? Y

THREE.PAS Delete (Y/N) ? N

3. ***REN (RENAME) :*** Used to rename files and directories from the original name to a new name.

In earlier releases of MS-DOS instead of using ren or rename you need to use the move command to rename your MS-DOS directories or files.

Syntax :

Renames a file/directory or files/directories.

RENAME *[drive:][path][directoryname1 | filename1] [directoryname2 | filename2]*

REN [drive:][path][directoryname1 | filename1] [directoryname2 | filename2]

Note that you cannot specify a new drive or path for your destination.

rename c:\chope hope

Rename the directory chope to hope.

rename *.txt *.bak

Rename all text files to files with .bak extension.

In our example to rename file CL DAT as CLASS DAT under PROJECT, the command will be -

REN A:\PROJECT\CL DAT CLASS DAT

4. ***TYPE :*** Allows the user to see the contents of a file.

To edit the files, the user would need to use either edit or copy con.

Syntax :

Displays the contents of text files.

TYPE [drive:][path]filename

Examples :

type c:\autoexec.bat

This would allow us to look at the autoexec. bat file.

In our example, to display the content of the file 1995 sal under yearly subdirectory, the command will be as follows :

TYPE A:\SALARY\YEARLY\1995 SAL

Directory Commands : In this section four internal commands of DOS will be discussed.

5. DIR : The dir command allows you to see the available files in the current and/or parent directories.

Microsoft Windows 2000 and Windows XP syntax

Displays a list of files and subdirectories in a directory.

DIR [drive:][path][filename]	[/A[[:]attributes]] [/B] [/C] [/D] [/L] [/N] [/O[[:]sortorder]] [/P] [/Q] [/S] [/T[[:]timefield]] [/W] [/X] [/4]
[drive:][path][filename] -	Specifies drive, directory, and/or files to list.
/attributes	D Directories R Read-only files H Hidden files A Files ready for archiving S System files - Prefix meaning not
/B	Uses bare format (no heading information or summary).
/C	Display the thousand separator in file sizes. This is the default. Use /-C to disable display of separator.
/D	Same as wide but files are list sorted by column.
/L	Uses lowercase.
/N	New long list format where filenames are on the far right.
/O	List by files in sorted order.
sortorder	N By name (alphabetic) S By size (smallest first)

	E By extension (alphabetic) D By date/time (oldest first) G Group directories first - Prefix to reverse order
/P	Pauses after each screenful of information.
/Q	Display the owner of the file.
/S	Displays files in specified directory and all subdirectories.
/T	Controls which time field displayed or used for sorting
timefield	C Creation A Last Access W Last Written
/W	Uses wide list format.
/X	This displays the short names generated for non-8dot3 file names. The format is that of /N with the short name inserted before the long name. If no short name is present, blanks are displayed in its place.
/4	Displays four-digit years

Examples:

dir

Lists all files and directories in the directory that you are currently in.

dir /ad

List only the directories in the current directory. If you need to move into one of the directories listed use the cd command.

dir /s

Lists the files in the directory that you are in and all sub directories after that directory, if you are at root “C:\>” and type this command this will list to you every file and directory on the C: drive of the computer.

dir /p

If the directory has a lot of files and you cannot read all the files as they scroll by, you can use this command and it will display all files one page at a time.

dir /w

If you don't need the info on the date / time and other information on the files, you can use this command to list just the files and directories going horizontally, taking as little as space needed.

dir /s /w /p

This would list all the files and directories in the current directory and the sub directories after that, in wide format and one page at a time.

dir /on

List the files in alphabetical order by the names of the files.

dir /o-n

List the files in reverse alphabetical order by the names of the files.

dir \ /s |find "i" |more

A nice command to list all directories on the hard drive, one screen page at a time, and see the number of files in each directory and the amount of space each occupies.

dir > myfile.txt

Takes the output of dir and re-routes it to the file myfile.txt instead of outputting it to the screen.

6. ***CHDIR/CD :*** CD (Change Directory) is a command used to switch directories in MS-DOS. For example, if you needed to run Windows 3.11 from DOS, you would type:

cd windows - Changing the directory to Windows;

win - To run the win.com file within the windows directory.

Syntax :

CHDIR [drive:][path]

CHDIR[..]

CD [drive:][path]

CD[..]

Examples :

cd

Goes to the highest level, the root of the drive.

cd..

Goes back one directory. For example, if you are within the C:\Windows\ COMMAND> directory, this would take you to C:\Windows>

Windows 95, 98, and later versions have a feature in the CD command that allows you to go back more than one directory when using the dots. For example, typing: **cd...** with three dots after the cd would take you back two directories.

cd windows

If present, would take you into the Windows directory. Windows can be substituted with any other name.

cd \windows

If present, would first move back to the root of the drive and then go into the Windows directory.

cd windows\system32

If present, would move into the system32 directory located in the Windows directory. If at any time you need to see what directories are available in the directory you're currently in use the dir command.

7. ***MKDIR (MD) :*** Allows you to create your own directories in MS-DOS.

Syntax :

Creates a directory.

MKDIR [drive:]path

MD [drive:]path

Examples :

md test

The above example creates the "test" directory in the directory you are currently in.

md c:\test

Create the "test" directory in the c:\ directory.

8. ***RMDIR (RD) :*** Removes empty directories in MS-DOS. To delete directories with files or directories within them the user must use the deltree command, or if you are running Microsoft Windows 2000 or Windows XP use the /S option.

Syntax :

Removes (deletes) a directory.

RMDIR [drive:]path

RD [drive:]path

Windows 2000 and Windows XP Syntax.

RMDIR [/S] [/Q] [drive:]path

RD [/S] [/Q] [drive:]path

S Removes all directories and files in the specified directory in addition to the directory itself. Used to remove a directory tree.

/Q Quiet mode, do not ask if ok to remove a directory tree with /S.

Examples :

rmdir c:\test

Remove the test directory, if empty. If you want to delete directories that are full, use the deltree command or if you're using Windows 2000 or later use the below example.

rmdir c:\test /s

Windows 2000, Windows XP and later versions of Windows can use this option with a prompt to permanently delete the test directory and all subdirectories and files. Adding the /q switch would suppress the prompt.

Miscellaneous Commands :

In this section, we will discuss some miscellaneous commands of MSDOS.

i) ***Break :*** Break can be used to enable or disable the breaking capability of the computer. For example, if a user wanted to cancel a batch file or another MS-DOS processes, that user could simply press CTRL + C (break), which would then prompt the user if they wish to cancel the current process.

Turning break off will cancel CTRL + C; however, the user will still

be able to press CTRL + PAUSE/BREAK and have the capability of getting out of a batch file current running process.

Note : Newer versions of Windows (Windows ME, Windows 2000, Windows XP, and higher) only include this command for backwards compatibility and turning the break off has no effect.

Syntax :

Sets or clears extended CTRL+C checking.

BREAK [ON | OFF]

Type BREAK without a parameter to display the current BREAK setting.

Examples :

break on

Turns on the break, which allows the Ctrl + C function.

break off

Turns off the break, not allowing Ctrl + C to cancel a process.

ii) ***CLS :*** Cls is a command that allows a user to clear the complete contents of the screen and leave only a prompt.

Syntax :

CLS

Examples :

cls

Running the cls command at the command prompt would clear your screen of all previous text and only return the prompt.

iii) ***DATE :*** Displays or sets the date.

Syntax :

DATE [date]

Type DATE without parameters to display the current date setting and a prompt for a new one. Press ENTER to keep the same date.

Examples :

date

Display the current date and prompt for a new one. If no date is entered, the current date will be kept.

iv) PATH : Path is used to specify the location where MS-DOS looks when using a command. For example, when using the command "format", if the path is not specified to where the command is you will receive bad command or file name.

Syntax :

Displays or sets a search path for executable files.

PATH [[drive:]path[;...]]

Type PATH ; to clear all search-path settings and direct Windows to search only in the current directory.

Type PATH without parameters to display the current path.

Examples :

path=c:\windows\command

This is where a lot of DOS commands are stored in Window 95; if you are not able to do a dos command, type this command in, allowing all commands you type in, such as "deltree", to be loaded from this directory. However, if you have another file in another directory such as C:\DOS it will no longer look there.

v) TIME : Allows the user to view and edit the computer's time.

Syntax :

Displays or sets the system time.

TIME [time]

Type TIME with no parameters to display the current time setting and a prompt for a new one. Press ENTER to keep the same time.

Examples :

time 12:00

Set the time to 12:00

vi) VER : Displays the version of MS-DOS or if running Windows 95 or above the version of Windows. Information about Windows versions can be found on our Windows version page.

Syntax :

Displays the MS-DOS version.

VER

Examples :

ver

Display what version of MS-DOS or Windows command prompt you're using. An example of what this may look like is:

Microsoft Windows XP [Version 5.1.2600]

vii) VOL : Displays the volume information about the designated drive.

Syntax :

Displays the disk volume label and serial number, if they exist.

VOL [drive:]

Examples :

vol c :

Display the volume of drive C: as shown in the below example.

Volume in drive C has no label.

Volume Serial Number is 1C24-AB20

B) External Commands : It has already been mentioned that external commands are those, for which specifications are not available within COMMAND.COM. Some important external commands are discussed in this section.

1. COMP : A simple compare that compares two or more files.

Syntax :

Compares the contents of two files or sets of files.

COMP [data1] [data2] [/D] [/A] [/L] [/N=number] [/C]

data1	Specifies location and name(s) of first file(s) to compare.
data2	Specifies location and name(s) of second files to compare.
/D	Displays differences in decimal format.
/A	Displays differences in ASCII characters.
/L	Displays line numbers for differences.
/N=number	Compares only the first specified number of lines in

each file.

/C Disregards case of ASCII letters when comparing files.

To compare sets of files, use wildcards in data1 and data2 parameters.

Examples :

Note : Unless the /N option is used the comp command will only compare the size of the file.

comp file1.txt file2.txt /N=10 /A

Compares file1.txt with file2.txt. In this example we are using the /A option to display the ASCII characters that the compare has found different. If the /A option is not displayed, the comp command will display the differences in hexadecimal notation.

2. ***FORMAT :*** Format is used to erase all of the information off of a computer diskette or fixed drive.

Syntax :

Microsoft Windows 2000 and Windows XP syntax

Formats a disk for use with Windows 2000.

FORMAT volume [/FS:file-system] [/V:label] [/Q] [/A:size] [/C] [/X]

FORMAT volume [/V:label] [/Q] [/F:size]

FORMAT volume [/V:label] [/Q] [/T:tracks /N:sectors]

FORMAT volume [/V:label] [/Q] [/1] [/4]

FORMAT volume [/Q] [/1] [/4] [/8]

volume Specifies the drive letter (followed by a colon), mount point, or volume name.

/FS:filesystem Specifies the type of the file system (FAT, FAT32, or NTFS).

/V:label Specifies the volume label.

/Q Performs a quick format.

/C Files created on the new volume will be compressed by default.

/X Forces the volume to dismount first if necessary. All opened handles to the volume would no longer be valid.

/A:size	Overrides the default allocation unit size. Default settings are strongly recommended for general use. NTFS supports 512, 1024, 2048, 4096, 8192, 16K, 32K, 64K. FAT supports 512, 1024, 2048, 4096, 8192, 16K, 32K, 64K, (128K, 256K for sector size > 512 bytes). FAT32 supports 512, 1024, 2048, 4096, 8192, 16K, 32K, 64K, (128K, 256K for sector size > 512 bytes). Note that the FAT and FAT32 files systems impose the below restrictions on the number of clusters on a volume: FAT: Number of clusters <= 65526 FAT32: 65526 < Number of clusters < 268435446 Format will immediately stop processing if it decides that the above requirements cannot be met using the specified cluster size. NTFS compression is not supported for allocation unit sizes above 4096.
/F:size	Specifies the size of the floppy disk to format (160,180, 320, 360, 640, 720, 1.2, 1.23, 1.44, 2.88, or 20.8).
/T:tracks	Specifies the number of tracks per disk side.
/N:sectors	Specifies the number of sectors per track.
/1	Formats a single side of a floppy disk.
/4	Formats a 5.25-inch 360K floppy disk in a high-density drive.
/8	Formats eight sectors per track.

3. ***LABEL :*** Label is used to view or change the label of the computer disk drives.

Syntax :

Creates, changes, or deletes the volume label of a disk.

LABEL [drive:][label]

Examples :

label a: mydisk

This would label the disk currently in the drive to “mydisk”, but will not label if your disk is write protected.

4. MEM : Allows you to determine the available, used and free memory.

Syntax :

Displays the amount of used and free memory in your system.

MEM [/CLASSIFY | /DEBUG | /FREE | /MODULE module name] [/PAGE]

/CLASSIFY or /C	Classifies programs by memory usage. Lists the size of programs, provides a summary of memory in use, and lists largest memory block available.
/DEBUG or /D	Displays status of all modules in memory, internal drivers, and other information.
/FREE or /F	Displays information about the amount of free memory left in both conventional and upper memory.
/MODULE or /M	Displays a detailed listing of a module’s memory use. This option must be followed by the name of a module, optionally separated from /M by a colon.
/PAGE or /P	Pauses after each screen full of information.

Examples :

mem

This would display information about your memory as seen in the examples below.

Windows 2000 and Windows XP example output:

655360 bytes total conventional memory

655360 bytes available to MS-DOS

633872 largest executable program size

1048576 bytes total contiguous extended memory

0 bytes available contiguous extended memory

941056 bytes available XMS memory

MS-DOS resident in High Memory Area

mem /f

Display the amount of conventional memory free.

5. ***PRINT :*** Print was first introduced in MS-DOS 2.0 as PRINT.COM and later was changed to PRINT.EXE in MS-DOS 5.0 and above. This command allowed users to print a text file to a line printer, in the background.

Syntax :

print	*/d:device /b:size /u:ticks1 /m:ticks2*
	drive:\path\ filename /c /p
/d:device	Name of printer device
	Printer Ports: LPT1, LPT2 orLPT3
	Serial Ports:Com1, Com2, Com3 or Com4
/b:size	Sets size (in bytes) of internal buffer. Default=512 with range of 512 to 16384.
/u:ticks1	Maximum number of clock ticks PRINT is to wait for a printer to become available. Default=1 with a range of 1 to 255.
/m:ticks2	Maximum number of clock ticks PRINT can take to print a character or printer. Default=2 with a range of 1 to 255.
drive:\path\ filename	Location and filename of file to be printed.
/c	Removes files from the print queue.
/p	Adds files to the print queue.

Examples :

print c:\file.txt /c /d:lpt1

Prints the file file.txt to the parallel port lpt1.

6. ***TREE :*** Allows the user to view a listing of files and folders in an easy to read listing.

Syntax :

TREE Drive:\ Path /f /a

Drive:\Path Drive and directory containing disk for display of directory structure.

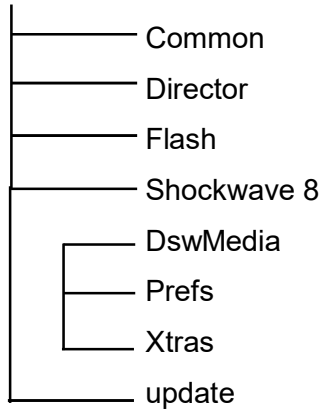
/f Displays file names in each directory. /a ext characters used for linking lines, instead of graphic characters.

/a is used with code pages that do not support graphic characters and to send output to printers that do not properly interpret graphic characters.

Examples :

tree

List a tree listing of the current drive. A basic example of what a directory may look like is given below.



7. XCOPY : Xcopy is a powerful version of the copy command with additional features; has the capability of moving files, directories, and even whole drives from one location to another.

Syntax :

Windows 2000 and XP xcopy syntax

XCOPY source [destination] [/A | /M] [/D[:date]] [/P] [/S [/E]] [/V] [/W] [/C] [/I] [/Q] [/F] [/L] [/H] [/R] [/T] [/U] [/K] [/N] [/O] [/X] [/Y] [/-Y] [/Z] [/EXCLUDE: file1[+file2][+file3]...]

source Specifies the file(s) to copy.

destination Specifies the location and/or name of new files.

/A Copies only files with the archive attribute set, doesn't

change the attribute.

/M Copies only files with the archive attribute set, turns off the archive attribute.

/D:m-d-y Copies files changed on or after the specified date. If no date is given, copies only those files whose source time is newer than the destination time.

/EXCLUDE: file1 [+file2][+file3]... Specifies a list of files containing strings. When any of the strings match any part of the absolute path of the file to be copied, that file will be excluded from being copied. For example, specifying a string like \obj\ or .obj will exclude all files underneath the directory obj or all files with the .obj extension respectively.

/P Prompts you before creating each destination file.

/S Copies directories and subdirectories except empty ones.

/E Copies directories and subdirectories, including empty ones. Same as /S /E. May be used to modify /T. /V Verifies each new file.

/W Prompts you to press a key before copying.

/C Continues copying even if errors occur.

/I If destination does not exist and copying more than one file, assumes that destination must be a directory.

/Q Does not display file names while copying.

/F Displays full source and destination file names while copying.

/L Displays files that would be copied.

/H Copies hidden and system files also.

/R Overwrites read-only files.

/T Creates directory structure, but does not copy files. Does not include empty directories or subdirectories. /T /E includes empty directories and subdirectories.

/U Copies only files that already exist in destination.

/K Copies attributes. Normal Xcopy will reset read-only

attributes.

/N	Copies using the generated short names.
/O	Copies file ownership and ACL information.
/X	Copies file audit settings (implies /O).
/Y	Suppresses prompting to confirm you want to overwrite an existing destination file.
/-Y	Causes prompting to confirm you want to overwrite an existing destination file.
/Z	Copies networked files in restartable mode.

Examples :

xcopy c:\temp /e

The above example is the basic xcopy command to copy the files, directories, and subdirectories to the directory you're currently in.

xcopy "c:\documents and settings\hope" /e

In the above example the xcopy command would copy all files and directories in the user "hope" directory to the directory or drive you're currently in.

xcopy h:*.* /a /e /k

The above command would copy everything located on the H drive to the drive you are currently on.

2.9 BATCH FILE

In MS-DOS, OS/2, and Windows, a **batch file** is a text file containing a series of commands intended to be executed by the command interpreter. When a batch file is run, the shell program (usually COMMAND.COM or cmd.exe) reads the file and executes its commands, normally line-by-line. A batch file is analogous to a shell script in Unix-like operating systems.

Batch files are useful for running a sequence of executables automatically. Many system administrators use them to automate tedious processes. Although batch files support elementary program flow commands such as *if* and *goto*, they are not well-suited for general-purpose programming.

DOS batch files have the filename extension .BAT. Batch files for other environments may have different extensions, e.g. .CMD in Windows NT and OS/2, or .BTM in 4DOS and related shells.

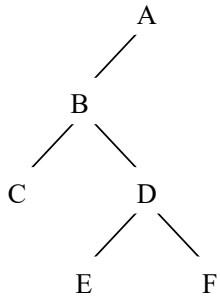
File extension : .bat .cmd .btm

Type of format : Scripting



CHECK YOUR PROGRSS

Q 1: It is required to create six directories viz. A,B,C,D,E,F. These directories should follow the hierarchy shown in the following tree.



The directory A should be created in the root directory of drive C. Give the sequence of MS-DOS commands which would yeild the desired results.

.....

.....

.....

Q 2: How the DOS XCOPY command differ from DOS COPY command.

.....

.....

.....

Q 3: Many times, the computer goes into hang. Which key combination is used to reboot the system?

.....

.....



2.10 LET US SUM UP

- MS-DOS is an acronym for Microsoft Disk Operating System, first released in August 1981.
- Loading of DOS into main memory is known as booting.
- The three system files of MS-DOS are loaded in order of IO.SYS, MSDOS.SYS and COMMAND.COM
- DOS commands are of two types : internal and external.
- Internal commands are those that are directly interpreted by the command processor, COMMAND.COM.
- External commands are those that are interpreted with the help of external files (with extension .COM or .EXE)
- Storage area on a disk are known as directories. A directory may contain files and/or subdirectories inside it.
- Path is a sequence of directory names which give you the hierarchy to access a particular directory or file name.
- The full name of a file or directory (including path) is also called path.
- Some DOS internal commands are COPY, DEL/ERASE, REN, TYPE, DIR, CHDIR/CD, MKDIR/MD, RMDIR/RD, BREAK, CLS, DATE, TIME, PATH, VER etc.
- Some external commands are DISKCOMP, DISKCOPY, FORMAT, LABEL, MEM, PRINT, TREE, XCOPY etc.
- Batches of MS-DOS commands stored under a filename with extension. BAT are known as batch files.
- The batch file with the name AUTOEXEC.BAT is automatically executed by MS-DOS at the time of booting.



2.11 FURTHER READING

1) Norton, P. (1989). Peter Norton's DOS guide. Brady.

2) Thomas, R. M. (1993). DOS 6.2 Instant Reference. SYBEX Inc.



2.12 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: C>MD A

C>MD C:\A\B

omitting C: as it is the current i.e. dafault drive

C>MD \A\B\C

C>MD \A\B\D

C>MD \A\B\D\E

C>MD \A\B\D\F

Or alternatively

C>MD A

C>CD A

C>MD B

C>CD B

C>MD C

C>MD D

C>CD D

C>MD E

C>MD F

Ans to Q No 2: COPY can only copy the specified files from one directory only whereas XCOPY /s can copy the files from subdirectories also. COPY can not ask for confirmation before copying files whereas XCOPY /p can ask for confirmation also.

Ans to Q No 3: Ctrl + Alt + Del



2.13 MODEL QUESTIONS

Q 1: Define kernel and shell. What are their roles ?

Q 2: What are internal and external commands? How are they different ?

Q 3: Write the purpose of the following commands? Also state whether

they are internal or external commands.

TYPE, PROMPT, DISKCOPY, MEM

Q 4: Write the purpose of the following commands? Also state whether the following are internal or external commands.

RD, VER,MEM, LABEL, FORMAT

Q 5: What functions do the following commands perform:

a) DISKCOPY b) DISKCOMP

Q 6: How is XCOPY a better copy command then COPY?

*** ***** ***

UNIT 3 : MICROSOFT WINDOWS OPERATING SYSTEM

UNIT STRUCTURE

3.1 Learning Objectives

3.2 Introduction

3.3 Windows Operating System

- 3.3.1 Features of Microsoft Windows

3.4 History of Windows

- 3.4.1 Windows 1.0 to Windows 3.1
- 3.4.2 Windows 95 to Windows ME
- 3.4.3 Windows XP to Windows 11

3.5 Desktop and Start Menu

- 3.5.1 Introduction to Desktop
- 3.5.2 Customizing Desktop

3.6 Let Us Sum Up

3.7 Further Readings

3.8 Answers to Check Your Progress

3.9 Model Questions

3.1 LEARNING OBJECTIVES

After going through this unit, you will be able to

- identify the key features of Microsoft Windows, including its user interface, software and hardware compatibility, and multitasking capabilities.
- describe the evolution of Microsoft Windows, from its early versions in the 1980s to the latest version, Windows 11.
- analyze the historical significance of Windows, including its impact on the personal computer industry and the ways in which it has transformed the way people interact with technology.
- evaluate the benefits and drawbacks of customizing the Windows desktop, including options for changing backgrounds, icons, and

other settings.

- demonstrate proficiency in using the Windows Start menu, including the ability to navigate between different applications, search for files, and customize the layout of the menu.
- understand the basic functions of Windows File Explorer, including the ability to manage files and folders, navigate between different directories, and search for specific files.
- apply critical thinking skills to evaluate the usefulness of different Windows features for specific tasks or scenarios, such as creating documents, organizing files, or running specialized software applications.

3.2 INTRODUCTION

Microsoft Windows is one of the most widely used operating systems in the world. Its user-friendly interface, compatibility with a wide range of hardware and software, and ability to run multiple programs simultaneously have made it a popular choice for both personal and professional use. Over the years, Windows has undergone significant evolution, from its early versions in the 1980s to the latest release, Windows 11. This unit will explore the features of Microsoft Windows, its evolution over time, and the history of the operating system. Additionally, we will examine the desktop and Start menu, as well as the Files Explorer, and learn how to customize them to suit individual preferences. By the end of this unit, learners will have a comprehensive understanding of Windows and be able to utilize its features and functions with ease.

3.3 WINDOWS OPERATING SYSTEM

Windows is a popular operating system (OS) developed by Microsoft Corporation. It was first released in 1985 and has since undergone multiple updates and improvements. Windows OS is used by millions of people worldwide on personal computers, laptops, tablets, and other devices.

3.3.1 Features of Microsoft Windows

Some of the important features of Windows operating system include:

- User-friendly interface: Windows has a user-friendly graphical user interface that makes it easy for users to navigate and access the features and functions they need.
- Compatibility with software and hardware: Windows is compatible with a wide range of software and hardware, making it easier for users to find and use the tools and applications they need.
- Customizability: Windows allows users to customize their desktops and applications to suit their personal preferences and work styles.
- Security: Windows includes built-in security features such as antivirus software and a firewall, helping to protect users from online threats.
- Productivity: Windows provides users with a range of productivity tools such as Microsoft Office, which helps users to create and manage documents, spreadsheets, and presentations.
- Gaming: Windows is widely considered the best platform for gaming, with a wide range of games available and support for advanced graphics and sound.

Overall, Windows has become an essential tool for businesses, individuals, and organizations of all sizes, providing a reliable and powerful platform for productivity, communication, and entertainment.

3.4 HISTORY OF WINDOWS OPERATING SYSTEM

Windows Operating System has come a long way since its initial release of Windows 1.0 in 1985. The evolution of Windows includes significant milestones, such as the introduction of the Start menu in Windows

95, the release of Windows XP with its updated graphical user interface, and the recent release of Windows 11 with its enhanced security features, improved performance, and redesigned user interface. With each new release, Windows continues to provide users with a reliable and user-friendly computing experience.In the following sections, we will briefly discuss various versions of Windows operating system with various features.

3.4.1 Windows 1.0 to Windows 3.1

Windows 1.0 to Windows 3.1 was a series of operating systems released by Microsoft in the 1980s and early 1990s. Here are some notable points about this era of Windows:

- Windows 1.0 was released in 1985 and was the first version of Windows to be released. It was not a standalone operating system, but rather a graphical user interface (GUI) that ran on top of MS-DOS. It featured a tiled interface with a limited number of applications.
- Windows 2.0 was released in 1987 and featured improvements such as overlapping windows, support for keyboard shortcuts, and the ability to run multiple programs at once. It also introduced the control panel, which provided users with more customization options.
- Windows 3.0 was released in 1990 and was a major upgrade over Windows 2.0. It introduced the Program Manager and File Manager, which allowed users to easily manage their files and applications. It also included support for 16-bit applications and improved performance.
- Windows 3.1 was released in 1992 and was the final version of Windows to run on top of MS-DOS. It introduced features such as TrueType fonts, multimedia support, and support for network printing. It was also the first version of Windows to become widely popular among consumers.

3.4.2 Windows 95 to Windows ME

Windows 95 to Windows ME was a series of Microsoft Windows operating systems released between 1995 and 2000. Here are some key points about this era of Windows:

- Windows 95 was released in 1995 and was a major upgrade from the previous Windows 3.1 operating system. It introduced the Start menu and Taskbar, and was the first version of Windows to feature built-in Internet support.
- Windows 98 was released in 1998 and included improved hardware support, USB support, and better integration with the Internet. It also introduced Internet Explorer 4.0.
- Windows 2000 was released in 2000 and was designed for business use. It was based on the Windows NT kernel and included improved security and stability features.
- Windows ME (Millennium Edition) was released in 2000 and was intended to be a more consumer-oriented version of Windows. It included features such as System Restore and Windows Media Player 7, but was criticized for its instability and poor performance.

3.4.3 Windows XP to Windows 11

Here are some key points about the evolution of Windows from XP to 11:

- Windows XP was released in 2001 and was a major overhaul of the Windows operating system, with a redesigned user interface, improved networking and multimedia capabilities, and enhanced security features.
- Windows Vista was released in 2006 and introduced new features like Windows Aero, improved search functionality, and enhanced multimedia capabilities. However, it was also criticized for its heavy system requirements and compatibility issues with older hardware and software.

- Windows 7 was released in 2009 and was praised for its improved performance, streamlined interface, and enhanced security features. It also introduced the concept of libraries, which made it easier to manage files and folders.
- Windows 8 was released in 2012 and introduced a new user interface called Metro, which was optimized for touchscreens and mobile devices. However, it was criticized for its steep learning curve and lack of backward compatibility with older software.
- Windows 8.1 was released in 2013 and addressed some of the criticisms of Windows 8, with improved performance, new features like the Start button, and better integration with cloud services.
- Windows 10 was released in 2015 and was designed to be a universal operating system that could run on desktops, laptops, tablets, and smartphones. It introduced features like Cortana, Microsoft Edge, and virtual desktops, as well as a new update model that provided regular feature updates.
- Windows 11 was released in 2021 and features a refreshed user interface, with rounded corners and a new Start menu. It also introduces new features like Snap Layouts and Snap Groups, which make it easier to organize and multitask with multiple windows.



CHECK YOUR PROGRESS

Q 1: Choose the correct option:

(a) Which version of Windows was the first to introduce the Start menu?

(i) Windows 95 (ii) Windows XP

(iii) Windows Vista (iv) Windows 8

(b) Which version of Windows was designed for business use and based on the Windows NT kernel?

(i) Windows 95 (ii) Windows 2000

(iii) Windows XP (iv) Windows Vista

(c) Which version of Windows introduced the concept of libraries, making it easier to manage files and folders?

(i) Windows 7 (ii) Windows 8

(iii) Windows 8.1 (iv) Windows 10

(d) Which version of Windows was criticized for its instability and poor performance?

(i) Windows 98 (ii) Windows ME

(iii) Windows XP (iv) Windows Vista

(e) Which version of Windows introduced a new user interface called Metro, optimized for touchscreens and mobile devices?

(i) Windows 7 (ii) Windows 8

(iii) Windows 8.1 (iv) Windows 10

3.5 DESKTOP AND START MENU

In the remaining part of this unit, we will discuss the various features of the latest Windows operation system i.e. Windows 11. Windows 11 was released in October 2021, and it includes several changes and improvements to the desktop experience.

5.5.1 Introduction to Desktop

In Windows 11, the desktop is the main graphical interface that appears when you log in to your computer (as shown in Figure 5.1). It's the area where you can see your wallpaper, icons, and various applications and folders that you have on your computer. The desktop is usually the first thing you see after logging in, and it's the starting point for most of your activities on the computer. It's a place where you can launch applications, organize files, and manage your computer's settings. The desktop in Windows 11 has a new design compared to previous versions of Windows, with new features like the centered Start menu and taskbar, snap layouts and groups, and widgets.

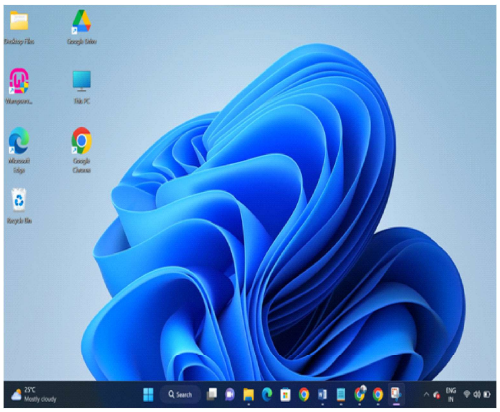


Figure 3.1: Windows 11 Desktop

Let us briefly discuss the various features of the desktop of Windows 11.

- **Start menu and taskbar:** The Start menu in Windows 11 is centered on the taskbar and has a simplified design compared to previous versions. It includes a search box, recently used apps, and pinned apps. The taskbar itself is also redesigned and now has a centered alignment. (as shown in Figure 3.2).



Figure 3.2: Start menu and taskbar

- **New snap layouts and snap groups:** Windows 11 introduces new snap layouts and snap groups that allow you to quickly and easily arrange your open windows on the desktop.To open Snap layouts:

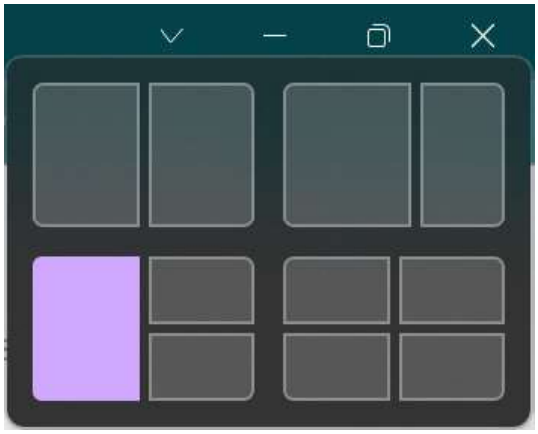
(a) With your keyboard: In the window you would like to snap, press Windows Logo Key + Z to launch the layout box.



(b) With your mouse: In the window you would like to snap, hover over the Minimize or Maximize button to launch the layout box.



Snap groups in Windows allow you to easily organize and access multiple windows related to a specific task or project. When you select a layout and snap every space with selected windows, it becomes a Snap group. If you get interrupted and open a new app, you can easily return to the Snap group by hovering over one of the open apps within the group.



Widgets: Windows 11 brings back widgets to the desktop, providing personalized news, weather, sports scores, and other information directly on the desktop.  This can be done by hitting **+ W**(Figure 3.3).

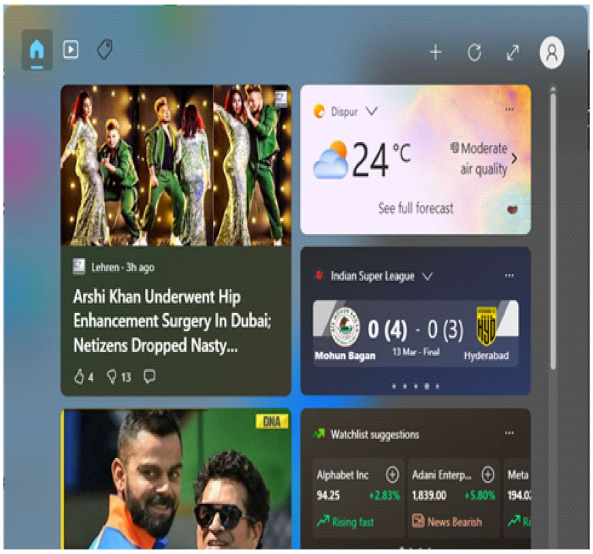


Figure 3.3

Redesigned File Explorer: The File Explorer in Windows 11 has a refreshed design that features rounded corners and new icons (Figure 5.4). It also includes new functionality, such as the ability to quickly access recent files.

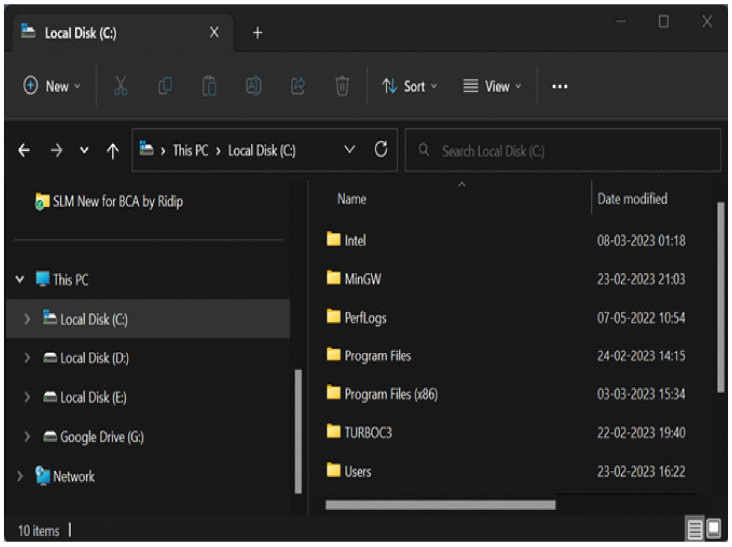


Figure 3.4: File Explorer

Dark mode: Windows 11 includes a system-wide dark mode that can be enabled from the settings menu. To enable the dark mode, go to 

option and type dark mode and click the open button. The following screen will appear (Figure 3.5).

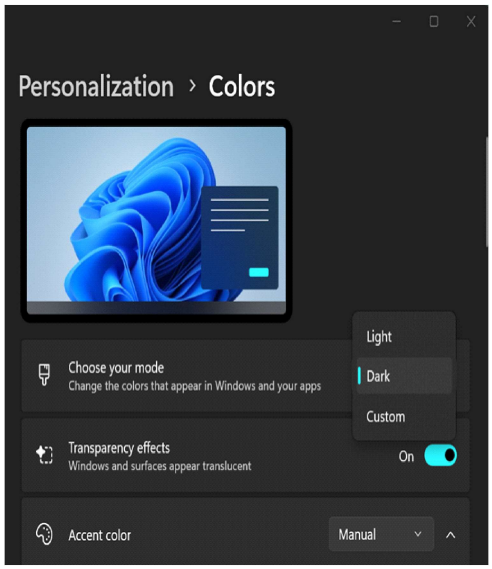


Figure 3.5: Dark Mode Settings

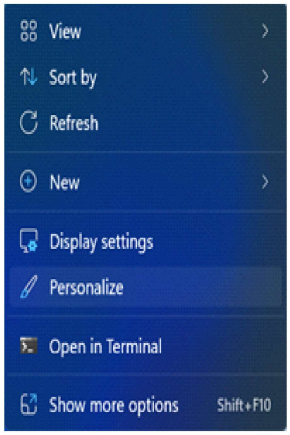
Touch-friendly design: Windows 11 includes a more touch-friendly design with larger touch targets and new touch gestures.

These are some of the important features of the desktop in Windows 11.

5.5.2 Customizing Desktop

You can customize your desktop in Windows 11 by following the steps below:

1. Right-click on your desktop and select “Personalize” from the menu.



In the Personalization settings, you can customize the following options (Figure 3.6):

- **Background:** You can choose a wallpaper or a solid color for your desktop background.
- **Colors:** You can choose a color scheme for your desktop, including the accent color and transparency effects.
- **Lock screen:** You can choose a background image for your lock screen and enable quick status updates.
- **Themes:** You can browse and download themes from the Microsoft Store to change your desktop's overall appearance.
- **Start:** You can choose whether to show recently opened items, full-screen start, and the number of recent items to display in the jump lists.
- **Taskbar:** You can choose where the taskbar appears on your desktop, whether to automatically hide it, and which apps appear in the taskbar.

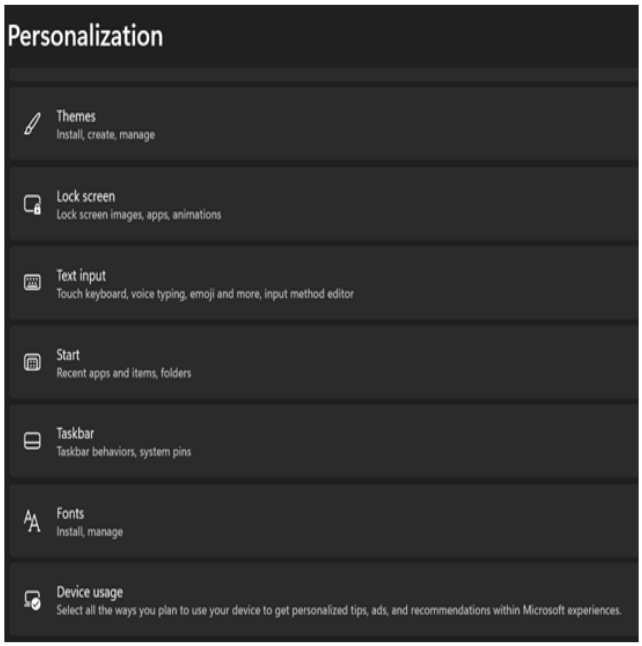


Figure 3.6: Personalization Settings of Desktop

2. To further customize your desktop, you can right-click on the taskbar and select "Taskbar settings" (Figure 3.7). Here, you can customize the following options:

- **Taskbar alignment:** You can choose whether the taskbar appears on the bottom, top, left, or right of your screen.

- **Taskbar behavior:** You can choose whether to automatically hide the taskbar, show taskbar buttons only when they're active, and group taskbar buttons.
- **Taskbar icons:** You can choose which icons appear on the taskbar, including system icons, notification area icons, and app icons.

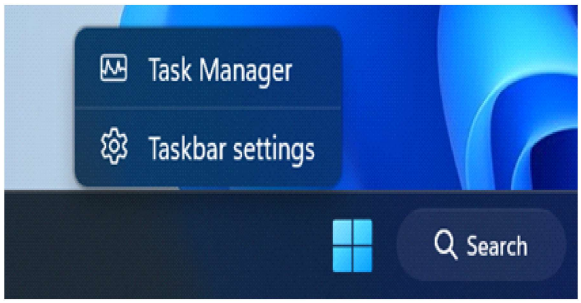


Figure 3.7: Taskbar Settings

To add shortcuts or widgets to your desktop, right-click on your desktop and select "New." Here, you can create shortcuts to files, folders, or programs, or add widgets such as weather, news, or a calendar (Figure 3.8).

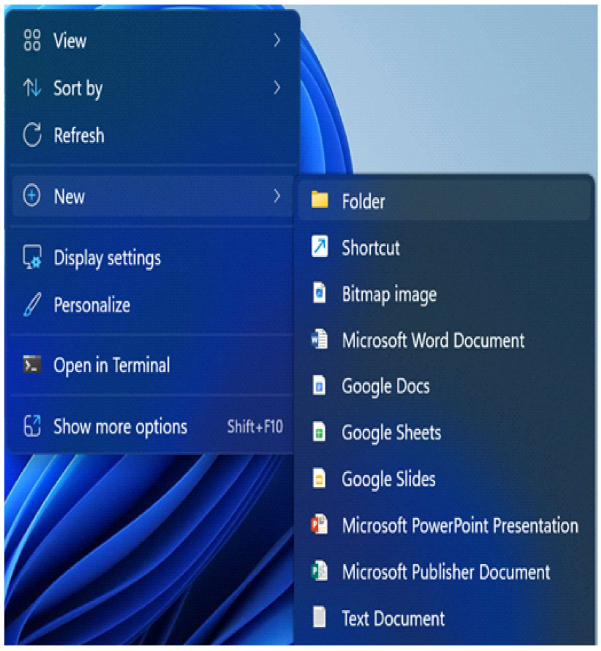


Figure 3.8

You can also customize the appearance of individual icons on your desktop by right-clicking on them and selecting "Properties."

Here, you can change the icon's image, name, and other properties (Figure 3.9).

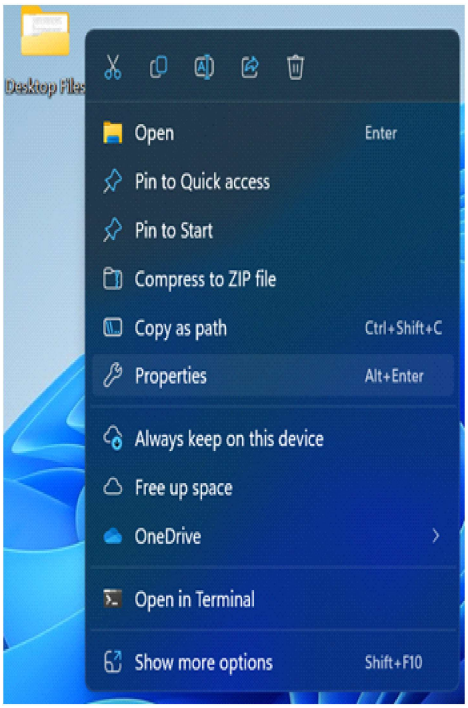


Figure 3.9



3.6 LET US SUM UP

- Windows is a popular operating system developed by Microsoft Corporation, used by millions of people worldwide on personal computers, laptops, tablets, and other devices.
- Some important features of Windows OS include a user-friendly interface, compatibility with software and hardware, customizability, security, productivity tools, and gaming support.
- Windows has evolved significantly since its initial release in 1985, with significant milestones including the introduction of the Start menu, updated graphical user interfaces, and enhanced security features.
- Windows 1.0 to 3.1 were early versions of Windows that ran on top of MS-DOS, introducing features such as tiled interfaces, overlapping windows, and support for 16-bit applications.

- Windows 95 to ME were versions of Windows that introduced significant upgrades such as the Start menu, USB support, improved security, and stability features.
- Windows XP to 11 are the latest versions of Windows that introduced a redesigned user interface, enhanced multimedia capabilities, improved performance, and better integration with cloud services.



3.7 FURTHER READINGS

1) https://www.microsoft.com/en-in/windows/features?r=1



3.8 ANSWERS TO CHECK YOUR PROGRESS

Ans.to Q.No.1: (a) (i) (b) (ii) (c) (i) (d) (ii) (e) (ii)



3.9 MODEL QUESTIONS

Q.1: When was the first version of Windows operating system released?

Q.2: What is the graphical user interface used in Windows called?

Q.3: What are some of the key features of Windows operating system?

Q.4: What is the significance of the Start menu in Windows 95?

Q.5: What was the primary purpose of Windows ME operating system?

Q.6: What were some of the criticisms of Windows Vista?

Q.7: What was the major change introduced in Windows 8 for touchscreens and mobile devices?

Q.8: What is the latest version of Windows operating system?

Q.9: What is the difference between Windows 8 and Windows 8.1?

Q.10: What are some of the improvements made in the recently released Windows 11 operating system?

Q.11: What are the new features of the desktop in Windows 11?

Q.12: How can you open snap layouts in Windows 11?

Q.13: How can you enable dark mode in Windows 11?

Q.14: What customization options are available in the Personalization settings for the Windows 11 desktop?

*** ***** ***

UNIT 4 : LINUX OPERATING SYSTEM

UNIT STRUCTURE

4.1 Learning Objectives

4.2 Introduction

4.3 Open Source and Free Software

4.4 Advantages of Linux

4.5 Disadvantages of Linux

4.6 Linux Booting Process

4.7 Linux Filesystem Hierarchy

4.8 Main Components of Linux Operating System

4.9 Concept of Path

4.10 Basic Linux Commmand

4.11 File Permission

4.12 Text Editor vi

4.13 Let Us Sum Up

4.14 Further Reading

4.15 Answers to Check Your Progress

4.16 Model Questions

4.1 LEARNING OBJECTIVES

After going through this unit, you will be able to :

- understand the advantages and disadvantages of Linux
- discuss the booting process of Linux
- describe about Linux file system hierarchy
- describe various Linux commands.

4.2 INTRODUCTION

In the previous unit, we have discussed the Windows operating system. In this unit we are going to discuss the Linux operating system. Windows operating system is not free and we need to buy it in order to use. In addition, Windows hides the detailed working of the Operating System

from the user and it will not allow the users to see or modify the source code. But in case of Linux Operating system it is completly free and the source code is available for free to use or modify. The advantages of linux operating system are: Better Security, Freedom to use, Multitasking, Flexibility, Stability etc.

In the following section we are going to discuss about the open source and free software as well as concepts on path and various Linux commands.

4.3 OPEN SOURCE AND FREE SOFTWARE

Free software is the software that can be used,modified or studied without restriction. It is generally available without charge, but it can also have a fee, such as in the form of distribution medium like CD or DVD etc.

The free software movement was conceived in 1983 by Richard Stallman to satisfy the need for and to give the benefit of software freedom to computer users.The definition, written by Richard Stallman, is still maintained today and it states that software is free software if the software have the following four freedoms:

- To run the program for any purpose.
- To study how the program works, and change it to make it do what you wish.
- To redistribute copies so you can help your neighbor.
- To improve the program, and release modified versions to the public, so that the whole community benefits.

Free Software and Open Source have more or less the same aims but differ in their philosophy and values. The fundamental difference between the two movements is in their values, their ways of looking at the world as mentioned by GNU Foundations.

For the Open Source movement, non-free software is a suboptimal solution. For the Free Software movement, non-free software is a social problem and free software is the solution.

Open-source software is computer software that is available in source

code form provided under a software license that permits users to study, change, improve and also to distribute the software.

4.4 ADVANTAGES OF LINUX

There are various advantage of Linux operating system as described below:

Cost : Linux is completely free Operating System and we can modify or re-disrtibute the source code without any restrictions. Windows on the other hand, is not free and we have to pay for using it.

Multi User interface : Linux is multi user system i.e. more than one user can interact with the Linux system.

Security : The security aspect of Linux is much stronger than that of Windows.

4.5 DISADVANTAGES OF LINUX

Understanding : It is not so easy to understand the Linux operating clearly. We have to give much care while learning the Linux system.

Alternative Software : There are still some applications that exist on Windows that have no equivalent Linux application.

Compatibility : Though the kernel contributors and maintainers work hard at keeping the kernel up to date to make it compatable with all hardware, sometimes we can not find third party applications.

4.6 LINUX BOOTING PROCESS

Booting is a bootstrapping process that starts operating systems when the user turns on a computer system. Before going to the booting process of linux lets take a look at the general booting process of a machine.

Booting Sequence :

a. Turn On the PC
b. CPU jump to address of BIOS
c. BIOS runs POST (Power-On Self Test)
d. Find bootable devices

e. Loads and execute boot sector from MBR(Master Boot Record)

f. Load the OS to RAM

BIOS (Basic Input Output System) refers to the software code run by a computer when first powered on. Master Boot Record, a small program that is executed when a computer boots up and typically, the MBR resides on the first sector of the hard disk.The main function of POST is to check whether all the hardware component are working properly or not and report the errors if any to the users.

After the POST operation as described above, BIOS loads and execute the partition boot code from the designated boot device which contains phase 1 of a Linux boot loader. Phase 1 loads Phase 2 boot loader. The boot loader often presents the user with a menu of possible boot options. It then loads the operating system. Then it calls the start_kernel() which performs the memory management, device initialization etc and start the init process. The init process starts all the non-operating system services and provides the user with a login screen.

In summary,

– BIOS loads the Phase1 boot loader
– Phase 1 boot loader start Phase 2 boot loader
– Then start-kernel() function is called
– Init process starts
– Init starts all non-operating system services and presents users with login screen.

4.7 LINUX FILESYSTEM HIERARCHY

An interesting thing about Linux is that everything is treated as either a file or directory. Even the hardware is considered as a file which is stored in the /dev directory. Linux dosen't use drive letters to distinguish between different partitions and devices. The "root" is denoted as.

Drives in linux are "mounted" to the specific directories(e.g /mnt/pen_drive, you need to create **pen_drive** directory) where their data can then be accessed. So, for instance, if you need to use your thumbdrive, you

would plug it into your computer and then mount it using the “mount” command, which specifies the path to the device.

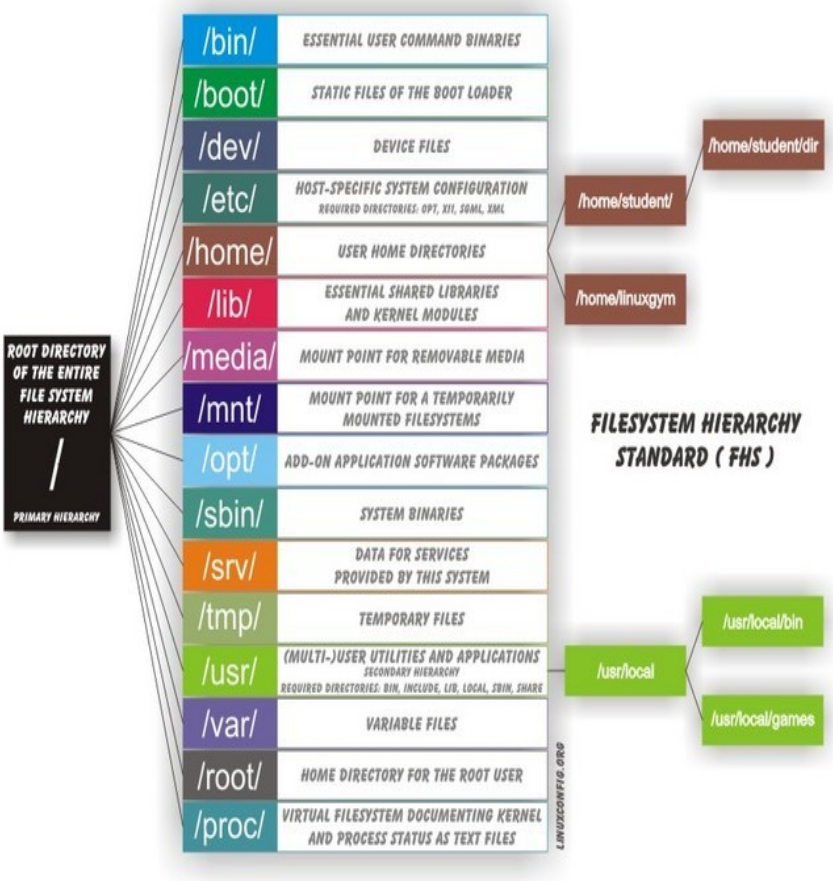


Figure 4.1: Root directory

The image above shows the linux filesystem hierarchy and is described in brief below:

/

this is the root folder, all other folders come under root. We can consider it as C: drive in Windows context.

/bin

this folder contains all the user-essential binaries programs .e.g cp, ls etc.

/boot

It contains configuration files and other necessary files that are needed by the bootloader

/dev

This folder contains device files.

/etc

This folder contains all the configuration files used by the system.

/home

This contains the home folders of all the normal users on the system.

/lib

It contains software libraries

/media

This is a mount point for removable devices

/mnt

This is a temporary mount point

/opt

This folder contains add on software

/sbin

This folder contains binaries that can only be run as the root user

/tmp

This folder contains temporary files that are erased upon reboot

/usr

This folder and its subfolders contains user installed programs and utilities and libraries

/var

This folder contains files that change a lot. e.g contains log files.

/root

This folder contians the root user's files

/proc

This folder contains information about the Linux kernel and hardware that is updated in realtime.

Linux supports numerous file system types as described below in brief:

Ext2 : It uses the concepts of blocks, inodes and directories.

Ext3 : It is the enhanced version of ext2 file system with journalling capabilities. Journalling allows fast file system recovery.

Sysfs : It is a ram-based filesystem initially based on ramfs. It is

used to exporting kernel objects so that end user can use it easily.

Procfs : The proc file system acts as an interface to internal data structures in the kernel. It can be used to obtain information about the system and to change certain kernel parameters at runtime using sysctl command.

4.8 MAIN COMPONENTS OF LINUX OPERATING SYSTEM

The Linux operating system is made up of three parts: the kernel, the shell and the programs.

The kernel : The kernel is the hub of Linux operating system. We can consider it as a bridge between applications and the actual data processing done at the hardware level.

The main function of kernel includes memory management, device management, process management etc.

The Shell : It acts as an interface between the user and the kernel. Shell is also known as command line interpreter. When the user types the command, shell executes the command according to the order of the command.

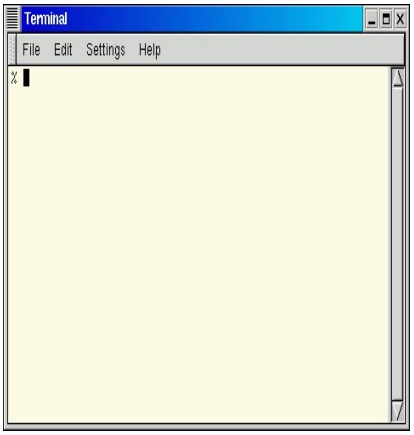


Figure 4.2: The Terminal

Programs : This are the program used for general application like copying file using **cp**,creating directory **mkdir.** The shell provides the interface for such program.

4.9 CONCEPT OF PATH

In Linux, all file systems (Hard Disks, CD-ROMs, Floppy Disks, ZIP drives, network mounts, etc…) are “mounted” onto one logical tree. The top of the hierarchy is traditionally called **root** which is represented by a **/** (**slash**). In Linux, everything is treated as a file. A directory is a file. It is a file that contains a list of files and information belonging to those files. This would include details like who “owns” (created) the file, how long it is, and who can use it. Since a directory is simply a list of files, it can contain any file in it, including other directories.

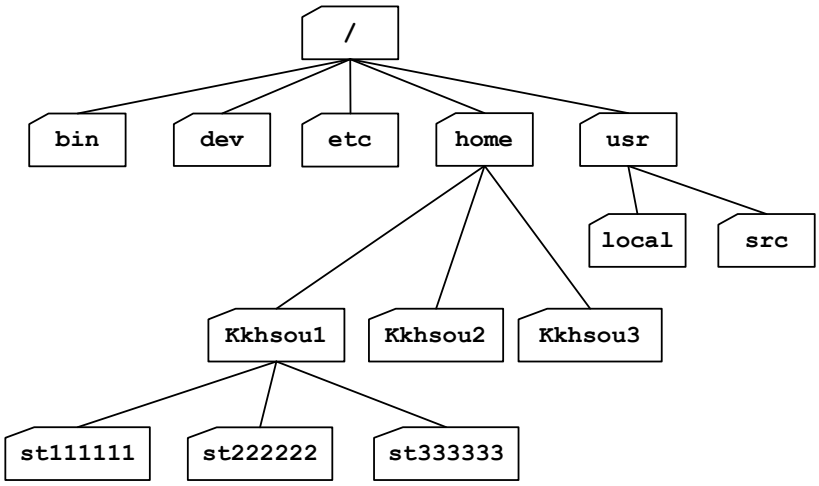


Figure 4.3 : Part of file-system tree

You can specify a file or directory by its path name. There are two ways of expressing the path name: Full (absolute) path name or Relative path name. The full path name starts with the root. /, and follows the branches of the file system, each separated by /, until you reach the desired file.

However, a relative path name specifies the path relative to your current working directory. Relative path names are more convenient because they are shorter, but must be used with care. They never begin with / (slash). There are two special directory entries:

- the current directory
- the parent directory

As an example, (Using figure 10.3) assume that your current working directory (your current position in the file system) is **kkhsou1**:

1. A file named "**test.txt**" is placed inside the directory "**st111111**".
   The absolute (full) name is : ***/home/kkhsou1/st111111/test.txt***
   The relative name is : ***st111111/test.txt*** OR ***./st111111/test.txt***
2. A directory named "**DEC**" is placed inside the directory "**kkhsou2**".
   The absolute (full) name is : **/home/kkhsou2/DEC**
   The relative name is : **../kkhsou2/DEC**
3. A file named "**csh**" is placed inside the directory "**bin**".
   The absolute (full) name is : **/bin/csh**
   The relative name is : **../../bin/csh**
4. A directory named "**st123456**" is placed inside the directory "**kkhsou1**".
   The absolute (full) name is : **/home/kkhsou1/st123456**
   The relative name is : **st123456** OR **./st123456**



CHECK YOUR PROGRESS

Q 1: Write the purpose of the following directory in LINUX:

/var

/tmp

/proc

Q 2: Mention the main component of LINUX.

Q 3: Write the two the advantage of Linux.

4.10 BASIC LINUX COMMANDS

Directory Handling Command :

1. ls (list) :

ls command is used to lists the contents of the current working directory. To list the hidden files we can use:

ls -a

The output of the above command will show all the files which name starts with dot(.). In Linux, hidden file names are prefixed with dots(.).

Some other options along with its functions are given below .

Options	**Purpose**
ls -x	get multi-columnar output.
-r	list files and sub-directories in reverse order
-t	list files and sub-directories with time order.
-a	list all files, including the normally hidden files
-c	list files by inode modification time.
-i	list the inode for each file.
-l	display permission, owner, size, modification, time ect along with file and directory names.
-h	display names of hidden files
-q	display filenames having non-printable character.

2. mkdir (make directory) :

This command is used to create the directory. For example, to create a directory **data** we can use as **:**

Syntax : **mkdir data**

3. pwd (print working directory) :

To find out the absolute pathname of the currently working directory use the following command:

Syntax : **pwd**

4. cp (copy)

Syntax : **cp file1 file2**

It makes a copy of file1 in the current working directory and calls it file 2**.**

5. rm (remove), rmdir (remove directory) :

Syntax : **rm test.c**

rmdir software

rm command is used to delete a file (here test.c) and rmdir is used to delete a directory (here software).

6. cd :

Syntax : **cd test** (where soft is a directory)

This command is used to change the directory.

Other Commands :

1. cat (concatenate)

Syntax : **cat hosts**

The command cat can be used to display the contents of a file on the screen.

2. less :

Syntax : **less text1.txt**

The command **less** writes the contents of a file onto the screen one page at a time.

3. head :

Syntax : **head -N kkhsou.txt**

The head command writes the first N lines of a file to the screen.

4. **tail :**

Syntax : **tail -N science.txt**

The tail command writes the last N lines of a file to the screen.

5. grep :

Syntax : **grep kkhsou text1.txt**

It searches files for specified words or patterns. For example the above command searches the word 'kkhsou' in 'text1.txt' files.

6. **wc (word count) :**

Syntax : **wc -w text1.txt**

wc -l text1.txt

wc command with -w is used to count number of words in a particular file. Also with –l option in wc can be used to count the number of lines in a particular file.

7. who :

Syntax : **who**

madhu tyy01 03:45

The **who** command can also tell you who is logged in at the terminal you're using.

8. date :

date

Tue Nov 4 13:39:24 EST 1997

This command is used to display the current date and time of the system.

9. cal :

This command is used to see the calendar of any specific month, or a complete year. If we wish to see the calendar for the month of December of the current year, we can provide this as applying the following cal command:

cal dec

December 2008

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	2	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

10. echo :

This command is used to display a message on the screen or to display the content of a variable. For example,

echo "Well Come to KKHSOU"

To display the content of a variable, we can also use echo command. time.

x = 30

echo $x

11. passwd :

The **passwd** command is used to change passwords. Changing password for sysadmin.

passwd sysadmin

(current) UNIX password:

Enter new UNIX password:

Retype new UNIX password:

12. REDIRECTION : We use the > symbol to redirect the output of a command. For example, to create a file **kkhsou.txt** with a list of student name we can use the following command:

cat > kkhsou.txt

(Then type the student name :)

Jitu

Gunajit

Sonabar

^D (Control D to stop)

The output of the above command is the successful creation of the file **kkhsou.txt** with contents having student name as typed above.

If we use the **>>** as:

cat >> kkhsou.txt

(and then type the name)

mukalmua

nalbari

^D (Control D to stop)

Then the content typed later is appended to the file **kkhsou.txt**. So we can say >> appends standard output to a file.

In the previous section, we have described the redirection of the output of a command to file. We can use '<' to redirect the input to a command. For example, if the file **kkhsou.txt** contains the following content:

c

b

a

the output of the command: **sort < kkhsou.txt** will be:

a

b

c

4.11 FILE PERMISSION

There are three types of file access: Read, Write and Execute. Each file belongs to a specific user and group. Access to the files is controlled by User, Group, and Other. The term, 'other', is used to refer to someone who is not the user (owner) of the file, nor is the person a member of the group

the file belongs to.

There are 10 characters that are shown on the left that indicate type and permissions of the file. File permissions are shown according to the following syntax example : **d rwe rwe rwe**

There are a total of 10 characters in all Linux files as seen in the above example. The first character indicates the type of file, and the next three indicate Read, Write, and Execute permission for each of the three user types, User, Group and Other.

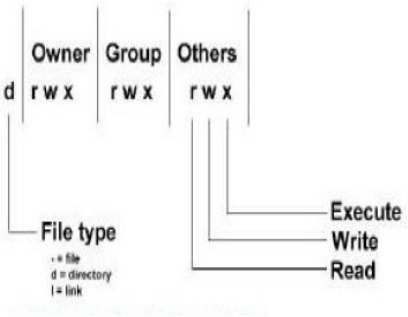


Figure 10.4 File permission

Type as '**ls -l**' in the terminal you can see like :

```
drwxrwxrwx   4    debajit   grp1   122    Dec  1  18:02   kkhsou
-rw-rw-rw-   1    debajit   grp1   1873   Aug 21 08:34    test
-rw-rw-rw-   1    debajit   grp1   1234   Sep 14 11:13    data
```

last modification date

Size in bytes

file name

File's Group

File's Owner

Links

Fie type and permission field

Type field : The first character in the field indicates a file type of one of the following:

d = directory

l = symbolic link

s = socket

p = named pipe

– = regular file

c = character (unbuffered) device file special

b = block (buffered) device file special

Links : The number of directory entries that refer to the file. In this

example the number is 4.

Let us discuss **chmod** command which is used to change the permission of a file or directory.

chmod : In order to change these default permissions and set your own, **chmod** command is used. Only the owner of a file can change the permission on that file.

The syntax of chmod is:

chmod category operation permission filename

Here the argument *category* specifies the user's access. The argument *operation* specifies whether the permission is to be granted or denied. The argument *permission* specifies the type of permission.

The different values for these arguments are listed in the following table :

Table 4.1 : Values of chmod argument

Category	Operation	Permission
u (owner)	+ (assign)	r (read)
g (group)	– (deny)	w (write)
o (other)	= (absolute assignment)	x (execute)
a (all)		

In the first argument we supply one or more of a (all), u (owner), g (group) and o(other). Then we specify whether we are adding right (+) or taking them away (-). Finally we specify one or more od r (read), w (write) and x (execute) permissions.

The file permissions bits include an execute permission bit for file owner, group and other. When the execute bit for the owner is set to "s" the set user ID bit is set. This causes any persons or processes that run the file to have access to system resources as though they are the owner of the file.

Changing Ownership : There are two commands that can be used to change the ownership of a file or directory. These are:

(**a) chown**

(b) chgrp

For example, to grant the ownership of a file test1 to John, we can

use:

$ chown john test1

The command **chgrp** changes the group ownership of the file. This command, like chown, can only used by the owner of the file, irrespective of whether the user belongs to the same group or not.

Examples :

chmod +s kkhsou.txt

sets the user ID bit on the file "kkhsou.txt". The command:

chmod g+s kkhsou.txt

sets the group ID bit on the file "kkhsou.txt".

chmod u+x kkhsou.doc

Gives the user execute permission on kkhsou.doc .

chmod +x kkhsou.doc

Gives everyone execute permission on kkhsou.doc.

chmod ugo +x kkhsou.doc

Gives execute permission to user, group and other.

chmod 400 kkhsou.doc

Gives the user read permission, and removes all other permission.

Permission can also be denoted by numbers as described below:

Read permission : 4

Write permission : 2

Execute permission :1

chmod 764 kkhsou.doc

Gives user full access(4+2+1=7), Group Read and Write access(4+2=6), and other Read access(4).

chmod 751 kkhsou.doc

Gives user full access(4+2+1=7), Group Read and Execute permission(4+1=5), and other, Execute permission(1).

4.12 TEXT EDITOR vi:

The **vi** editor is a screen-based editor and it is one of the most powerful text editor available in almost all UNIX and LINUX systems. The **vi** editor has powerful features to aid programmers, but many new users

avoid using the different features that overwhelm them. Operating **vi** editor is entirely different from that of any modern simplified editor that you are familiar with. This editor has remarkable editing capabilities. It is rather a very simple editor, if all the elementary **vi** commands are at your finger tips.

LINUX features a number of vi editors, of which **vim** (vi improved) is the most common. Apart from vim, there are **xvi**, **nvi** and **elvis** which have certain exclusive functios not found in the Berkeley version.

Three Modes : The three modes of vi editor are:

(a) Command Mode

(b) Input Mode

(c) Ex Mode

Command Mode : Command Mode is the mode where you will be giving commands to the vi editor. When you invoke vi, this is the mode where you will be placed initially.

Input Mode : When you give the commands i, I, a , A, R, s, S, or O then you get shifted to the input mode of vi editor. It is also known as insert mode or editing mode. In this mode you can add text to the file. For example, when you want to insert text at the current cursor position, give i in the command mode, you will now get placed in the input mode and you can perform the intended mode. For example, if you type ‘a’ here it will not be interpreted as an ‘append’ command, but as character ‘a’ to be inserted in the file.To move back to command mode press Esc key.

Ex Mode : Ex mode of vi editor enable us to give commands at the command line. To move to the ex mode, press ‘:’(colon) if we are in command mode. If we are in the input mode, first press Esc key and then press’:’ to move to the Ex mode. The cursor moves to the bottom of the vi screen and we can provide the ex mode commands here. Some impotant and common ex mode commands are given below:

Command	Used to
w	save the change we have made to the file
q	quit vi without saving changes
wq	save and quit
q!	force quit if’q’ does nor work

Ex mode is named after the ex line-editor of UNIX or LINUX. The commands we give the ex mode are actually the ex line-editor's commands.

Invoking vi Editor :

$ vi test1

The file 'test1" will get opened in vi editor. If the file does not exist, vi will create a new file with that name. In either case we will see a screen full of the tilde'~' which indicates empty lines.

Remember that vi editor opens in the command mode. That means we are now in the command mode. Let us started by inserting some text in our file "test1". For that we will have to switch to the 'input mode' . We can see that to insert text 'i' command is used. Press 'i' and type the text.

Saving Text and Quitting *vi* Editor : Having inserted the text, we now need to save these changes. To save the changes first press Esc key to move to command mode. Now press ':' to move to ex mode. Note that now the cursor has moved to the end of the screen. Type 'w' to save changes. If we want to quit vi type 'q'. We can also save and quit vi in one go by giving the command 'wq'.

Note : We can also save the file in the command mode by presenting Z (uppercase) twice, i.e ZZ.

When we quit vi, a note at the bottom of the screen indicates the name, number of lines and number of character in the file.

Editing File in *vi* : We can invoke the vi editor again, by typing vi test1 at the command prompt. We can see the text we have typed followed by multiple empty lines, each starting with a '~' sign. The cursor appears at the beginning of the first line of the file. Let us first learn how we can move this cursor to a particular line or character.

Adding Text : Let us now append some text to the file. For this, first move cursor to the last line of the file. Pressing 'G'(uppercase) will move the cursor to the beginning of the last line in the file. Additionally, you can precede 'G' with the line number where we want the cursor to move. For example, to move to 6th line then we type '6G'.

We can move to the beginning of a file by pressing '1G'. Now press 'o' to open a new line below this last line. By pressing 'o' we are in the 'input

mode'.

Inserting Text in The Middle : If we missed any character(s) while typing, then move the cursor to that particular line or word. Press Esc key to move to the 'command mode'. Now press 'i' to insert the character(s) before the current cursor position or press 'a' to insert the character (s) after the current cursor position. 'A' will append text at the end of current line.

Replacing Text : Text character can be replaced with the 'r', 'R', 's' and 'S' commands. Before we use these commands, we need to switch to the command mode, if we are currently in the insert mode.

First move the cursor to the character which we want to replace. Pressing 'r' followed by a character replaces the existing character with the character given after 'r'.

To replace more than one character use 'R' followed by the characters. The existing text will get overwritten with these characters.The replacment of text with 'R' command is limited to the current line only.

To replace a character with multiple characters without overwriting the subsequent text, use 's' followed by the characters. 'S'(uppercase) replaces the entire line irrespective of the cursor position. That means, it deletes the current line completely and makes it ready for a new line of text. Pressing 'R', 's' and 'S' shifts you to the 'input mode'. Press Esc key to move back to the command mode.

Deleting Text : To delete a character, first move the cursor to that particular character position. Press 'x' to delete a single character. We can also precede 'x' with the number of characters we want to delete. For example, '4x' will delete four characters. Note that the rest of the line gets adjusted automatically.

If we go on deleting all the characters in the current line, the characters to the left of the current line starts getting deleted, instead of that in the next line.

Note : To delete the current line press 'dd' . To delete more than one line use '#dd', where # represents the number of lines we want ot delete.

'X' (uppercase) is used to delete a character to the left of current cursor position. To understand it better, it can be said that 'x' functions like

the delete key and 'X' functions like the backspace key.

Undoing and Repeating Commands : The repeat command (a dot(.)) can be used to repeat the most recent command. For example, if we have recently given the 'a' command and appended one character, we can repeat the whole process again by pressing a (.) dot. We will have the character inserted two times.

The undo (u) command can be used to recover from the most recently committed mistake. For example, press u and we will see that the second character we have inserted has disappeared.

You need to rememeber to press Esc key to switch to command mode if you are not in it already and then use :wq to save the file and quit vi.



CHECK YOUR PROGRESS

Q 4: Hidden files in LINUX can be listed using

a. ls -t b. ls -h c. ls -a

d. none of the above.

Q 5: In LINUX, the command to delete all files started with sg and ending with hj is

a. rm sg*hj b. rm sg?hj

c. rm -prefix sg -suffix hj c. none of the above.

Q 6: The LINUX command **rm -r project** will

a. delete the file project from the current directory.

b. delete all the files from the directory project and all its subdirectories.

c. recursively delete the directory project and all its subdirectories.

d. None of the above.

Q 7: UNIX can have

a. one file system only.

b. n file systems, if it had n hard disks.

c. any number of file systems depending upon the number of partitions.

d. none of the above.

Q 8: The UNIX command “ls | more” displays a list of

a. files in the current directory one line at a time.

b. files in the current directory one screen time

c. all the files in the current directory and then wait for the next command

d. none of the above.

Q 9: The UNIX ,full pathname originates from

a. your home directory b. the root directory

c. your working directory d. none of the above.

Q 10: The chmod command in UNIX

a. change the current execution status from user mode to kernel.

b. makes the file hidden so that it cannot be seen using the ls command.

c. changes the access permissions of a fileor directory.

d. none of the above.

Q 11: Which out of the following commands would you use to change your password in UNIX system.

a. pass b. passwd

c. chpass d. setpass

Q 12: The execute permission to a file allows a user to

a. execute the file b. edit the file

c. list the contents of the file d. none of the above.

Q 13: The chown command in UNIX changes the

a. home directory of a user

b. access permissions of a file or directory

c. priority of a process.

d. none of the above.

Q 14: Find out the TRUE and FALSE statements

i. The command pwd shows the name of the current directory.

ii. UNIX makes a distinction between the text files and the binary files.

iii. The command mv file1 file2 renames file1 as file2.
iv. The more command appends new lines to a file.
v. A binary file is also known as an ASCII file.
vi. The command rm * removes all files from the current directory.
vii. A file having protection 466 cannot be used by anybody other than the owner.
viii. Only the super user can view the passwordof a user in the file /etc/passwd file.
ix. chmod u-x gives the user permission for execution.
x. ls command is used to list the files and directories.



4.13 LET US SUM UP

- **Linux Command :** A command given to UNIX or LINUX is a series of characters that one type. These characters consist of words separated by white spaces. The first word is the command itself and the rest are the command's arguments. The arguments provide information that the command may need for its execution.
- **Internal commands :** Internal commands are such programs that are built-in into the operating system and reside in the memory along with the kernel.
- **External commands :** External commands are not built in into the operating system, but loaded from other program files.
- To create a new directory, use the mkdir command.
- You can change the working directory using the **cd** command
- The command **rmdir** followed by the directory name which is to be removed is used for deleting a directory.
- To list the names of the files and the sub -directories of the current directory, **ls** command is used. its function is equivalent to the **DIR** command in MS-DOS.
- To find which directory you're currently in, use the **pwd** (print work ing

directory) command.

- To create a file, type the command **cat** at the shell prompt, followed by a > character and the filename.
- A file can be shifted or moved from one directory to another by using the **mv** command.
- The command **cp** is used to copy a file into another. MS-DOS equivalent for cp is ths COPY command.
- **more** command allows us to view the output one screen at a time.
- The **who** command can also tell you who is logged in at the terminal you're using.
- The **passwd** command is used to change passwords
- File and directory permissions fall into three main divisions. These are Read permission (r)**,** Write permission (w), Execute permission (x)
- In order to change these default permissions and set your own, **chmod** command is used.
- There are two commands that can be used to change the own -ership of a file or directory. These are:

  (**a) chown**

  (b) chgrp



4.14 FURTHER READING

1) Das, S. (1993). UNIX System V. 4: Concepts and Applications. Tata McGraw-Hill.

2) Operating System Design and Implementation, Andrew S. Tanenbaum, Albert S. Woodhull, Prentice - Hall India.



4.15 ANSWERS TO CHECK YOUR PROGRESS

Ans. to Q. No. 1 : /var: this folder contains those file that change frequently.

/tmp : contains temporary files that are erased upon reboot.

/proc: This folder contains information about the Linux kernel and hardware that is updated in realtim

Ans. to Q. No. 2 : Main components are Kernel, Shell and programs

Ans. to Q. No. 3 : Free Cost, Multi User Interface Supported and Good Security,

Ans. to Q. No. 4 : (c)

Ans. to Q. No. 5 : (a)

Ans. to Q. No. 6 : (c)

Ans. to Q. No. 7 : (c)

Ans. to Q. No. 8 : (b)

Ans. to Q. No. 9 : (b)

Ans. to Q. No. 10 : (c)

Ans. to Q. No. 11 : (b)

Ans. to Q. No. 12 : (a)

Ans. to Q. No. 13 : (d)

Ans. to Q. No. 14 : i. (T), ii. (F), iii. (T), iv. (F), v. (F), vi. (T), vii. (F), viii. (F), ix. (F), x. (T).



4.16 MODEL QUESTIONS

Q 1: What is the difference between **cp** and **mv** commands? Explain with an example.

Q 2: Distinguish between:

(a) **cat** and **more** commands

(b) **tail** and **head** command

Q 3: List out the different options and significance of **ls**.

Q 4: A file has got a protection 756 (octal). What protections does it really have ?

Q 5: Explain how you can implement the cut, copy and paste operations in vi .

Q 6: Give the syntax for opening a file in vi editor. Also explain the different options.

Q 7: How can you access ex commands in vi?

Q 8: Explain the booting process of Linux?

Q 9: What do you mean by Open Source and Free Software?

Q 10: Write two advantages of Linux?

*** ***** ***

UNIT 5 : INTRODUCTION TO LIBREOFFICE

UNIT STRUCTURE

5.1 Learning Objectives

5.2 Introduction

5.3 Overview of LibreOffice

- 5.3.1 Definition and Purpose of LibreOffice
- 5.3.2 Components of LibreOffice
- 5.3.3 Comparison With Other Office Suites

5.4 Advantages of Using LibreOffice

5.5 Installation of LibreOffice

5.6 Let Us Sum Up

5.7 Further Readings

5.8 Answers to Check Your Progress

5.9 Model Questions

5.1 LEARNING OBJECTIVES

After going through this unit, the learners will be able to

- define LibreOffice and its purpose.
- identify the components of LibreOffice, including Writer, Calc, Impress and Base.
- compare LibreOffice with other popular office suites, such as Microsoft Office and Google Docs.
- discuss the advantages of using LibreOffice, including cost savings, compatibility with different operating systems and devices, and the open-source nature of the software.
- outline the process of downloading, installing, and configuring LibreOffice on Windows operating system

5.2 INTRODUCTION

LibreOffice is a free, open-source office suite that provides a variety of powerful tools for creating, editing, and sharing documents, spreadsheets,

and presentations. With components such as Writer, Calc, Impress and, Base.LibreOffice offers a comprehensive set of features that can meet the needs of both individuals and businesses alike. In this unit, we will explore the definition, purpose, components, features, advantages, and installation and configuration of LibreOffice, as well as compare it with other office suites such as Microsoft Office and Google Docs. Whether you are a student, a professional, or just someone looking for a reliable and cost-effective solution for your office needs, LibreOffice is definitely worth considering.

5.3 OVERVIEW OF LIBREOFFICE

LibreOffice is a free, open-source office suite that provides users with a comprehensive set of tools for creating, editing, and sharing documents, spreadsheets, and presentations. It was initially released in 2010 as a fork of the OpenOffice.org project and has since become one of the most popular alternatives to proprietary office suites like Microsoft Office.

LibreOffice consists of several components, including Writer for word processing, Calc for spreadsheets, Impress for presentations, and Base for database management system (DBMS).

One of the key advantages of LibreOffice is its cost-effectiveness, as it is completely free to download and use. It is also compatible with a wide range of operating systems and devices, including Windows, Mac, and Linux. Additionally, the open-source nature of the software allows for community support and customization through extensions and add-ons.

Overall, LibreOffice is a powerful and versatile office suite that can meet the needs of individuals and businesses looking for a reliable and cost-effective solution for their office needs.

5.3.1 Purpose of libreoffice

LibreOffice is a free and open-source office suite, designed to provide users with a powerful and flexible set of tools for creating, editing, and managing various types of documents, spreadsheets, presentations, and other digital content. The primary purpose of

LibreOffice is to provide users with an alternative to commercial office suites such as Microsoft Office, by offering a range of features and tools that can be used to create professional-grade documents and content without the need for expensive software licenses.

Some of the key features of LibreOffice include word processing, spreadsheet creation and management, presentation design, graphic design, database management, and more. It also offers a variety of import and export options, allowing users to work with a wide range of file formats and collaborate with other users who may be using different software tools.

Overall, the purpose of LibreOffice is to provide a free and open-source office suite that is accessible to everyone, regardless of their budget or technical expertise. By providing users with a comprehensive set of tools and features, LibreOffice enables users to create and manage high-quality content for personal or professional use.

5.3.2 Components of LibreOffice

LibreOffice is a comprehensive office suite that includes several components or applications that allow users to create and manage different types of digital content. The main components of LibreOffice are:

(a) **Writer:** A word processing application that allows users to create and edit text documents, such as letters, resumes, reports, and more.

(b) **Calc:** A spreadsheet application that allows users to create and manage complex spreadsheets, perform calculations, and analyze data.

(c) **Impress:** A presentation application that allows users to create multimedia presentations with animations, slide transitions, and more.

(d) **Draw:** A graphic design application that allows users to create and edit vector graphics, diagrams, and flowcharts.

(e) Math: A formula editor application that allows users to create and edit mathematical equations and formulas.

(f) Base: A database management application that allows users to create and manage databases, create forms, and generate reports.

In addition to these primary components, LibreOffice also includes a range of additional tools and features, such as spell-checking, document templates, mail merge, and more, that make it a powerful and versatile office suite.

5.3.3 Comparison with other office suites

LibreOffice is a free and open-source office suite that is often compared with other popular office suites, such as Microsoft Office and Google Docs. Here are some of the key differences and similarities between these office suites:

Cost: LibreOffice is free to download and use, while Microsoft Office requires a paid subscription or a one-time purchase. Google Docs is free to use but requires a Google account.

Features: All three office suites offer similar features, such as word processing, spreadsheet creation, presentation design, and more. However, Microsoft Office tends to offer more advanced features and functionality compared to LibreOffice and Google Docs.

Compatibility: Microsoft Office is widely used in many organizations, and files created with Microsoft Office are often preferred for compatibility reasons. LibreOffice can open and save files in various file formats, including Microsoft Office formats, while Google Docs tends to work best with its own file formats.

Collaboration: Google Docs is known for its collaborative features, allowing multiple users to edit a document simultaneously in real-time. Microsoft Office also offers collaboration features, but LibreOffice has more limited collaboration options.

Privacy: Google Docs requires users to sign in to a Google account, which may raise privacy concerns. LibreOffice and Microsoft

Office are both desktop applications that can be used offline, so there are fewer privacy concerns with these office suites.

Overall, the choice of office suite depends on individual needs and preferences. LibreOffice is a great option for those looking for a free and open-source office suite with basic features, while Microsoft Office is the go-to option for more advanced features and compatibility with Microsoft Office files. Google Docs is a popular choice for collaboration and cloud-based accessibility.

5.5 ADVANTAGES OF USING LIBREOFFICE

One of the major advantages of using LibreOffice is its cost-effectiveness compared to proprietary software. LibreOffice is an open-source software suite that is free to download and use, without any licensing fees or subscription costs. This can result in significant cost savings for both individuals and organizations, especially those on a tight budget. Here are some of the ways LibreOffice can help save costs:

(a) **No licensing fees:** LibreOffice is licensed under the GNU Lesser General Public License, which means that it can be freely used, copied, modified, and distributed by anyone without any licensing fees.

(b) **No subscription costs:** Unlike proprietary software that often requires users to pay a recurring subscription fee, LibreOffice is completely free to use for as long as you want.

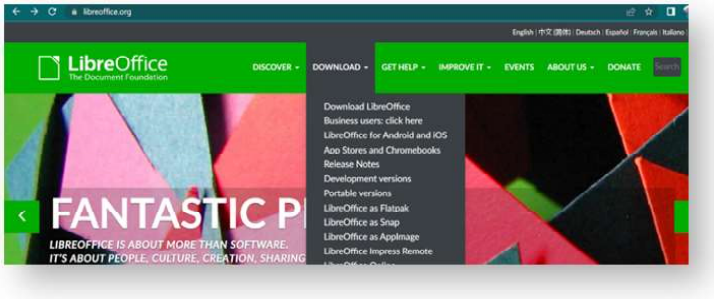
(c) **Compatible with multiple platforms:** LibreOffice is available for Windows, macOS, and Linux, so you don't have to purchase different versions for different platforms.

(d) **Support for multiple file formats:** LibreOffice supports a wide range of file formats, including Microsoft Office formats like .docx, .xlsx, and .pptx, so you don't have to purchase expensive proprietary software to be able to read and edit those files.

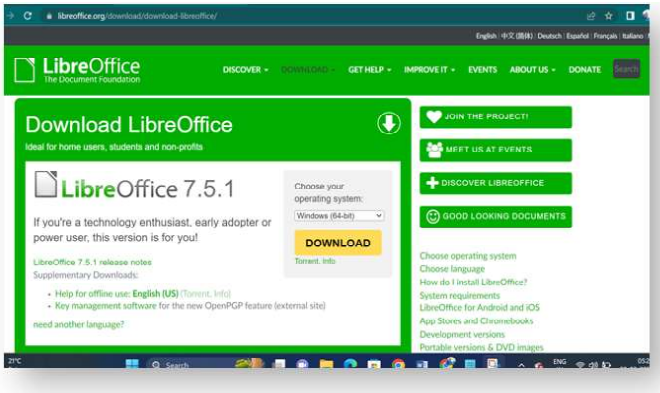
5.6 INSTALLATION OFLIBREOFFICE

Here's a step-by-step guide on how to install LibreOffice:

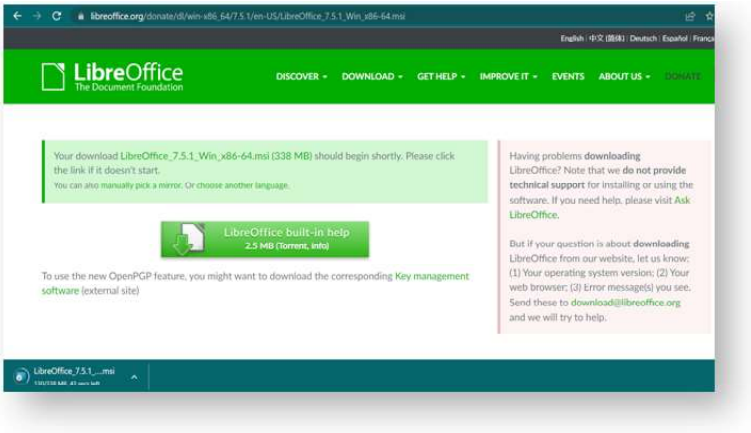
1. Go to the Libre Office website (https://www.libreoffice.org/) and click on the “Download” button in the top menu.



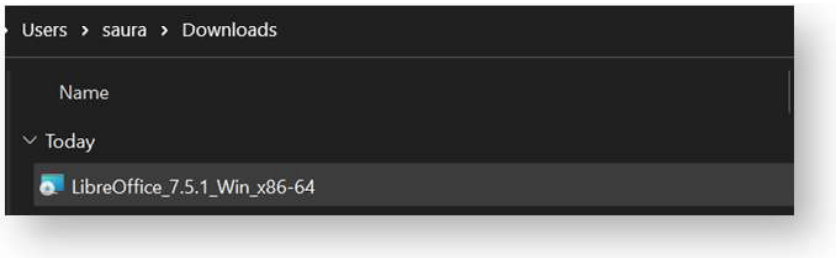
2. On the download page, you’ll be prompted to choose your operating system. Select the appropriate option for your computer (e.g. Windows, Mac, Linux).



3. Once you’ve selected your operating system, you’ll be taken to a page with download options. Choose the version you want to install (e.g. stable or beta), and click on the corresponding “Download” button.

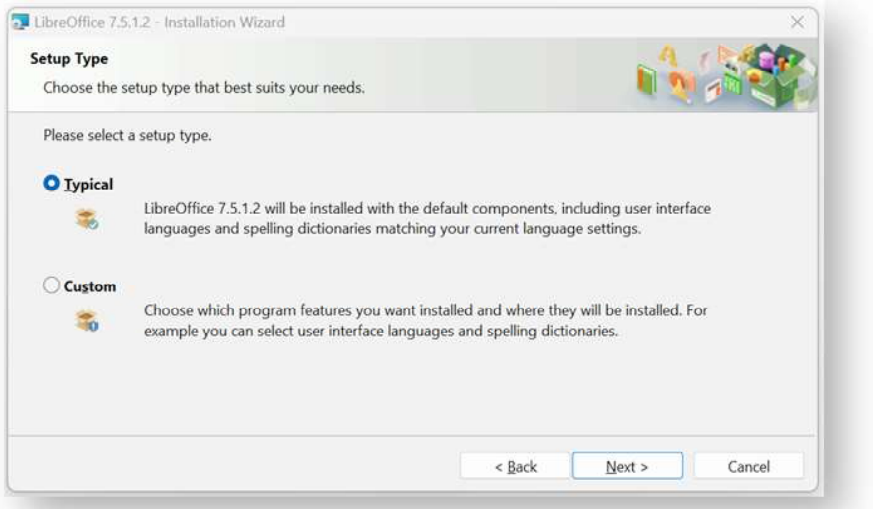


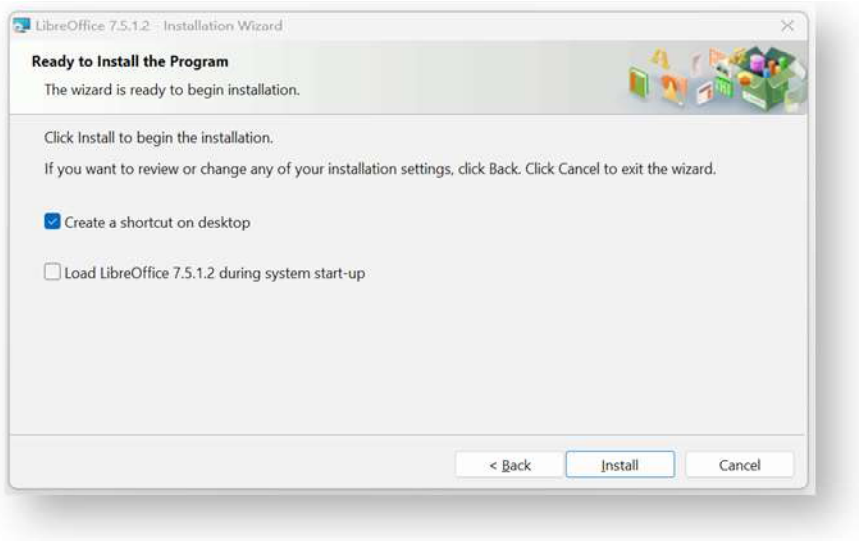
4. Once the download is complete, locate the downloaded file on your computer and double-click it to begin the installation process.

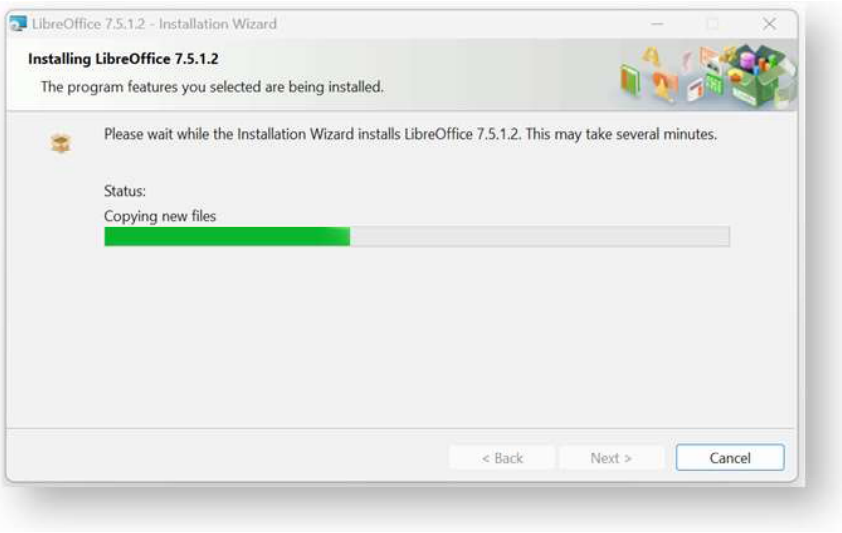


5. Follow the on-screen instructions to install LibreOffice. You may be asked to agree to the terms and conditions, select a location for the installation, and choose which components of the software to install.





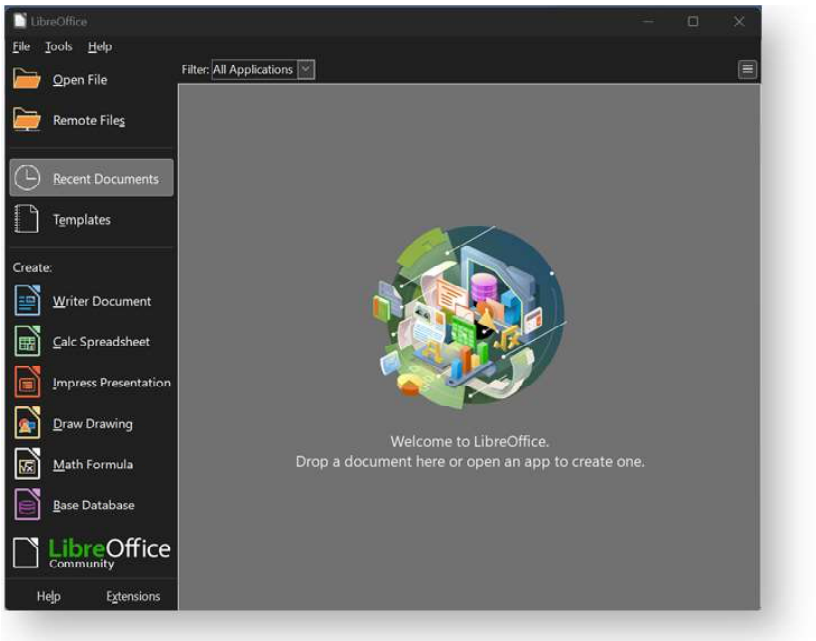

LibreOffice 7.5.1.2 - Installation Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
Create a shortcut on desktop
Load LibreOffice 7.5.1.2 during system start-up
< Back
Install
Cancel


LibreOffice 7.5.1.2 - Installation Wizard
Installing LibreOffice 7.5.1.2
The program features you selected are being installed.
Please wait while the Installation Wizard installs LibreOffice 7.5.1.2. This may take several minutes.
Status:
Copying new files
< Back
Next >
Cancel


LibreOffice 7.5.1.2 - Installation Wizard
Installation Wizard Completed
The Installation Wizard has successfully installed LibreOffice 7.5.1.2. Click Finish to exit the wizard.
< Back
Finish
Cancel

6. Once the installation is complete, you should be able to launch LibreOffice from your computer's desktop or programs menu.





You can now run any application of the LibreOffice Suite.



CHECK YOUR PROGRESS

Q 1: Choose the correct option:

A. What is LibreOffice?

a) A proprietary office suite

b) A free, open-source office suite

c) A database management system

d) A graphic design application

B. What is the purpose of LibreOffice?

a) To provide a free and open-source office suite

b) To provide an alternative to expensive software licenses

c) To provide a comprehensive set of tools for creating and managing digital content

d) All of the above

C. Which of the following is a component of LibreOffice?

a) PowerPoint

b) Photoshop

c) Calc

d) Adobe Reader

D. How does LibreOffice compare with Microsoft Office?

a) LibreOffice is more expensive than Microsoft Office

b) LibreOffice offers more advanced features than Microsoft Office

c) LibreOffice has more limited collaboration options than Microsoft Office

d) LibreOffice can open and save files in various file formats, including Microsoft Office formats

E. What is one of the advantages of using LibreOffice?

a) It has more advanced features than proprietary software

b) It is a cloud-based office suite

c) It is more privacy-oriented than other office suites

d) It is cost-effective compared to proprietary software



5.7 LET US SUM UP

- LibreOffice is a free and open-source office suite that provides users with a comprehensive set of tools for creating, editing, and sharing documents, spreadsheets, and presentations.
- It is compatible with a wide range of operating systems and devices,

including Windows, Mac, and Linux.

- LibreOffice consists of several components, including Writer for word processing, Calc for spreadsheets, Impress for presentations, and Base for database management system (DBMS).
- Its primary purpose is to provide users with an alternative to commercial office suites such as Microsoft Office, by offering a range of features and tools that can be used to create professional-grade documents and content without the need for expensive software licenses.
- LibreOffice is a powerful and versatile office suite that can meet the needs of individuals and businesses looking for a reliable and cost-effective solution for their office needs.
- It is often compared with other popular office suites, such as Microsoft Office and Google Docs, and the choice of office suite depends on individual needs and preferences.
- One of the major advantages of using LibreOffice is its cost-effectiveness compared to proprietary software, as it is completely free to use and has no licensing fees or subscription costs.
- Other advantages of using LibreOffice include its compatibility with a wide range of file formats, its community support and customization options through extensions and add-ons, and its privacy and security features as a desktop application.



5.8 FURTHER READINGS

1) https://documentation.libreoffice.org/en/english-documentation/



5.9 ANSWERS TO CHECK YOUR PROGRESS

Ans.to.Q.No.1: A.(b) B.(d) C.(c) D.(d) E.(d)



5.10 MODEL QUESTIONS

Q.1: What is LibreOffice, and how does it differ from other office suites like Microsoft Office?

Q.2: What are the primary components of LibreOffice, and how can they be used to create and manage digital content?

Q.3: How does the cost of LibreOffice compare to other office suites, and what are the potential cost savings for individuals and organizations?

Q.4: What are some of the key advantages of using LibreOffice, and how can they benefit users in different contexts?

Q.5: What types of files can be imported and exported using LibreOffice, and how can this help users work with other software tools and collaborators?

Q.6: What role does community support play in the development of LibreOffice, and how can users contribute to the project?

Q.7: What are some of the limitations of LibreOffice, and how can users work around these to achieve their desired outcomes?

Q.8: How does LibreOffice compare with other open-source software projects, and what are some of the unique challenges and opportunities it presents?

Q.9: What are some of the key features of LibreOffice that make it a popular choice for individuals and organizations looking for a free and open-source office suite?

Q.10: How can users get started with LibreOffice, and what resources are available to help them learn and master its various components and features?

*** ***** ***

UNIT 6 : GETTING STARTED WITH WRITER

UNIT STRUCTURE

6.1 Learning Objectives

6.2 Introduction

6.3 Launch Writer and Create a New Document

6.4 Understand the Writer Interface

6.5 Working with Writer

- 6.5.1 Entering and Formatting Text
- 6.5.2 Applying Font Styles
- 6.5.3 Working with Paragraphs
- 6.5.4 Find and Replace
- 6.5.5 Saving, Closing and Opening Existing Document

6.6 Let Us Sum Up

6.7 Further Readings

6.8 Answer to Check Your Progress

6.9 Model Questions

6.1 LEARNING OBJECTIVES

After going through this unit, you will be able to

- launch Writer and create a new document.
- describe the Writer interface and its different components.
- enter and format text using Writer's tools and features.
- apply different font styles to their text.
- work with paragraphs, including changing alignment, indentation, and spacing.
- save, close, and open existing Writer documents.

6.2 INTRODUCTION

Writer is a word processing software that is part of the LibreOffice suite of productivity applications. It allows users to create, edit, and format text documents with ease. In this context, we will discuss some of the

essential features of Writer that will enable you to work effectively with the software. We will cover how to launch Writer and create a new document, understand the interface, and work with text and paragraphs. We will also discuss how to apply different font styles, save, close, and open existing documents. By the end of this unit, you will have gained a solid foundation in using Writer.

6.3 LAUNCH WRITER AND CREATE A NEW DOCUMENT

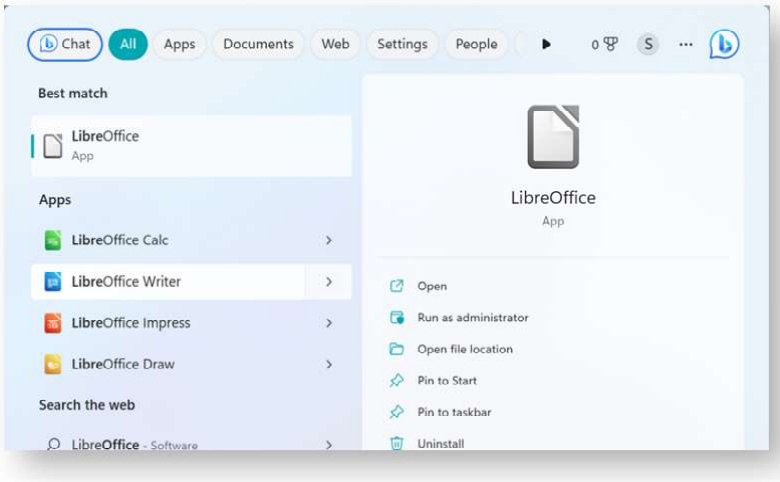
Following are step-by-step procedures to launch LibreOffice Writer and open a new document:

Step 1: Open your computer or laptop and ensure that LibreOffice is installed. If not, you can download it from the official website and install it on your computer.

Step 2: Click on the Start menu button on your desktop screen or press the Windows key on your keyboard to open the Start menu.

Step 3: Search for LibreOffice Writer in the search bar of the Start menu.

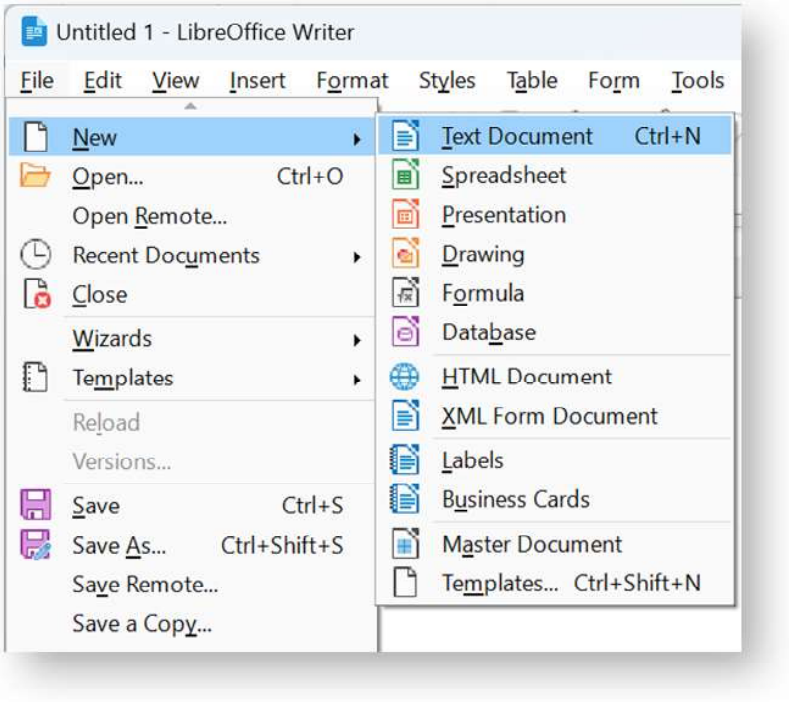
Step 4: Click on the LibreOffice Writer icon to launch the program.



Step 5: Once Writer is launched, click on the File menu in the top left corner of the screen.

Step 6: Click on the New option from the File menu.

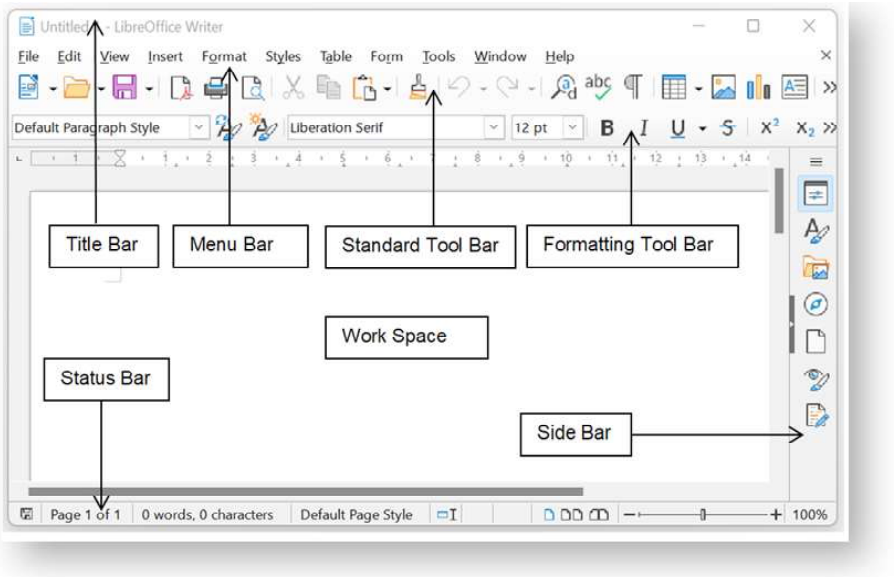
Step 7: A new window will appear with a list of different document types. Choose the type of document you want to create and click on it.



You can now start typing your document and use the various formatting tools and features available in Writer to format your text as needed.

6.4 UNDERSTANDING THE WRITER INTERFACE

Followings are the components of LibreOffice Writer interface:



- **Menu Bar:** The Menu Bar is located at the top of the LibreOffice Writer window and contains various menus such as File, Edit, View, Insert, Format, Table, Tools, Window, and Help.
- **Standard Toolbar:** The Standard Toolbar is located directly below the Menu Bar and contains commonly used tools such as Save, Undo, Redo, Cut, Copy, and Paste.
- **Formatting Toolbar:** The Formatting Toolbar is located below the Standard Toolbar and contains tools for formatting text such as font style, size, color, alignment, and highlighting.
- **Ruler:** The Ruler is located at the top of the document window and provides visual aids for adjusting margins, tabs, and indentation.
- **Status Bar:** The Status Bar is located at the bottom of the LibreOffice Writer window and displays information about the current document such as page number, word count, and zoom level.
- **Scroll Bar:** The Scroll Bar is located on the right-hand side of the document window and allows you to scroll up and down the document.
- **Document Area:** The Document Area is the main area where you can create and edit your document. This is where you will enter and format your text.
- **Sidebar:** The Sidebar is located on the right-hand side of the LibreOffice Writer window and contains various options and features such as styles, formatting, and properties.

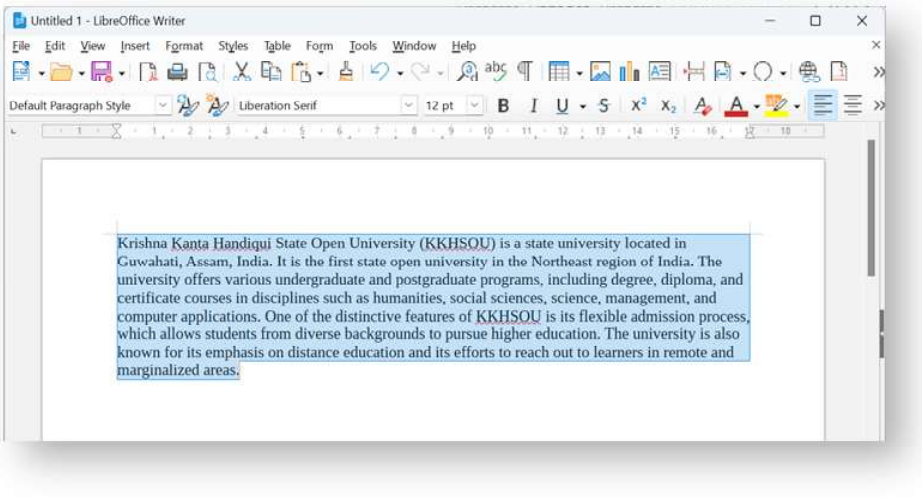
  The LibreOffice Writer interface is designed to be user-friendly and intuitive, with various tools and features readily accessible through the Menu Bar and toolbars. The Ruler, Status Bar, and Sidebar provide additional functionality and customization options, making it easy to create professional-looking documents with LibreOffice Writer.

6.5 WORKING WITH WRITER

6.5.1 Entering and Formatting Text

here's a step-by-step procedure to enter and format text in a LibreOffice Writer document:

1. Launch LibreOffice Writer and create a new document by clicking on the File menu and selecting New, or by pressing Ctrl+N on your keyboard.
2. Type in the text that you want to include in your document.
3. To format your text, select the text by clicking and dragging your mouse over the text that you want to format.



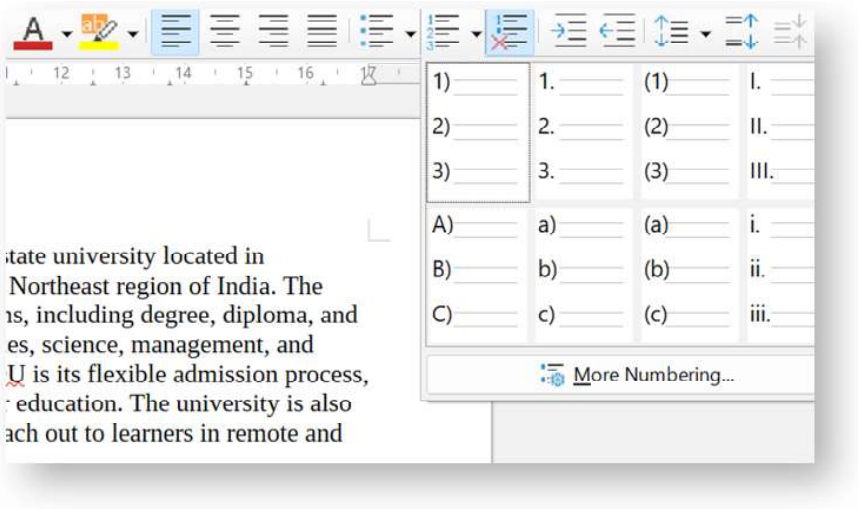
4. Use the formatting tools available in the Formatting Toolbar to apply formatting options such as font style, font size, bold, italic, underline, strikethrough, and color.



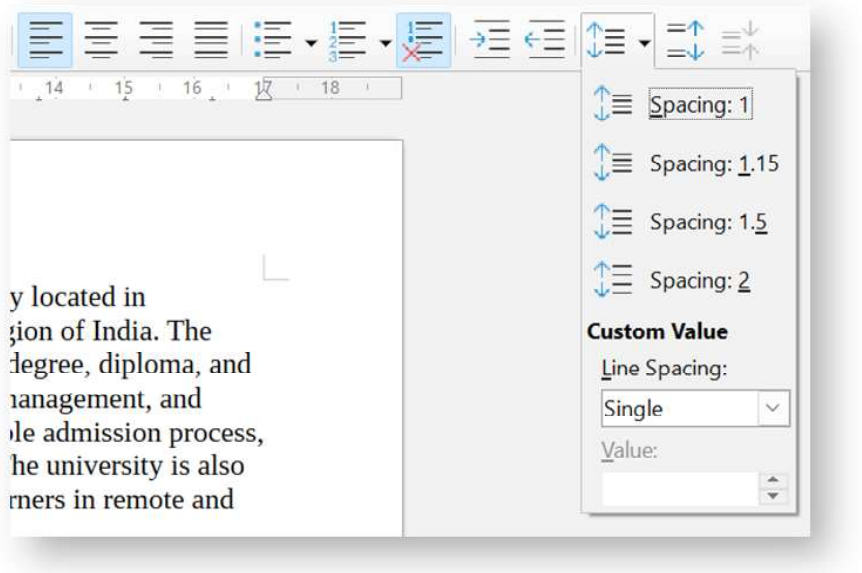
5. To change the alignment of your text, use the Alignment buttons available in the Formatting Toolbar. You can align your text to the left, center, right, or justified.



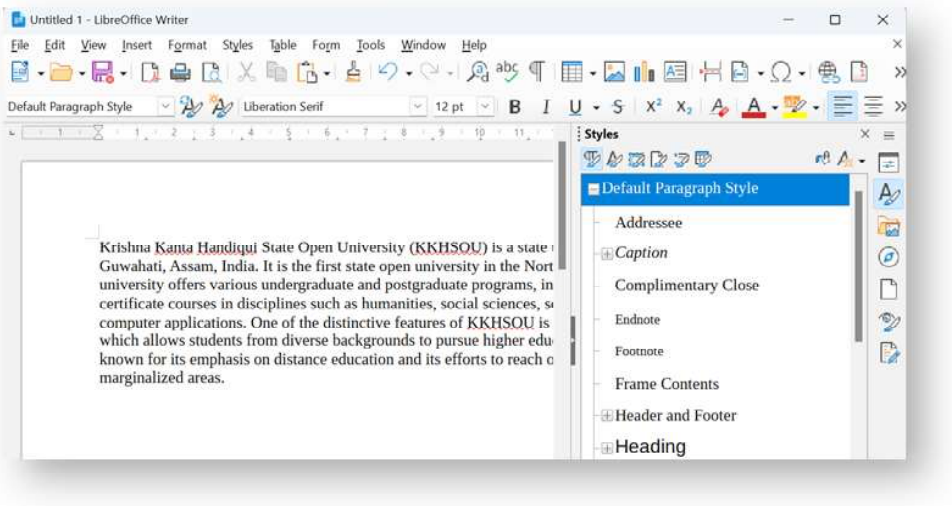
6. To add bulleted or numbered lists, click on the Bullets or Numbering buttons available in the Formatting Toolbar. This will automatically add bullet points or numbers to your text.



7. To adjust the spacing between lines or paragraphs, use the Line Spacing or Paragraph Spacing options available in the Formatting Toolbar.



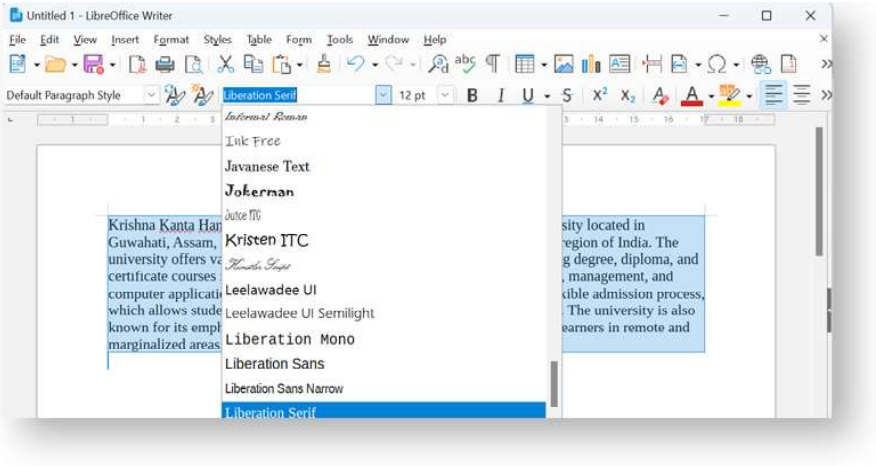
8. To change the indentation of your text, use the Indent buttons available in the Formatting Toolbar. You can indent your text to the left or right.
9. To apply a specific style to your text, use the Styles and Formatting feature available in the Sidebar. Click on the Styles and Formatting button in the Sidebar, select the style that you want to apply, and click on the Apply button.



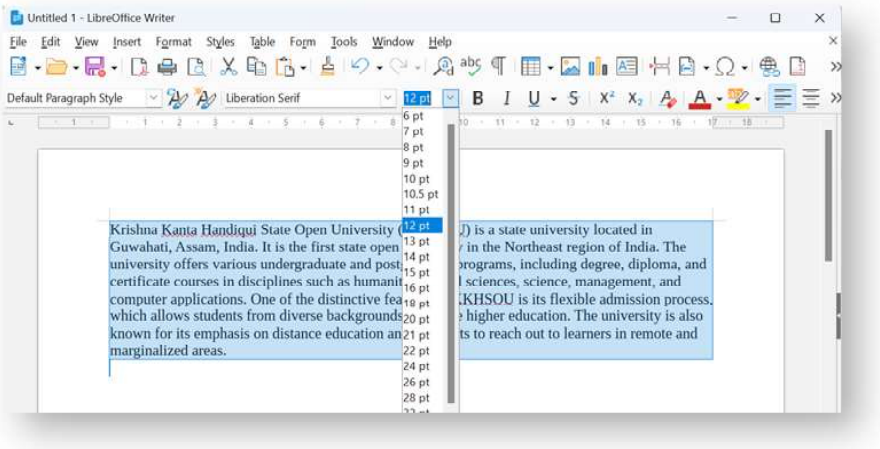
6.5.2 Applying Font Styles

Here's a step-by-step procedure to apply font styles in LibreOffice Writer:

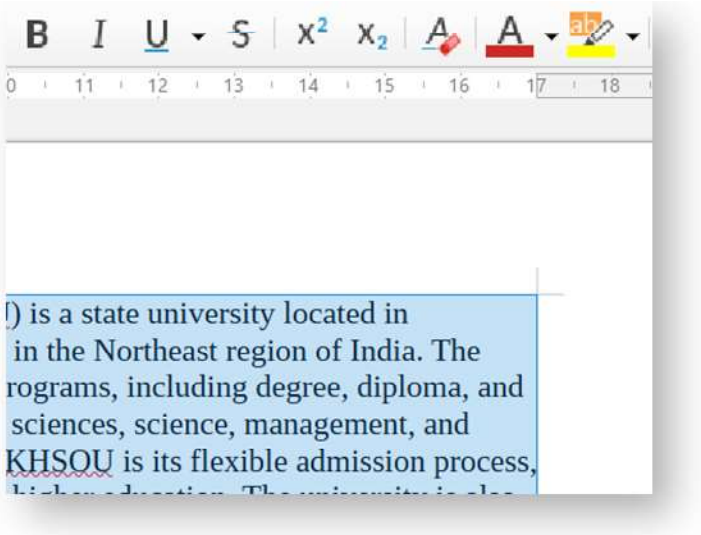
1. Launch LibreOffice Writer and create a new document.
2. Type in the text that you want to format.
3. Select the text that you want to apply the font style to.
4. Go to the Formatting Toolbar located at the top of the LibreOffice Writer window.
5. In the Formatting Toolbar, locate the Font Name dropdown menu. This dropdown menu displays the font styles that are currently available.



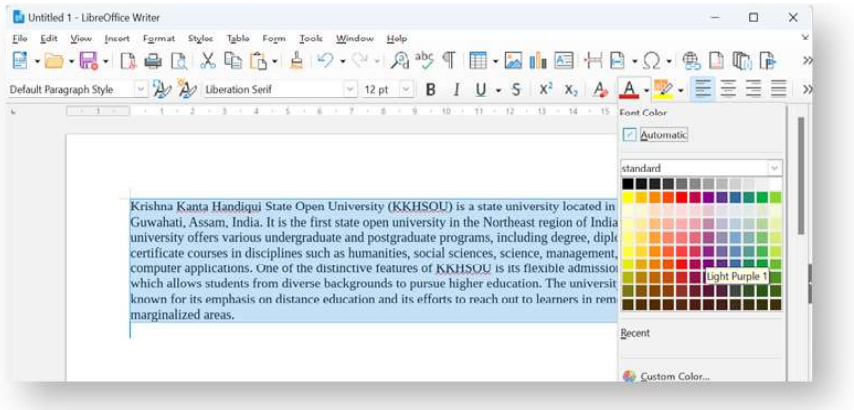
6. Click on the Font Name dropdown menu and select the font style that you want to apply to your text. The font style will be applied to the selected text.
7. You can also change the font size of your text by selecting the text that you want to format and then selecting a font size from the Font Size dropdown menu in the Formatting Toolbar.



8. Additionally, you can make your text bold, italic, or underlined by clicking on the corresponding buttons in the Formatting Toolbar.



9. To change the color of your text, click on the Font Color button in the Formatting Toolbar and select a color from the color palette.

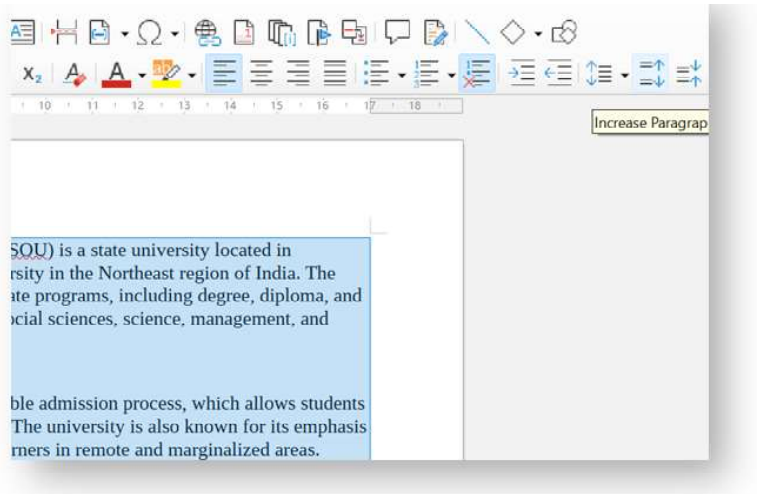


By following the above procedures, you can successfully apply font styles to your text in LibreOffice Writer. You can continue to use these formatting tools to customize the appearance of your document.

6.5.3 Working with Paragraphs

Sure, here's a step-by-step procedure to work with paragraphs in Writer:

1. Launch LibreOffice Writer and create a new document.
2. Type in the text that you want to include in your document.
3. To start a new paragraph, press the Enter key on your keyboard.
4. To add spacing between paragraphs, select the paragraph(s) that you want to add spacing to, and then use the Paragraph Spacing options available in the Formatting Toolbar.



5. To change the alignment of a paragraph, select the paragraph that you want to align, and then use the Alignment buttons available in the Formatting Toolbar. You can align your paragraph to the left, center, right, or justified.
6. To add bullet points or numbers to a paragraph, place your cursor at the beginning of the paragraph and then click on the Bullets or Numbering button available in the Formatting Toolbar.
7. To indent a paragraph, select the paragraph that you want to indent and then use the Indent buttons available in the Formatting Toolbar. You can indent your paragraph to the left or right.
8. To apply a specific paragraph style to your text, use the Styles and Formatting feature available in the Sidebar. Click on the Styles and Formatting button in the Sidebar, select the paragraph style that you want to apply, and click on the Apply button.
9. To create a numbered or bulleted list, type in the list items one after the other, each on a new line, and then click on the Numbering or Bullets button available in the Formatting Toolbar.

You can continue to use these formatting tools to customize the appearance of your document.

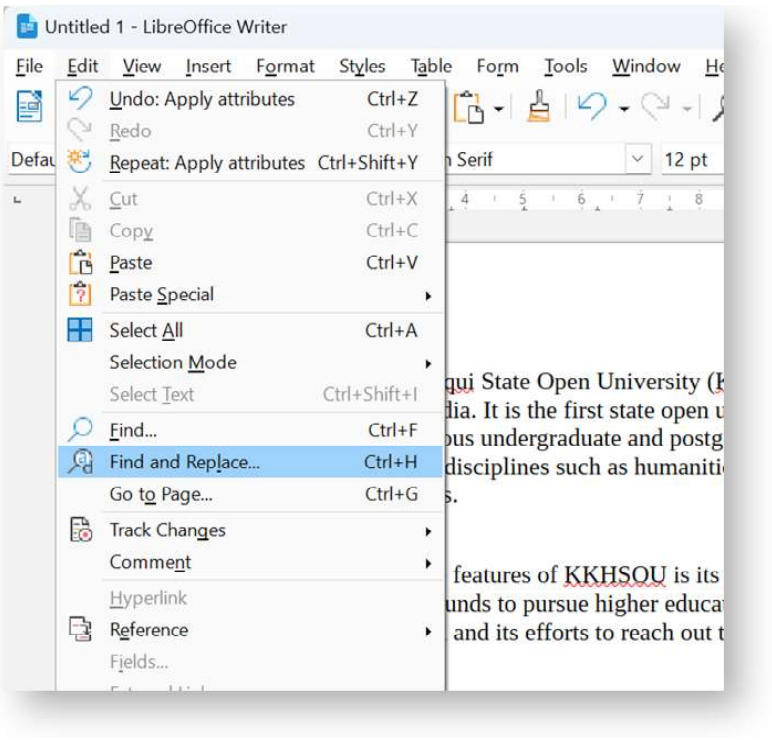
6.5.4 Find and Replace

The “Find and Replace” feature in LibreOffice Writer is a powerful tool that allows you to search for a specific word, phrase or character in your document, and replace it with another word, phrase or character.

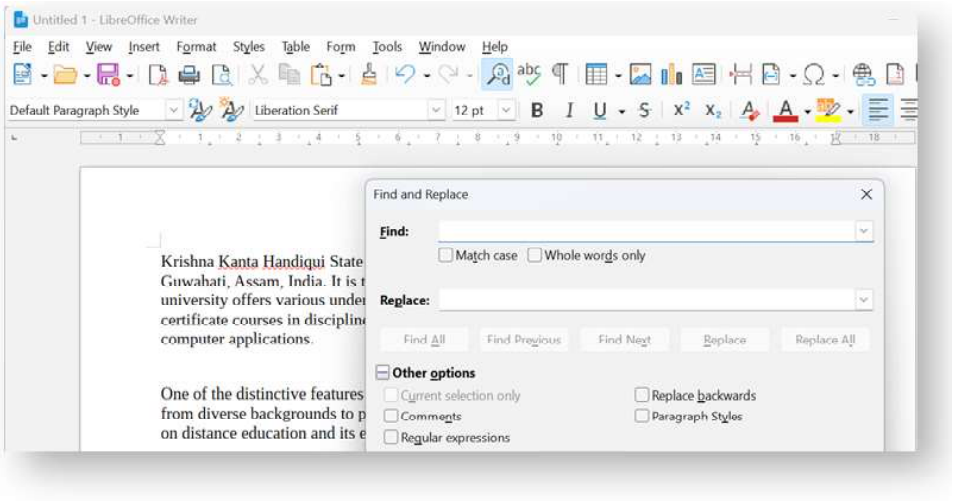
Following are step-by-step procedures to find and replace text in LibreOffice Writer:

1. Launch LibreOffice Writer and open the document that you want to search and replace text in.
2. Click on the Edit menu in the top-left corner of the window.
3. Click on the Find & Replace option. Alternatively, you can use

the keyboard shortcut Ctrl+H.



4. In the Find & Replace dialog box, type in the text that you want to search for in the Search for field.



5. If you want to search for a whole word, check the Whole words only option.
6. If you want to match the case of the text that you're searching for, check the Match case option.
7. Click on the Find button to find the first occurrence of the text

that you're searching for.

8. To replace the found text, click on the Replace button.
9. To replace all occurrences of the text, click on the Replace All button.
10. If you want to search for and replace more text, click on the Find Next button to find the next occurrence of the text.
11. Once you're done searching and replacing text, click on the Close button to close the Find & Replace dialog box.

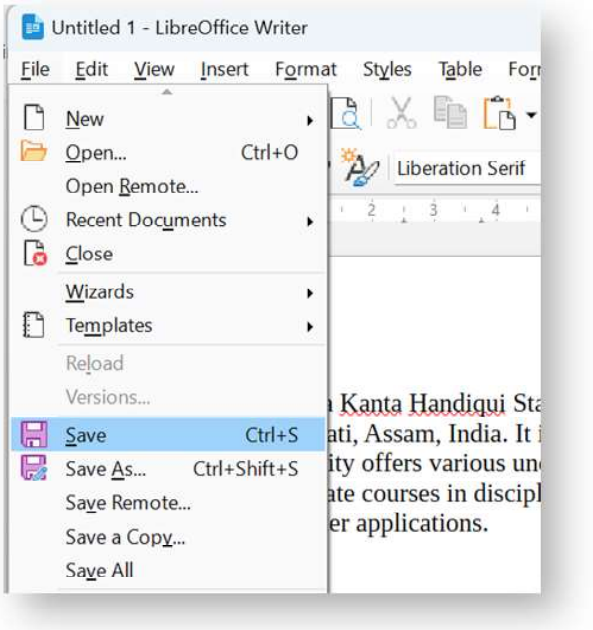
In this way, you can find and replace text in LibreOffice Writer. You can use these steps to quickly search and replace text in your documents.

6.5.5 Saving, Closing and Opening Existing Document

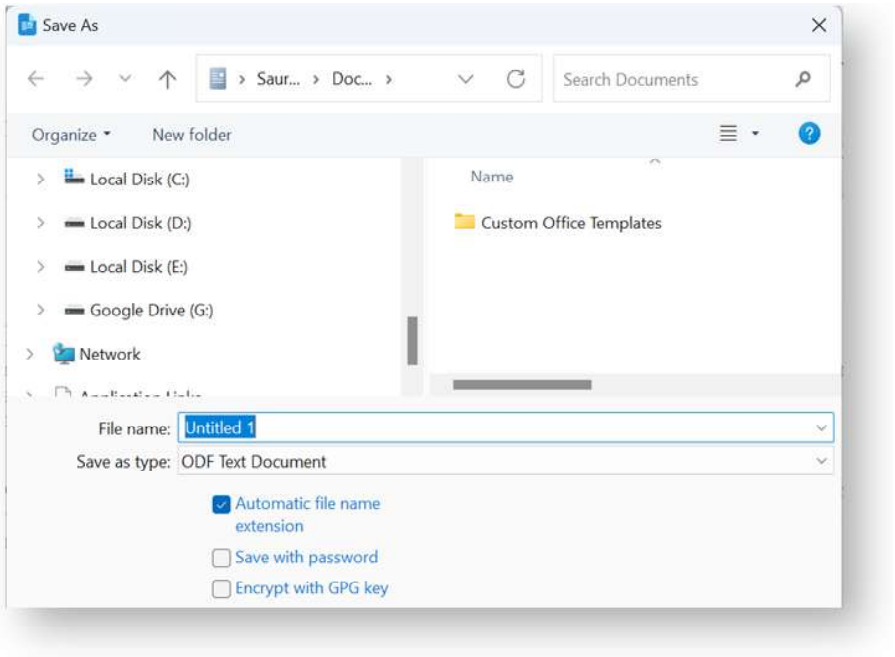
Following are step-by-step procedures to save, close, and open an existing document in LibreOffice Writer:

To save a document:

1. Click on the File menu in the top-left corner of the LibreOffice Writer window.
2. Click on the Save option. Alternatively, you can press the Ctrl+S keys on your keyboard.



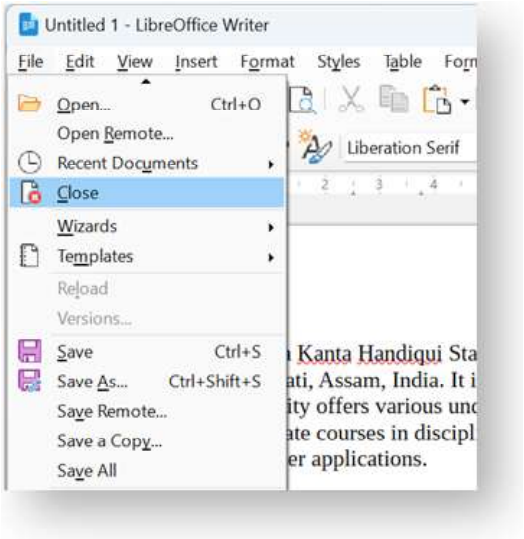
3. Choose a location where you want to save the document.



4. In the Save As dialog box, give your document a name and select the file type you want to save it in.
5. Click on the Save button.

To close a document:

1. Click on the File menu in the top-left corner of the LibreOffice Writer window.
2. Click on the Close option. Alternatively, you can press the Ctrl+W keys on your keyboard.



3. If there are any unsaved changes to your document, LibreOffice Writer will prompt you to save your changes before closing the document.

To open an existing document:

1. Click on the File menu in the top-left corner of the LibreOffice Writer window.
2. Click on the Open option. Alternatively, you can press the Ctrl+O keys on your keyboard.
3. Choose the location where the document is saved.
4. Select the document that you want to open.
5. Click on the Open button.



CHECK YOUR PROGRESS

Q 1: Answer the following questions:

(a) What is LibreOffice Writer?

(b) What are the components of the LibreOffice Writer interface?

(c) How can you launch LibreOffice Writer?

(d) How can you open a new document in LibreOffice Writer?

(e) What is the purpose of the Ruler in LibreOffice Writer?

(f) Where is the Sidebar located in LibreOffice Writer?

(g) What options are available in the Formatting Toolbar in LibreOffice Writer?

(h) How can you apply font styles in LibreOffice Writer?

(i) How can you add bulleted or numbered lists in LibreOffice Writer?

(j) What is the purpose of the Styles and Formatting feature in LibreOffice Writer?

By following these steps, you can successfully save, close, and open an existing document in LibreOffice Writer.



6.6 LET US SUM UP

- The Writer interface consists of a Menu Bar, Standard Toolbar, Formatting Toolbar, Ruler, Status Bar, Scroll Bar, Document Area, and Sidebar.
- The Ruler, Status Bar, and Sidebar provide additional functionality and customization options.
- To enter and format text in a LibreOffice Writer document, create a new document, type in the text, select the text, and use the formatting tools available in the Formatting Toolbar.
- The Formatting Toolbar includes options for font style, font size, alignment, bullet points, numbering, line spacing, paragraph spacing, and indentation.
- The Styles and Formatting feature available in the Sidebar can be used to apply a specific style to your text.
- Font styles can be applied by selecting the text, choosing a font style from the Font Name dropdown menu, changing the font size, making the text bold, italic or underlined, and changing the text color.
- LibreOffice Writer is user-friendly and intuitive with various tools and features readily accessible through the Menu Bar and toolbars.
- LibreOffice Writer is a good alternative to Microsoft Word for creating professional-looking documents.



6.7 FURTHER READINGS

1) “Getting Started with LibreOffice Writer,” The Document Foundation, accessed March 11, 2023, https://documentation.libreoffice.org/en/english-documentation/getting-started-writer/.

2) “LibreOffice Writer Guide,” The Document Foundation, accessed March 11, 2023, https://documentation.libreoffice.org/en/english-

documentation/writer-guide/.

3) "LibreOffice Writer Tutorial," Tutorials Point, accessed March 11, 2023, https://www.tutorialspoint.com/libreoffice/libreoffice_writer_tutorial.htm.



6.8 ANSWERS TO CHECK YOUR PROGRESS

Ans.to.Q.No.1:

(a) LibreOffice Writer is a free and open-source word processor software.

(b) The components of the LibreOffice Writer interface are Menu Bar, Standard Toolbar, Formatting Toolbar, Ruler, Status Bar, Scroll Bar, Document Area, and Sidebar.

(c) You can launch LibreOffice Writer by searching for it in the Start menu or by clicking on the LibreOffice Writer icon on your desktop.

(d) You can open a new document in LibreOffice Writer by clicking on the File menu and selecting New, or by pressing Ctrl+N on your keyboard.

(e) The Ruler in LibreOffice Writer provides visual aids for adjusting margins, tabs, and indentation.

(f) The Sidebar is located on the right-hand side of the LibreOffice Writer window.

(g) The Formatting Toolbar in LibreOffice Writer contains options for formatting text such as font style, font size, alignment, and highlighting.

(h) You can apply font styles in LibreOffice Writer by selecting the text you want to format and using the Font Name dropdown menu and other formatting tools in the Formatting Toolbar.

(i) You can add bulleted or numbered lists in LibreOffice Writer by clicking on the Bullets or Numbering buttons in the Formatting Toolbar.

(j) The Styles and Formatting feature in LibreOffice Writer allows you to apply a specific style to your text.



6.9 MODEL QUESTIONS

Q.1: What are the components of the LibreOffice Writer interface?

Q.2: How do you enter and format text in a LibreOffice Writer document?

Q.3: What is the purpose of the Ruler in LibreOffice Writer?

Q.4: How can you add bulleted or numbered lists in a Writer document?

Q.5: How do you apply specific styles to text in Writer using the Styles and Formatting feature?

Q.6: What is the purpose of the Sidebar in LibreOffice Writer?

Q.7: How do you change the alignment of text in a Writer document?

Q.8: How can you adjust the spacing between lines or paragraphs in a Writer document?

Q.9: How can you indent text to the left or right in a Writer document?

Q.10: What are some of the font styles that can be applied to text in LibreOffice Writer?

*** ***** ***

UNIT 7 : WORKING WITH TEMPLATES AND STYLES IN WRITER

UNIT STRUCTURE

7.1 Learning Objectives

7.2 Introduction

7.3 Creating Document Templates

- 7.3.1 Understanding Document Templates
- 7.3.2 Creating a New Template
- 7.3.3 Modifying an Existing Template

7.4 Using Document Templates

- 7.4.1 Applying a Template to A New Document
- 7.4.2 Changing the Template for an Existing Document

7.5 Paragraph Styles

- 7.5.1 Understanding Paragraph Styles
- 7.5.2 Creating a New Paragraph Style
- 7.5.3 Modifying a Paragraph Style
- 7.5.4 Applying Paragraph Styles to Text

7.6 Character Styles

- 7.6.1 Understanding Character Styles
- 7.6.2 Creating a New Character Style
- 7.6.3 Modifying a Character Style
- 7.6.4 Applying Character Styles to Text

7.7 Managing Styles in the Styles and Formatting Dialog Box

- 7.7.1 Opening the Styles and Formatting Dialog Box
- 7.7.2 Navigating the Dialog Box
- 7.7.3 Managing Styles in The Dialog Box

7.8 Let Us Sum Up

7.9 Further Readings

7.10 Answers to Check Your Progress

7.11 Model Questions

7.1 LEARNING OBJECTIVES

After going through this unit, the learners will be able to

- understand the concept of document templates and their importance in creating new documents.
- create a new document template in LibreOffice Writer.
- modify an existing document template to meet specific needs.
- save and use document templates efficiently in LibreOffice Writer.
- apply a document template to a new document and change it for an existing document.
- update a document template to reflect any changes made in the document.
- understand the concept of paragraph styles and their role in creating consistent formatting throughout a document.
- create new paragraph styles in LibreOffice Writer.
- modify existing paragraph styles to meet specific formatting needs.
- apply paragraph styles to text efficiently in LibreOffice Writer.
- understand the concept of character styles and their role in creating consistent formatting for individual characters or words.
- create new character styles in LibreOffice Writer.
- modify existing character styles to meet specific formatting needs.
- apply character styles to text efficiently in LibreOffice Writer.
- navigate and manage styles effectively in the Styles and Formatting dialog box of LibreOffice Writer.

7.2 INTRODUCTION

LibreOffice Writer is a powerful word processing software that allows users to create professional-looking documents with ease. One of the most useful features of Writer is its ability to create and use document templates, which are pre-designed formats that can be used as a starting point for new documents. In this section, we will explore how to create, modify, and save document templates, as well as how to apply them to new and existing documents. Additionally, we will discuss the use of paragraph and character

styles to further enhance the appearance of your documents. Finally, we will take a closer look at managing styles in the Styles and Formatting dialog box, which is a useful tool for organizing and manipulating styles. With these skills, you can create consistent, professional-looking documents quickly and easily in LibreOffice Writer.

7.3 CREATING DOCUMENT TEMPLATES

7.3.1 Understanding Document Templates

In LibreOffice Writer, document templates are pre-designed formats that can be used to create new documents. These templates include various elements such as page layout, font styles, header and footer, and other design elements that make the document look professional and consistent.

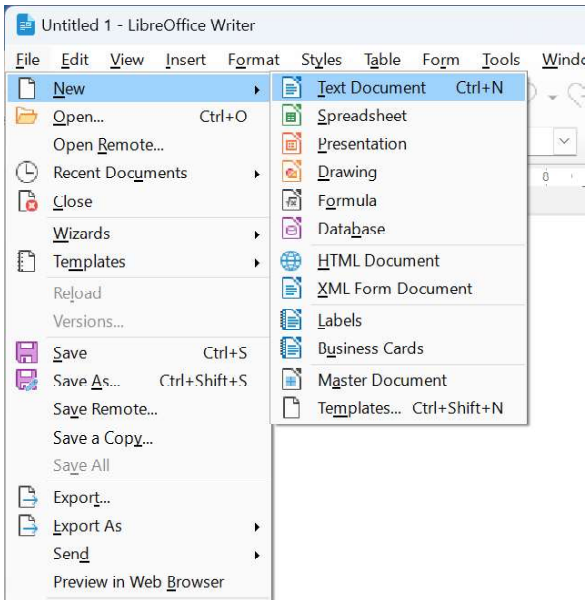
Document templates can save time and effort by providing a starting point for creating a new document. Instead of starting from scratch, you can select a template that best suits your needs, and then modify it to create your own document.

LibreOffice Writer comes with a range of built-in templates, and you can also create your own custom templates. To create a new template, you can start with a blank document or an existing document and customize it to suit your needs. Once you have created a template, you can save it and use it to create new documents in the future.

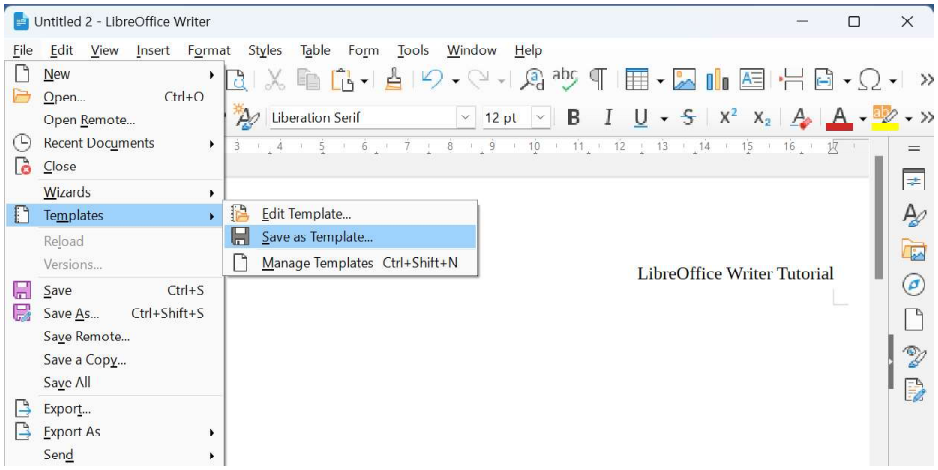
7.3.2 Creating a New Template

Here is the step-by-step procedure to create a new template in LibreOffice Writer:

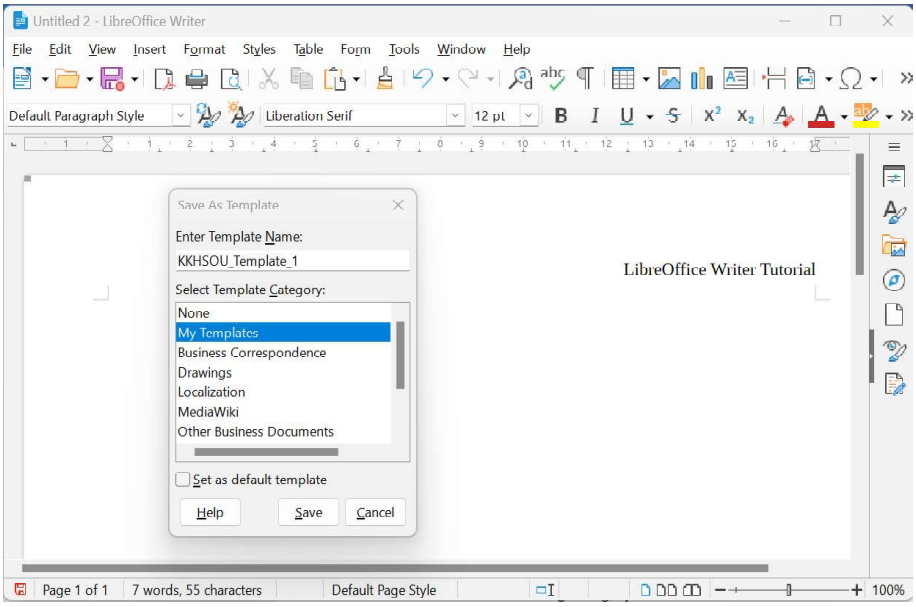
1. Open LibreOffice Writer and click on the “File” menu in the top-left corner.
2. From the drop-down menu, click on “New” and select “Text Document” from the options.



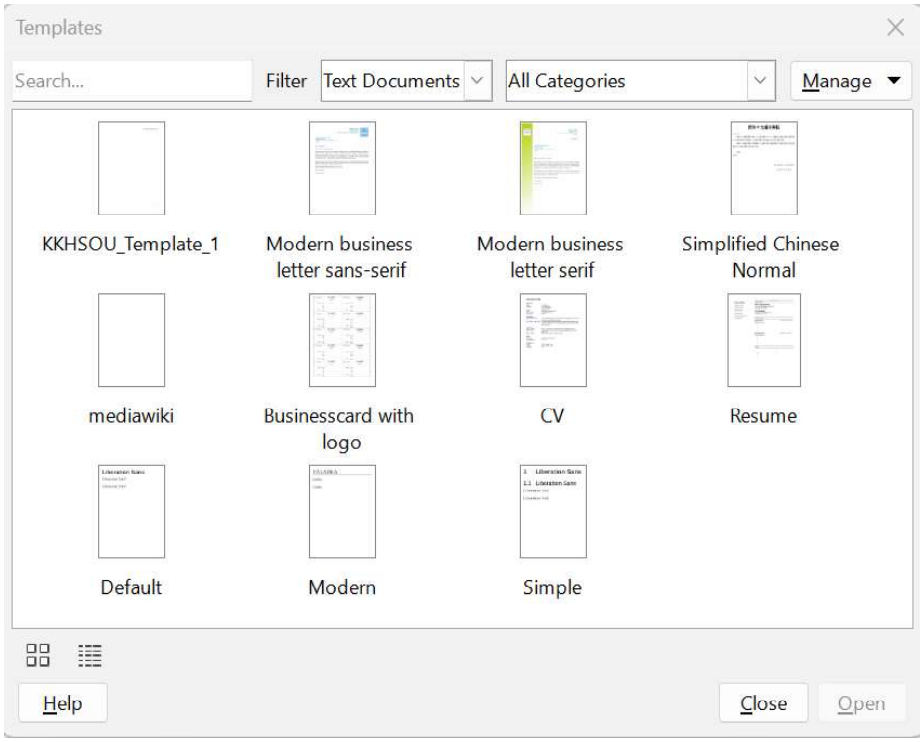
3. Customize the new document as per your requirements. This can include formatting the text, changing the page layout, adding headers and footers, and inserting any required design elements.
4. Once you have customized the document, click on the “File” menu again and select “Templates” > “Save as Template.”



5. In the “Save As Template” dialog box, enter a name for the template in the “Name” field.
6. Select the category where you want to save the template. Click on the “Save” button to save the template.



7. Your new template is now saved and can be accessed from the “File” menu > “New” > “Templates” > “KKHSOU_Template_1” in the future.



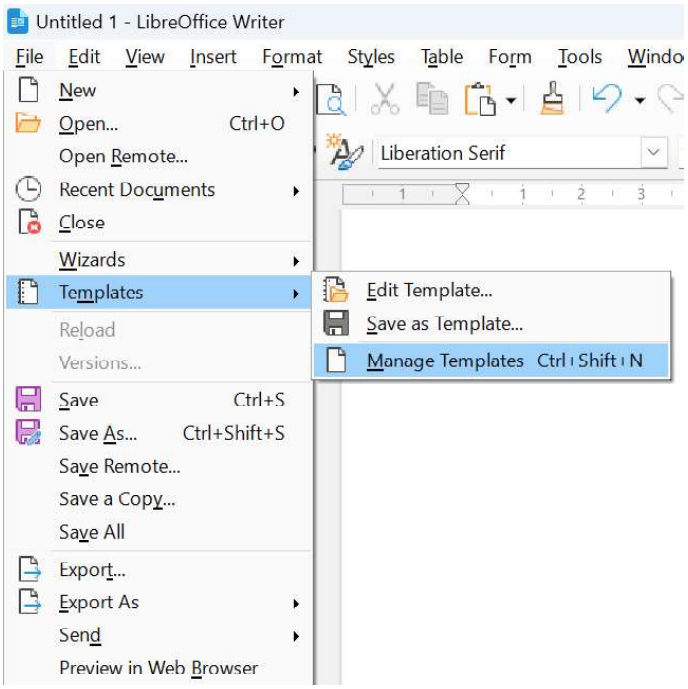
8. To use the template, simply open a new document from the "File" menu > "New" > "Templates" and select the template you want to use.

By following these steps, you can create a new template in LibreOffice Writer and save it for future use.

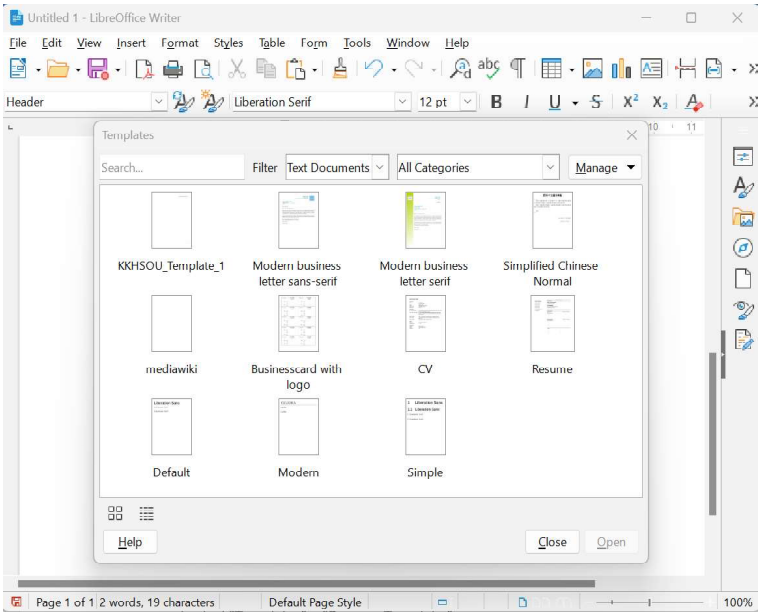
7.3.3 Modifying an Existing Template

You can modify an existing template by following the steps mentioned below:

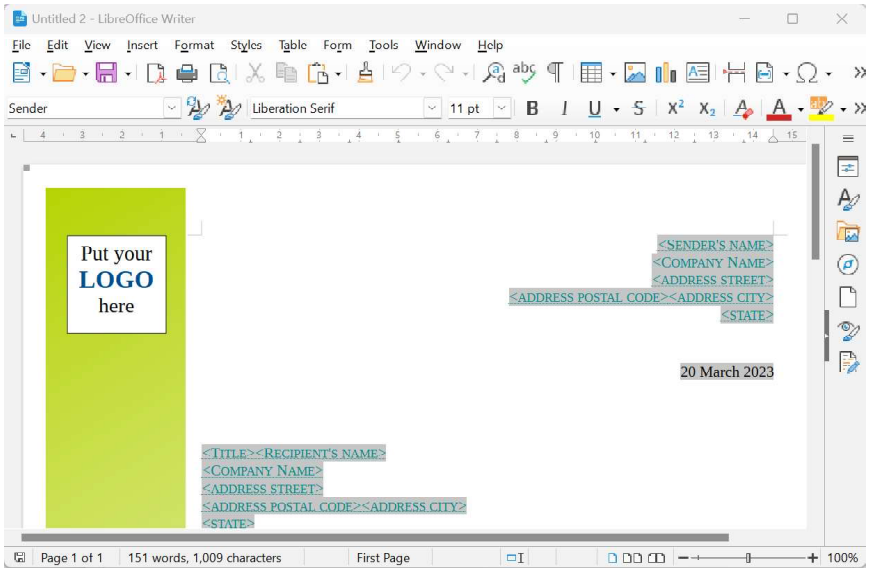
1. Open LibreOffice Writer and click on the "File" menu in the top-left corner.
2. From the drop-down menu, click on "Templates" > "Manage Templates" to open the "Template Manager" dialog box.



3. In the "Template Manager" dialog box, select the category where your existing template is saved. You can use the search bar to find the template quickly.



4. Once you have found the template, click on it to select it and then click on the “Edit” button. For example, we will edit the template named “Modern business letter serif”.



5. This will open the template in a new Writer document. You can now modify the template as per your requirements. You can add or delete text, change formatting, and modify design elements.
6. Once you have made the necessary changes, click on the “File” menu and select “Templates” > “Save as Template.”

7. In the “Save As Template” dialog box, ensure that the same template name and category are selected as the existing template.
8. Click on the “OK” button to save the modified template.

Your modified template is now saved and can be accessed from the “File” menu > “New” > “Templates” in the future.

7.4 USING DOCUMENT TEMPLATES

7.4.1 Applying a Template to a New Document

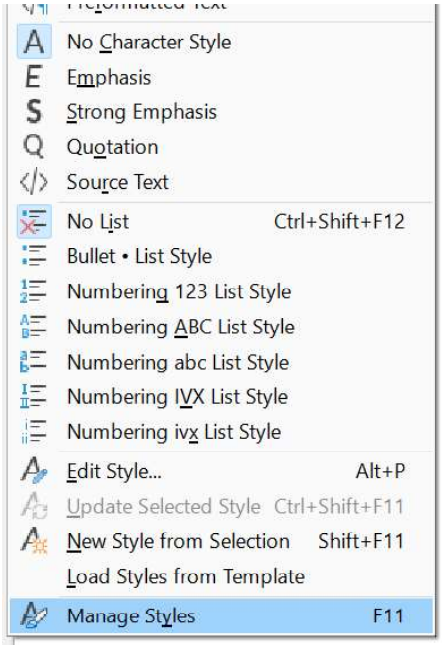
You canapply a templateto a new document in by following the steps mentioned below:

1. Open LibreOffice Writer.
2. Click on “File” in the menu bar and select “New” to create a new document.
3. In the “New Document” dialog box, select “Templates” on the left-hand side.
4. Click on the template category you want to use. For example, if you want to create a business letter, select “Business Correspondence” and then select the “Business Letter” template.
5. Once you have selected the template, click on “Create” at the bottom of the dialog box.
6. A new document will be created based on the selected template. You can now edit the document as needed.
7. If you want to save the document using a different name or location, click on “File” in the menu bar and select “Save As”. Enter the desired file name and location and click “Save”.

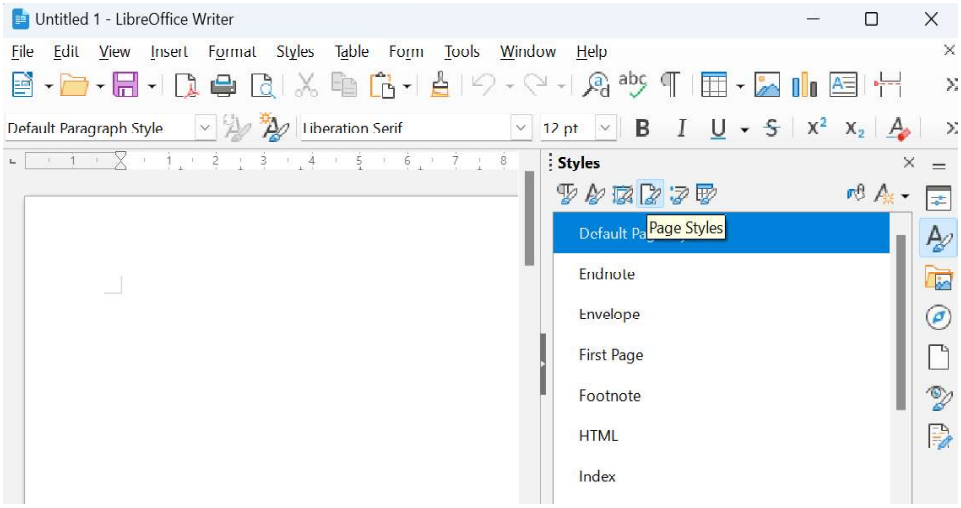
7.4.2 Changing the Template for an Existing Document

You can change the template for an existing document in LibreOffice Writer by following the steps mentioned below:

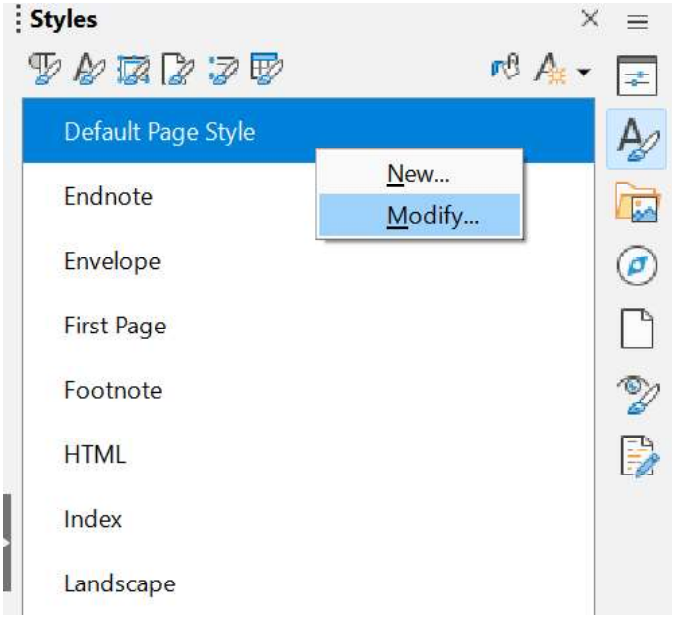
1. Open the document you want to change the template for in LibreOffice Writer.
2. Click on “Styles” in the menu bar and select “Manage Styles” from the drop-down menu.



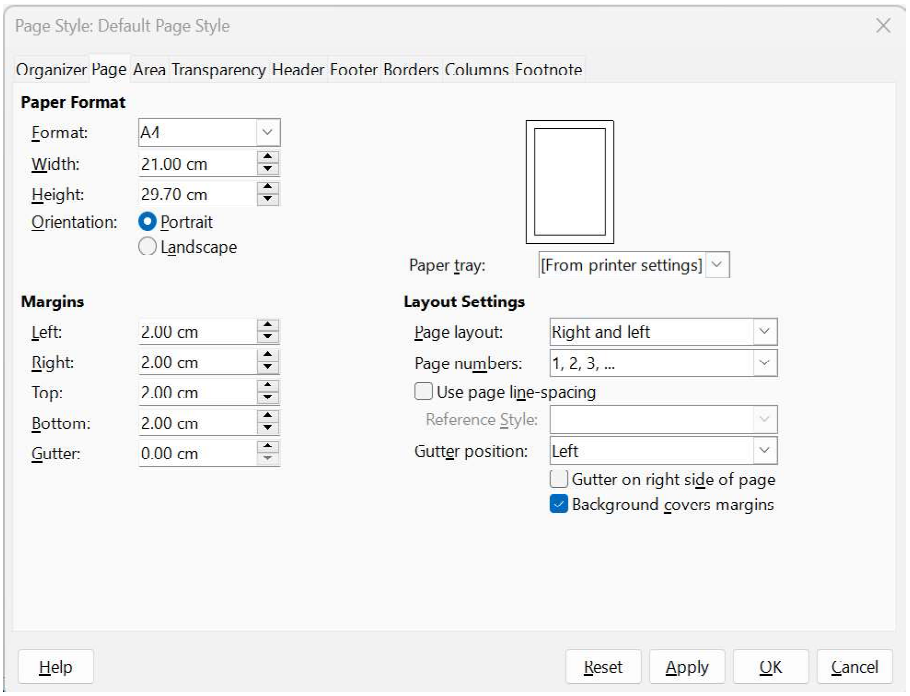
3. In the “Styles and Formatting” dialog box, click on the “Page Styles” icon.



4. Right-click on the current page style applied to the document and select “Modify” from the pop-up menu.



5. In the following window, you can change the page styles by clicking the tabs.



6. Save the changes to the document by clicking on the “Apply” and then the “OK” button.

7.5 PARAGRAPH STYLES

7.5.1 Understanding Paragraph Styles

In LibreOffice Writer, paragraph styles are a way to apply consistent formatting to a group of paragraphs. They allow you to define attributes such as font, font size, line spacing, indentation, and alignment. By applying paragraph styles, you can quickly and easily format your document, while ensuring consistency and making it easier to modify the formatting later on.

To apply a paragraph style, you can either use the Styles and Formatting dialog or the sidebar. In the Styles and Formatting dialog, select the text you want to format and then double-click the appropriate paragraph style in the list. In the sidebar, select the text you want to format, expand the Styles section, and then click the appropriate paragraph style.

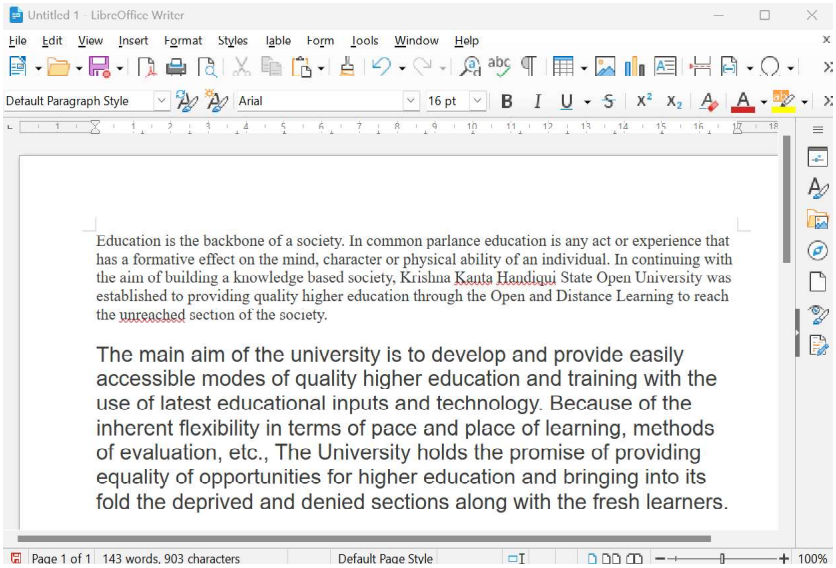
You can also modify existing paragraph styles or create new ones. To modify an existing style, right-click the style in the Styles and Formatting dialog and select Modify. You can then make changes to the attributes and save the modified style. To create a new style, click the New Style button in the Styles and Formatting dialog or in the sidebar, and then define the attributes for the new style.

Using paragraph styles in LibreOffice Writer can save you time and effort in formatting your document, while also ensuring consistency and making it easier to make changes later on.

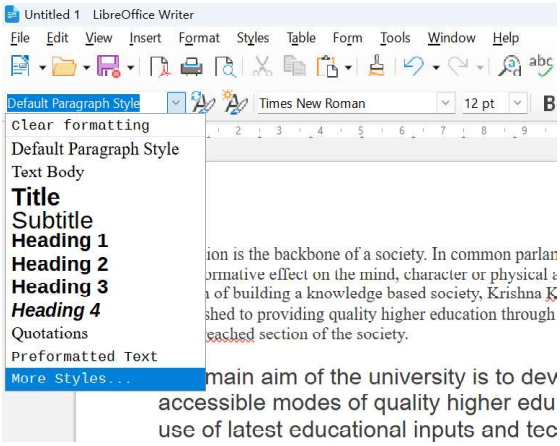
7.5.2 Creating a New Paragraph style

To create a new paragraph style in LibreOffice Writer, follow these steps:

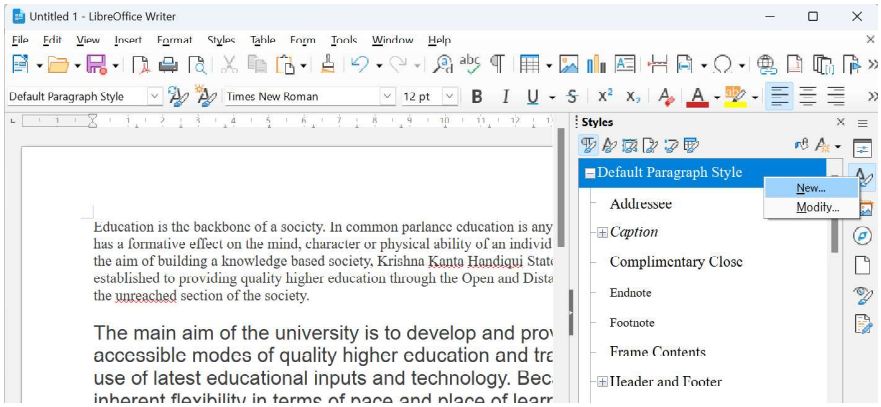
1. Open a new or existing document in Writer.For example, let us open an existing document which contains two paragraphs of different styles as shown below:



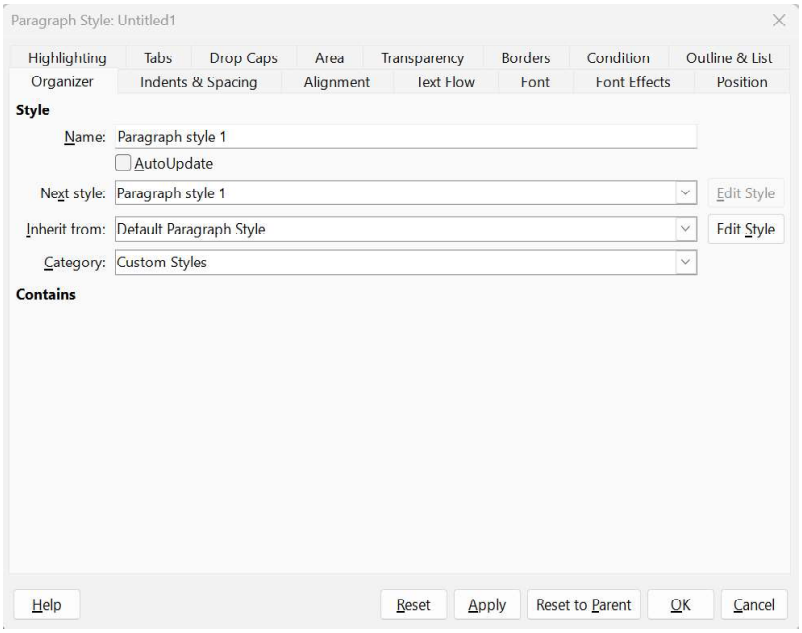
2. Go to “Default Paragraph Styles” > “More Styles” option (as shown below).

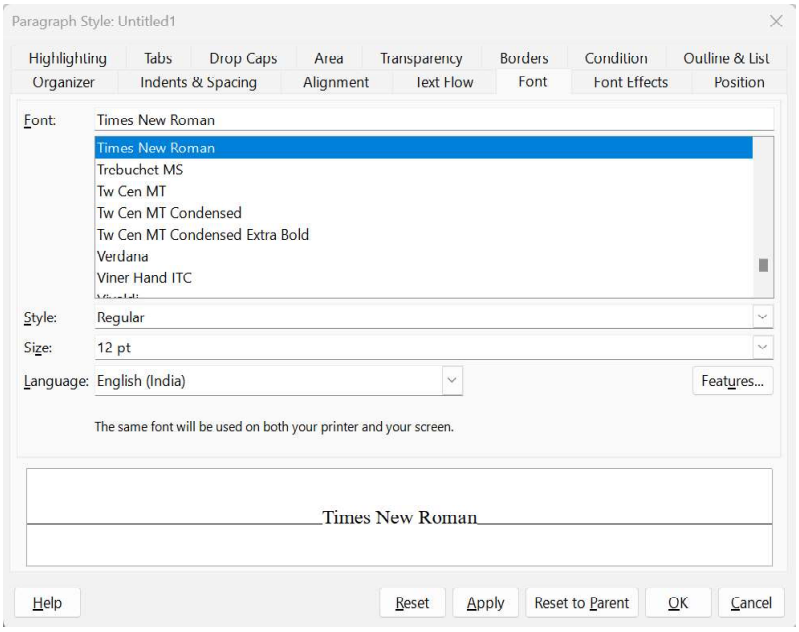


A Styles sidebar will appear in the right side of the document (as shown below).



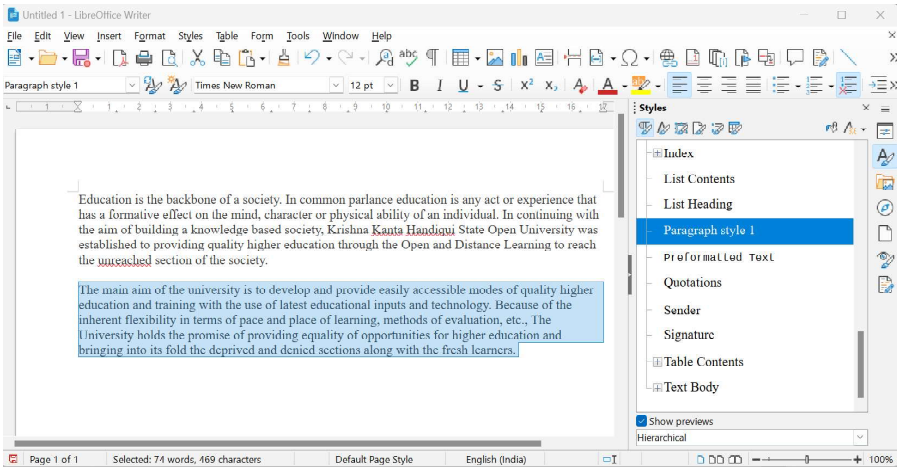
3. Right-click over the “Default Paragraph Styles” and select “New”.
4. In the Paragraph Style dialog box, give your new style a name, and then make any changes to the settings that you want to apply to the style, such as font, alignment, line spacing, or indentation. You can also choose to base your new style on an existing style by selecting it from the list of styles. (as shown below)





5. Click “Apply” and then “OK” to save your new paragraph style.

Your new style will now appear in the list of paragraph styles in the Styles and Formatting window. You can apply the style to any paragraph in your document by selecting the paragraph and then clicking on the style in the list. Let us change the second paragraph to this new style. For this, select the second paragraph in the document, then double click over the new paragraph style just created. The two paragraph styles will now be same.



You can also modify or delete the style by right-clicking on it and selecting Modify or Delete.

7.5.3 Modifying a Paragraph Style

To modify a paragraph style in LibreOffice Writer, follow these steps:

1. Open the document in which you want to modify the paragraph style.
2. Select the text whose paragraph style you want to modify.
3. Right-click on the selected text and choose “Paragraph” from the context menu.
4. In the Paragraph dialog box, you can modify various parameters such as alignment, line spacing, indentation, and borders.

5. Once you have made the necessary changes, click on the “OK” button to apply the changes to the selected text.
6. To apply the modified paragraph style to other text in the document, select the text and right-click on it. Choose “Styles” from the context menu and then select the modified paragraph style from the list of styles.
7. If you want to save the modified paragraph style as a new style, click on the “New Style” button in the Paragraph dialog box. Give a name to the new style and click on the “OK” button to save it.

By following these steps, you can easily modify a paragraph style in LibreOffice Writer.

7.5.4 Applying Paragraph Styles to Text

To apply paragraph styles to text in LibreOffice Writer, follow these steps:

1. First, select the text that you want to apply a style to.
2. Next, open the Styles and Formatting window by pressing the F11 key or selecting “Styles” from the “Format” menu.
3. In the Styles and Formatting window, you will see a list of available paragraph styles. Click on the style that you want to apply to the selected text.
4. If the style you want to apply is not listed, you can create a new style by right-clicking on an existing style and selecting “New”. You can then modify the new style to fit your needs.
5. Once you have selected the style you want to apply, the text will be automatically formatted according to the style’s settings.
6. If you want to modify the formatting of a style, you can right-click on the style in the Styles and Formatting window and select “Modify”. This will allow you to change the font, size, color, and other formatting options for the style.
7. You can also create a custom style by selecting “New” and

choosing “Custom Style” from the drop-down menu. This will allow you to create a style with specific formatting options that are not available in the built-in styles.



CHECK YOUR PROGRESS

Q 1: Answer the following questions:

(a) What are document templates in LibreOffice Writer?

(b) How can you create a new template in LibreOffice Writer?

(c) How can you modify an existing template in LibreOffice Writer?

(d) How can you apply a template to a new document in LibreOffice Writer?

(e) What are paragraph styles in LibreOffice Writer?

By using paragraph styles in LibreOffice Writer, you can quickly and easily format your text according to a consistent set of rules, which can save you time and effort when working on larger documents.

7.6 CHARACTER STYLES

7.6.1 Understanding Character Styles

Character styles in LibreOffice Writer allow you to apply formatting to specific characters or groups of characters, separate from the formatting of the paragraph.

Creating a new character style

To create a new character style in LibreOffice Writer, follow these steps:

1. First, open the Styles and Formatting window by pressing the F11 key or selecting “Styles” from the “Format” menu.
2. In the Styles and Formatting window, click on the “Character Styles” button in the toolbar at the top.
3. Right-click anywhere in the “Character Styles” section and select “New”.

4. In the “New Style” dialog box, enter a name for your new character style in the “Name” field.
5. In the “Properties” tab, you can set various formatting options for your new character style, such as font, size, color, and more.
6. Once you have set the desired formatting options, click “OK” to create your new character style.
7. To apply your new character style to text, simply select the text and click on the name of your new character style in the “Character Styles” section of the Styles and Formatting window.

You can also modify existing character styles by right-clicking on them in the Styles and Formatting window and selecting “Modify”. This will allow you to change the formatting options for the style, as well as the name and other properties.

Using character styles in LibreOffice Writer can save you time and effort by allowing you to quickly apply consistent formatting to your text throughout your document.

7.6.2 Modifying a Character Style

To modify a character style in LibreOffice Writer, follow these steps:

1. Open the Styles and Formatting window by pressing the F11 key or selecting “Styles” from the “Format” menu.
2. In the Styles and Formatting window, select the “Character Styles” tab.
3. Locate the character style you want to modify in the list and right-click on it.
4. Select “Modify” from the context menu that appears.
5. In the Modify Style dialog box, you can make changes to the formatting options for the character style. For example, you can change the font, size, color, or any other attribute of the selected character style.

6. Once you have made the necessary changes, click “OK” to apply them to the style.
7. You can also create a new character style by clicking the “New Style” button in the Styles and Formatting window and selecting “Character Style” from the drop-down menu. This will allow you to create a custom style with specific formatting options that are not available in the built-in styles.

By modifying or creating character styles in LibreOffice Writer, you can quickly and easily apply consistent formatting to your text, which can save you time and effort when working on larger documents.

7.6.3 Applying Character Styles to Text

To apply character styles to text in LibreOffice Writer, follow these steps:

1. Select the text that you want to apply a character style to.
2. Open the Character Styles window by selecting “Styles” from the “Format” menu and then selecting “Character Styles” from the drop-down menu.
3. In the Character Styles window, you will see a list of available character styles. Click on the style that you want to apply to the selected text.
4. If the style you want to apply is not listed, you can create a new style by right-clicking on an existing style and selecting “New”. You can then modify the new style to fit your needs.
5. Once you have selected the style you want to apply, the text will be automatically formatted according to the style’s settings.
6. If you want to modify the formatting of a character style, you can right-click on the style in the Character Styles window and select “Modify”. This will allow you to change the font, size, color, and other formatting options for the style.
7. You can also create a custom character style by selecting “New” and choosing “Custom Style” from the drop-down menu. This

will allow you to create a style with specific formatting options that are not available in the built-in styles.

By using character styles in LibreOffice Writer, you can quickly and easily format specific words or phrases within a paragraph or document, while maintaining consistent formatting throughout the rest of the text.

7.7 MANAGING STYLES IN THE STYLES AND FORMATTING DIALOG BOX

7.7.1 Opening the Styles and Formatting Dialog Box

To open the Styles and Formatting dialog box in LibreOffice Writer, there are a few different ways:

1. Method 1: Use the F11 key
   Press the F11 key on your keyboard. This will open the Styles and Formatting dialog box.
2. Method 2: Use the Format menu
   Click on the “Format” menu in the menu bar at the top of the Writer window. From the drop-down menu, select “Styles and Formatting”. This will open the Styles and Formatting dialog box.
3. Method 3: Use the sidebar

If the sidebar is visible in your Writer window, click on the “Styles and Formatting” icon in the sidebar. This will open the Styles and Formatting dialog box.

Once you have opened the Styles and Formatting dialog box, you can use it to manage styles for your document. You can apply styles to text, modify existing styles, or create new styles.

7.7.2 Navigating the Dialog Box

When working with dialog boxes in LibreOffice Writer, you can navigate through the various options and settings using several methods. Here are some common ways to navigate dialog boxes in

Writer:

1. Use the Tab key: In most dialog boxes, you can use the Tab key to move between fields and options. Pressing Tab will move the cursor to the next field, and Shift+Tab will move the cursor to the previous field.
2. Use the arrow keys: You can also use the arrow keys to move between fields and options. The up and down arrow keys will move the cursor between options, while the left and right arrow keys will move the cursor within a field.
3. Use the mouse: You can also use the mouse to select options and fields in the dialog box. Clicking on an option or field will select it, and you can then enter text or use the drop-down menus to select options.
4. Use keyboard shortcuts: Many dialog boxes have keyboard shortcuts that can be used to quickly navigate between options and fields. These shortcuts can be found in the menu bar or by hovering over the buttons in the dialog box.
5. Use the Enter key: In some dialog boxes, pressing the Enter key will select the current option and close the dialog box. This can be useful for quickly making changes without having to navigate through all the options.

By using these methods to navigate through dialog boxes in LibreOffice Writer, you can quickly and easily make changes to your documents and settings.

7.7.3 Managing Styles in the Dialog Box

To manage styles in the dialog box in LibreOffice Writer, follow these steps:

1. Open the Styles and Formatting window by pressing the F11 key or selecting “Styles” from the “Format” menu.
2. In the Styles and Formatting window, click on the “Manage Styles” button at the bottom of the window. This will open the “Organizer” dialog box.

3. In the Organizer dialog box, you can manage the styles in several ways:
4. To create a new style, click on the “New” button at the bottom of the window. This will open the “New Style” dialog box, where you can specify the properties of the new style.
5. To modify an existing style, select the style in the list on the left-hand side of the window and click on the “Modify” button. This will open the “Modify Style” dialog box, where you can change the properties of the style.
6. To delete a style, select the style in the list and click on the “Delete” button. Note that you cannot delete built-in styles.
7. To rename a style, select the style in the list and click on the “Rename” button. Enter the new name for the style in the dialog box that appears.
8. To import styles from another document or template, click on the “Import” button and select the document or template that contains the styles you want to import.
9. To export styles to another document or template, select the styles you want to export and click on the “Export” button. Save the styles as a separate document or template.

Once you have made any necessary changes to the styles, click on the “OK” button to close the Organizer dialog box and return to the Styles and Formatting window.

By managing styles in the dialog box, you can more easily create and modify styles in LibreOffice Writer. This can help you to create documents with a consistent and professional appearance.



7.8 LET US SUM UP

- Document templates in LibreOffice Writer are pre-designed formats that include page layout, font styles, header and footer, and other design elements to create a professional-looking document.

- These templates can save time and effort by providing a starting point for creating a new document.
- LibreOffice Writer comes with built-in templates, and you can also create your own custom templates.
- To create a new template, you can start with a blank document or an existing document and customize it to suit your needs.
- You can modify an existing template by opening it in LibreOffice Writer, making the necessary changes, and saving it as a new template.
- To use a template, you can select it from the “Templates” option under the “New” menu or from the “Template Manager” dialog box.
- LibreOffice Writer uses paragraph styles to apply consistent formatting to a group of paragraphs, including font, font size, line spacing, indentation, and alignment.
- Paragraph styles can be applied using the Styles and Formatting dialog or the sidebar, and existing styles can be modified or new ones created.
- Modifying a paragraph style can be done through the Paragraph dialog box, and the modified style can be saved as a new style.
- Applying paragraph styles to text is a simple process of selecting the text and choosing the appropriate style from the Styles and Formatting window.
- Character styles in LibreOffice Writer allow for formatting specific characters or groups of characters separately from the paragraph.
- Creating a new character style involves opening the Styles and Formatting window, selecting the Character Styles button, and defining the formatting for the new style.



7.9 FURTHER READINGS

1) “Getting Started with LibreOffice Writer,” The Document Foundation, accessed March 11, 2023, https://documentation.libreoffice.org/en/english-documentation/getting-started-writer/.

2) “LibreOffice Writer Guide,” The Document Foundation, accessed

March 11, 2023, https://documentation.libreoffice.org/en/english-documentation/writer-guide/.

3) "LibreOffice Writer Tutorial," Tutorials Point, accessed March 11, 2023, https://www.tutorialspoint.com/libreoffice/libreoffice_writer_tutorial.htm.



7.10 ANSWERS TO CHECK YOUR PROGRESS

Ans.to.Q.No.1:

(a) Document templates are pre-designed formats that can be used to create new documents in LibreOffice Writer.

(b) To create a new template in LibreOffice Writer, you can customize a new or existing document and then click on "File" > "Templates" > "Save as Template."

(c) To modify an existing template in LibreOffice Writer, you can select the template from the "Template Manager" dialog box, click on "Edit," make the necessary changes, and then save the modified template.

(d) To apply a template to a new document in LibreOffice Writer, you can click on "File" > "New" > "Templates," select the template category, choose the desired template, and then click on "Create."

(e) Paragraph styles are a way to apply consistent formatting to multiple paragraphs in LibreOffice Writer.



7.11 MODEL QUESTIONS

Q.1: What are document templates, and how can they be useful in LibreOffice Writer?

Q.2: How can you create a new template in LibreOffice Writer, and what steps are involved in the process?

Q.3: Can you modify an existing template in LibreOffice Writer? If so, how can you do it?

Q.4: What is the procedure for saving and using templates in LibreOffice Writer?

Q.5: How can you apply a template to a new document in LibreOffice Writer, and what are the steps involved in the process?

Q.6: Can you customize a document template in LibreOffice Writer, and if yes, what kind of modifications can you make?

Q.7: What are paragraph styles in LibreOffice Writer and how can they be useful in formatting a document?

Q.8: Can you explain the process of creating a new paragraph style in LibreOffice Writer?

Q.9: How can you modify an existing paragraph style in LibreOffice Writer?

Q.10: What are character styles in LibreOffice Writer and how do they differ from paragraph styles?

Q.11: Can you explain how to create a new character style in LibreOffice Writer?

Q.12: How can you apply paragraph and character styles to text in LibreOffice Writer?

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UNIT 8 : FORMATTING DOCUMENTS IN WRITER

UNIT STRUCTURE

8.1 Learning Objectives

8.2 Introduction

8.3 Inserting and Formatting Images

- 8.3.1 Adding Images
- 8.3.2 Resizing Images
- 8.3.3 Wrapping Text Around Images
- 8.3.4 Applying Image Effects

8.4 Adding and Formatting Tables

- 8.4.1 Creating Tables
- 8.4.2 Merging and Splitting Cells

8.5 Applying Advanced Formatting Options

- 8.5.1 Adding Page Borders
- 8.5.2 Applying Page Backgrounds

8.6 Using Writer's Built-in Tools for Checking and Translation

- 8.6.1 Spell-checking and Autocorrect
- 8.6.2 Thesaurus and Word Completion
- 8.6.3 Language Translation

8.7 Let Us Sum Up

8.8 Further Readings

8.9 Answers to Check Your Progress

8.10 Model Questions

8.1 LEARNING OBJECTIVES

After going through this unit, the learners will be able to

- add images to a Writer document
- resize images to fit your document's layout
- wrap text around images to create an aesthetically pleasing design
- apply image effects such as brightness, contrast, and transparency
- create tables and add rows and columns to organize your content

- format table cells to adjust their appearance and alignment
- merge and split table cells as necessary
- apply table styles to improve the overall look of your tables
- add page borders, columns, and backgrounds to your document for advanced formatting options
- work with templates to save time and streamline your document creation process
- utilize Writer's built-in tools such as spell-checking, grammar-checking, thesaurus and word completion, and language translation to improve the quality of your writing.

8.2 INTRODUCTION

In Writer, LibreOffice's word processing software, you can enhance your documents by adding images and tables, as well as applying advanced formatting options. In this section, we will explore how to insert and format images, including resizing, wrapping text around images, and applying image effects. Additionally, we will learn how to create and format tables, including adding rows and columns, merging and splitting cells, and applying table styles. Finally, we will delve into advanced formatting options such as adding page borders, using columns, applying page backgrounds, and working with templates. To further improve your document's quality, Writer also provides built-in tools for checking spelling, grammar, thesaurus and word completion, and even language translation.

8.3 INSERTING AND FORMATTING IMAGES

8.3.1 Adding images

Here is a step-by-step procedure to add images to your LibreOffice Writer document:

1. Open the LibreOffice Writer document in which you want to add an image.
2. Click on the location in the document where you want to insert the image.

3. Click on the “Insert” tab in the menu bar at the top of the screen.
4. Click on the “Image” option from the drop-down menu.
5. In the “Insert Image” dialog box that appears, navigate to the folder where the image you want to insert is located.
6. Click on the image file to select it and then click on the “Open” button.
7. The “Insert Image” dialog box will reappear, showing a preview of the image you have selected. You can adjust the settings for the image, such as size and position, using the options available.
8. Once you have made the desired adjustments, click on the “Insert” button to insert the image into your document.
9. You can then move and resize the image as necessary by clicking and dragging it to the desired location and dragging its edges to adjust its size.
10. To apply image effects, such as brightness, contrast, and transparency, select the image and click on the “Image” tab in the sidebar that appears. Here, you will find options to adjust the image’s color, position, size, and more.

When you are finished working with the image, save your document by clicking on “File” in the menu bar and selecting “Save” or “Save As.”

8.3.2 Resizing images

Here is the step-by-step procedure to resize images in LibreOffice Writer:

1. Open the LibreOffice Writer document that contains the image you want to resize.
2. Click on the image to select it. You should see small boxes or handles around the image, indicating that it is selected.
3. To resize the image, hover your mouse over one of the handles until it changes to a double-headed arrow. Click and hold the

mouse button, then drag the handle to adjust the size of the image.

4. As you resize the image, you may notice that its aspect ratio changes. To maintain the original aspect ratio, hold down the Shift key while dragging the handle.
5. You can also adjust the size of the image by right-clicking on it and selecting “Picture” from the context menu. In the Picture dialog box, go to the “Type” tab and adjust the values in the “Size” section.
6. To further customize the image size, you can use the “Crop” and “Position” tabs in the Picture dialog box. The “Crop” tab allows you to trim the edges of the image, while the “Position” tab lets you adjust the image’s position within the frame.
7. Once you are satisfied with the image size and positioning, click “OK” to apply the changes.
8. Save your document to ensure that the resized image is saved with the document.

8.3.3 Wrapping text around images

Here are the steps to wrap text around images in LibreOffice Writer:

1. Insert the image into your document by clicking on “Insert” in the menu bar and then selecting “Image.”
2. Select the image by clicking on it.
3. Click on the “Wrap” tab in the “Image” dialog box that appears.
4. Choose one of the text wrapping options: “Right,” “Left,” or “Through.” These options allow you to position the image to the left or right of your text or to have the text flow around the image.
5. Adjust the distance between the text and the image by setting the “Spacing” option. You can specify the distance in inches or centimeters.

6. Set the “Anchor” option to determine how the image will be positioned on the page. You can anchor the image to the paragraph, the page, or to a character.
7. Click “OK” to apply the changes.

You can further adjust the image and text wrapping settings by selecting the image and going back to the “Wrap” tab in the “Image” dialog box. Experiment with different options to achieve the desired layout for your document.

8.3.4 Applying image effects

1. Open the document in which you want to apply image effects.
2. Insert an image in the document by going to Insert > Image.
3. Once the image is inserted, click on the image to select it.
4. Go to the Format menu and select Image.
5. In the Image dialog box, you will see various tabs such as Type, Crop, Borders, and Effects. Click on the Effects tab.
6. Under the Effects tab, you will see several options for adjusting the image’s brightness, contrast, and transparency.
7. To adjust the brightness, move the slider to the left to decrease the brightness or to the right to increase the brightness.
8. To adjust the contrast, move the slider to the left to decrease the contrast or to the right to increase the contrast.
9. To adjust the transparency, move the slider to the left to decrease the opacity or to the right to increase the opacity.
10. You can also choose to apply a color filter to the image. To do so, select the desired color from the drop-down menu under the Color Filter section.
11. Once you have adjusted the image effects to your liking, click OK to apply the changes.
12. Save the document to ensure that the image effects are retained.

By following these steps, you can easily apply image effects to your images in LibreOffice Writer.

8.4 ADDING AND FORMATTING TABLES

8.4.1 Creating tables

Here's a step-by-step procedure to create a table in LibreOffice Writer:

1. Open a new or existing document in LibreOffice Writer.
2. Place the cursor where you want to insert the table.
3. Click on the "Table" menu in the top menu bar.
4. Select "Insert" from the drop-down menu and click on "Table".
5. In the "Insert Table" dialog box, specify the number of rows and columns you want in the table.
6. Set any other options you need, such as adjusting the width or height of the table.
7. Click "OK" to insert the table into your document.
8. Your cursor will now be in the top-left cell of the table, allowing you to begin entering data.
9. To add rows or columns to the table, right-click anywhere within the table and select "Insert" from the context menu. From there, you can choose to insert a row above or below the current row, or a column to the left or right of the current column.
10. To format the table, you can change the font, text alignment, cell borders, and more using the formatting options in the top menu bar or by right-clicking within the table and selecting "Table Properties" from the context menu.

8.4.2 Merging and splitting cells

Merging Cells:

1. Open your Writer document and locate the table that you want to edit.
2. Select the cells that you want to merge by clicking and dragging the mouse over them.
3. Right-click on the selected cells and click "Merge Cells" from

the dropdown menu.

4. The selected cells will now be merged into one cell.

Splitting Cells:

1. Open your Writer document and locate the table that you want to edit.
2. Place the cursor inside the cell that you want to split.
3. Right-click on the cell and click “Split Cells” from the dropdown menu.
4. In the “Split Cells” dialog box, specify the number of rows and columns you want to split the cell into.
5. Click “OK” to split the cell into the specified number of rows and columns.



CHECK YOUR PROGRESS

Q 1: Write short answers of the followings:

(a) How do you add an image to a LibreOffice Writer document?

(b) How do you resize an image in LibreOffice Writer?

(c) How do you wrap text around an image in LibreOffice Writer?

(d) Can you adjust the size and position of an image in LibreOffice Writer?

(e) What is the purpose of the “Wrap” tab in the “Image” dialog box?

(f) What is the “Effects” tab in the “Image” dialog box used for?

8.5 APPLYING ADVANCED FORMATTING OPTIONS

8.5.1 Adding page borders

1. Open your document in LibreOffice Writer.
2. Click on the Format menu in the top menu bar.
3. Select Page from the dropdown menu.
4. In the Page Style dialog box, click on the Borders tab.
5. Check the Enable border checkbox to enable border settings.

6. Choose the type of border you want from the dropdown list of border styles.
7. Choose the line style, color, and width of the border by clicking on the corresponding buttons.
8. Select the desired border spacing from the dropdown list.
9. Choose whether you want to apply the border to the First Page, Other Pages, or both by clicking on the corresponding checkboxes.
10. Preview your border by clicking on the Preview button.
11. Once you are satisfied with your border settings, click on the OK button to apply the border to your document.

8.5.2 Applying page backgrounds

To apply page backgrounds in LibreOffice Writer, follow these steps:

1. Open your Writer document and go to the page where you want to add a background.
2. Click on the “Format” menu in the menu bar and select “Page”.
3. In the “Page Style” dialog box that appears, click on the “Background” tab.
4. Under the “As” section, select “Graphic” from the drop-down menu to use an image as your background, or select “Color” to use a solid color.
5. If you chose “Graphic”, click on the “Import Graphic” button and select the image you want to use as your background. You can adjust the image’s position and size using the options provided.
6. If you chose “Color”, select the color you want to use as your background by clicking on the color swatch and choosing a color from the color picker.
7. Once you have selected your background type and made any necessary adjustments, click “OK” to apply the background to your page.

Your page background should now be visible in your document. You can repeat these steps to add a background to any other pages in your document as needed.

8.6 USING WRITER'S BUILT-IN TOOLS FOR CHECKING AND TRANSLATION

8.6.1 Spell-checking and autocorrect

Here is a step-by-step procedure to use spell-checking and autocorrect in LibreOffice Writer:

1. Open the document you want to spell-check in LibreOffice Writer.
2. Click on the 'Tools' menu in the top menu bar.
3. Select 'Spelling and Grammar' from the drop-down menu.
4. The spell-checker will start scanning your document from the beginning, highlighting any misspelled words or grammar errors as it goes. Suggestions for corrections will appear in a pop-up window.
5. To correct an error, select the suggested word from the pop-up window and click 'Change'. Alternatively, you can choose to ignore the error by clicking 'Ignore' or 'Ignore All'.
6. If a suggested correction is not suitable, you can edit the word directly in the document or add it to the dictionary by clicking 'Add'.
7. If you want LibreOffice Writer to automatically correct certain errors for you, click on the 'Tools' menu again and select 'AutoCorrect Options'.
8. In the AutoCorrect dialog box, you can enable or disable specific autocorrect options or add your own custom replacements. For example, you can set LibreOffice Writer to automatically capitalize the first letter of a sentence or replace common typos like "teh" with "the".
9. Click 'OK' to save your changes and close the AutoCorrect

dialog box.

10. When you're finished spell-checking your document, click 'OK' in the 'Spelling and Grammar' dialog box to close it.

By following these steps, you can quickly and easily check your document for spelling and grammar errors and set up autocorrect options to save time and improve the quality of your writing.

8.6.2 Thesaurus and word completion

Here is the step-by-step procedure to use the Thesaurus and word completion features in LibreOffice Writer:

Thesaurus:

1. Open the LibreOffice Writer document.
2. Select the word that you want to look up synonyms for.
3. Click on the "Tools" menu from the top menu bar and select "Language."
4. From the drop-down menu, select "Thesaurus."
5. A new dialog box will appear that will display a list of synonyms for the selected word. You can choose any word from the list and click "Replace" to replace the original word with the new one.

Word Completion:

1. Open the LibreOffice Writer document.
2. Start typing a word that you want to complete.
3. Press the F3 key or click on the "Tools" menu from the top menu bar and select "AutoCorrect Options."
4. In the "AutoCorrect" tab, make sure that the "Enable word completion" option is selected.
5. Type the first few letters of the word you want to complete and press the F3 key.
6. A pop-up window will appear with a list of words that match the letters you typed. You can select any of the words from the list to complete the word you were typing.

7. These features can help you to save time and improve the quality of your writing by providing you with synonyms and completing words for you as you type.

8.6.3 Language translation

Here is a step-by-step procedure for using the language translation feature in LibreOffice Writer:

1. Open LibreOffice Writer and create a new document, or open an existing document that you would like to translate.
2. Go to the “Tools” menu and select “Language” > “Translate Document.”
3. In the “Translate Document” dialog box that appears, select the source language of your document from the drop-down menu under “Translate from.”
4. Select the target language that you would like to translate your document to from the drop-down menu under “Translate to.”
5. Choose the translation service you want to use from the “Service” drop-down menu. By default, LibreOffice uses the “Google Translate” service, but you can also choose other translation services like DeepL, Yandex, or Microsoft Translator.
6. If necessary, enter your username and API key for the translation service you selected. Note that some services require you to sign up and obtain an API key in order to use them.
7. Choose any additional translation options you would like to use, such as whether to keep the original formatting, translate comments, or use machine translation suggestions.
8. Click “OK” to start the translation process. The translated text will appear in a new document.
9. Review the translated text and make any necessary corrections or adjustments to the formatting.
10. Save the translated document as a new file or overwrite the original document if you prefer.



CHECK YOUR PROGRESS

Q 2: Fill in the blanks:

(a) To apply page backgrounds in LibreOffice Writer, go to the _____ where you want to add a background.

(b) The spell-checker in LibreOffice Writer will highlight any misspelled words or grammar errors and suggest corrections in a _____ window.

(c) To use the Thesaurus feature in LibreOffice Writer, select the word you want to look up _____ for.

(d) To enable word completion in LibreOffice Writer, go to the "AutoCorrect" tab in the "AutoCorrect Options" dialog box and make sure that the "Enable word completion" option is _____.

(e) To access the Language Translation feature in LibreOffice Writer, select the text you want to translate and go to the "Tools" menu, then select "Language" and "Translate" from the _____ menu.

You have now successfully translated your document using LibreOffice Writer's language translation feature.



8.7 LET US SUM UP

- LibreOffice Writer is a popular word processing software that allows users to add and format images in their documents.
- Users can insert images in a Writer document by clicking on the "Insert" tab and selecting "Image" from the drop-down menu.
- The image can be resized by dragging the handles or by adjusting the values in the "Size" section of the Picture dialog box.
- Users can wrap text around images by selecting the image and going to the "Wrap" tab in the "Image" dialog box.

- The “Effects” tab in the “Image” dialog box allows users to adjust the brightness, contrast, transparency, and color filter of an image.
- Images can be anchored to a paragraph, page, or character by adjusting the “Anchor” option in the “Wrap” tab.
- The “Crop” tab in the “Picture” dialog box allows users to trim the edges of the image.
- The “Position” tab in the “Picture” dialog box allows users to adjust the image’s position within the frame.
- Users can adjust the spacing between the text and image by setting the “Spacing” option in the “Wrap” tab.
- Once the desired adjustments have been made to the image, users can save their document to ensure that the changes are retained.



8.8 FURTHER READINGS

1) “Getting Started with LibreOffice Writer,” The Document Foundation, accessed March 11, 2023, https://documentation.libreoffice.org/en/english-documentation/getting-started-writer/.

2) “LibreOffice Writer Guide,” The Document Foundation, accessed March 11, 2023, https://documentation.libreoffice.org/en/english-documentation/writer-guide/.

3) “LibreOffice Writer Tutorial,” Tutorials Point, accessed March 11, 2023, https://www.tutorialspoint.com/libreoffice/libreoffice_writer_tutorial.htm.



8.9 ANSWERS TO CHECK YOUR PROGRESS

Ans.to.Q.No.1:

(a) Click on the “Insert” tab in the menu bar, select “Image,” navigate to the folder where the image is located, select the image file, and click “Open.”

(b) Click on the image to select it and drag the handles to adjust its size. Hold down the Shift key to maintain the original aspect ratio.

(c) Insert the image, select it, click on the “Wrap” tab in the “Image” dialog box, choose a wrapping option, adjust the spacing, and set the anchor.

(d) Yes, by dragging the image and adjusting its settings in the “Image” dialog box.

(e) It allows you to adjust how text flows around the inserted image.

(f) It is used to adjust the brightness, contrast, transparency, and color filter of an image.

Ans.to.Q.No.2: (a) page (b) pop-up (c) synonyms
(d) selected (e) drop-down



8.10 MODEL QUESTIONS

Q 1: How do you add an image to a LibreOffice Writer document?

Q 2: What is the purpose of the “Wrap” tab in the “Image” dialog box in LibreOffice Writer?

Q 3: How do you resize an image in LibreOffice Writer?

Q 4: What options are available for text wrapping around an image in LibreOffice Writer?

Q 5: Can you adjust the brightness and contrast of an image in LibreOffice Writer? If so, how?

Q 6: How do you adjust the transparency of an image in LibreOffice Writer?

Q 7: What is the purpose of the “Crop” and “Position” tabs in the Picture dialog box in LibreOffice Writer?

Q 8: How can you apply a color filter to an image in LibreOffice Writer?

Q 9: Can you apply image effects to multiple images at once in LibreOffice Writer?

Q 10: How do you save a document to ensure that the resized image and image effects are retained in LibreOffice Writer?

*** ***** ***

UNIT 9 : INTRODUCTION TO CALC

UNIT STRUCTURE

9.1 Learning Objective

9.2 Introduction

9.3 Overview of Calc and its Features as a Spreadsheet Program

9.4 Launching Calc and Creating a New Spreadsheet

9.5 Navigating the Calc Interface and Understanding the Different Components of the Worksheet Window

9.6 Entering and Formatting Data

9.7 Applying Cell Formatting

9.8 Let Us Sum Up

9.9 Further Readings

9.10 Answers to Check Your Progress

10.11 Model Questions

9.1 LEARNING OBJECTIVES

After going through this unit, a learner will be able to

- explore the LibreOffice calc
- create a spreadsheet using calc
- explore the ways to enter and format data in calc
- practice formatting of data and cells in calc.

9.2 INTRODUCTION

LibreOffice Calc is a robust spreadsheet programme that is available for free and may be used for a variety of data processing activities. Calc is a fantastic alternative to proprietary spreadsheet software because to its simple user interface and wealth of functionality. In this post, we'll examine some of LibreOffice Calc's most useful capabilities and how they may be applied to efficient data management and analysis.

9.3 OVERVIEW OF CALC AND ITS FEATURES AS A SPREADSHEET PROGRAM

One of the most widely used spreadsheet programmes accessible today is Calc, an open-source spreadsheet programme created by the Apache OpenOffice project. It offers users a robust range of functions for managing and analysing data, making it an indispensable tool for organisations, people, and students.

Calc allows users to create and edit spreadsheets, perform calculations, and analyse data in various formats. Here are some of its key features:

- **Spreadsheet Creation and Editing:** Spreadsheets can be readily created, edited, and formatted with Calc. Cells, rows, and columns may be added, removed, or moved by users. Calc also offers a number of templates for typical spreadsheets including budget sheets, calendars, and invoicing.
- **Calculation and Formulas:** Calc provides a wide range of mathematical and financial functions that enable users to perform complex calculations on their data. It supports a range of operators, including arithmetic, comparison, and logical operators. Users can create complex formulas using functions and operators to perform calculations on their data.
- **Data Analysis:** A variety of tools are available in Calc to assist users in data analysis. Data can be sorted and filtered by users, pivot tables can be made, and the DataPilot function can be used to build sophisticated data analysis models. Moreover, Calc supports a number of chart types, enabling users to rapidly and simply visualise their data.
- **Compatibility:** Calc is compatible with Microsoft Excel, which means users can open, edit, and save Excel files using Calc. This makes it easy to share files with others who use Excel.
- **Collaboration:** Calc supports collaboration features that enable users to work together on a spreadsheet. Users can share their spreadsheets

with others and track changes made by different users. Additionally, Calc supports a range of file formats, making it easy to exchange files with other spreadsheet programs.

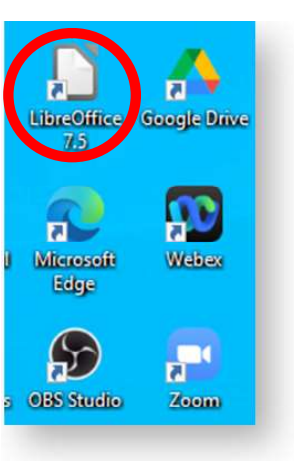
- **Macros:** Calc allows users to create macros, which are sets of instructions that automate repetitive tasks. Users can create macros using Calc's built-in macro recorder or write macros using a programming language called OpenOffice Basic.

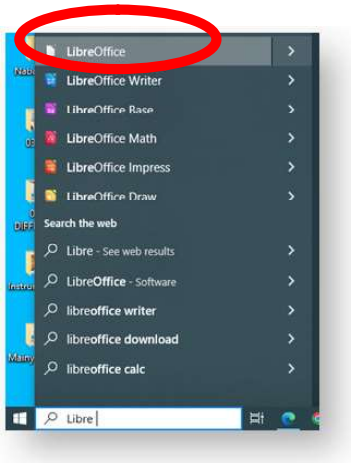
Calc is a robust and adaptable spreadsheet tool that offers a number of functions for data management and analysis. It is the perfect solution for businesses and individuals who need to use spreadsheets because of its interoperability with Microsoft Excel and collaborative features. Calc offers the tools you need to complete the task, whether you're making a budget, evaluating data, or working with colleagues.

9.4 LAUNCHING CALC AND CREATING A NEW SPREADSHEET

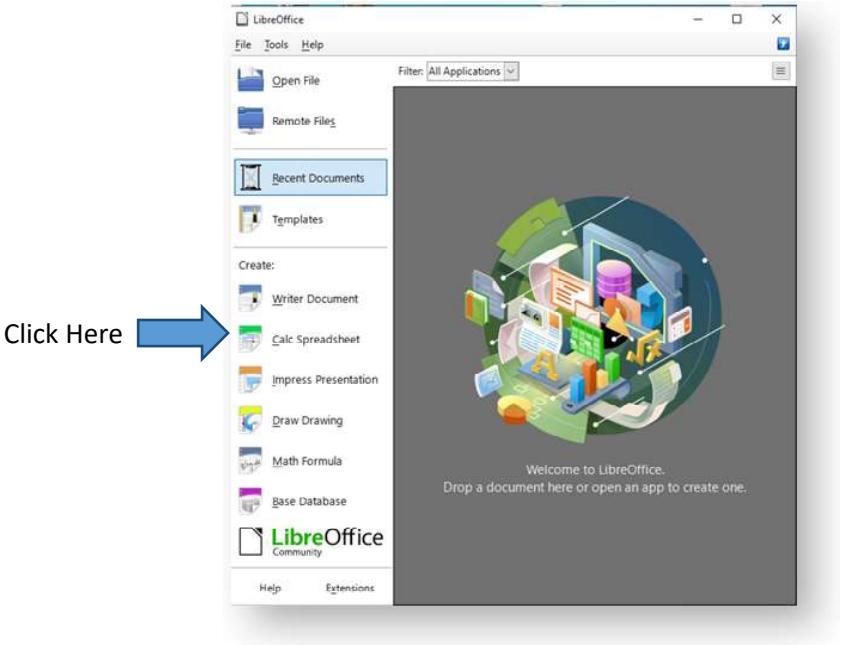
LibreOffice Calc is a free and open-source spreadsheet program that allows users to create and edit spreadsheets. It is part of the LibreOffice suite, which is available for Windows, macOS, and Linux. Here are the steps to launch LibreOffice Calc and create a new spreadsheet:

1. **Launch LibreOffice:** To launch LibreOffice, you can either click on the LibreOffice shortcut on your desktop or open the Start menu and search for LibreOffice. Click on the LibreOffice icon to launch the program.

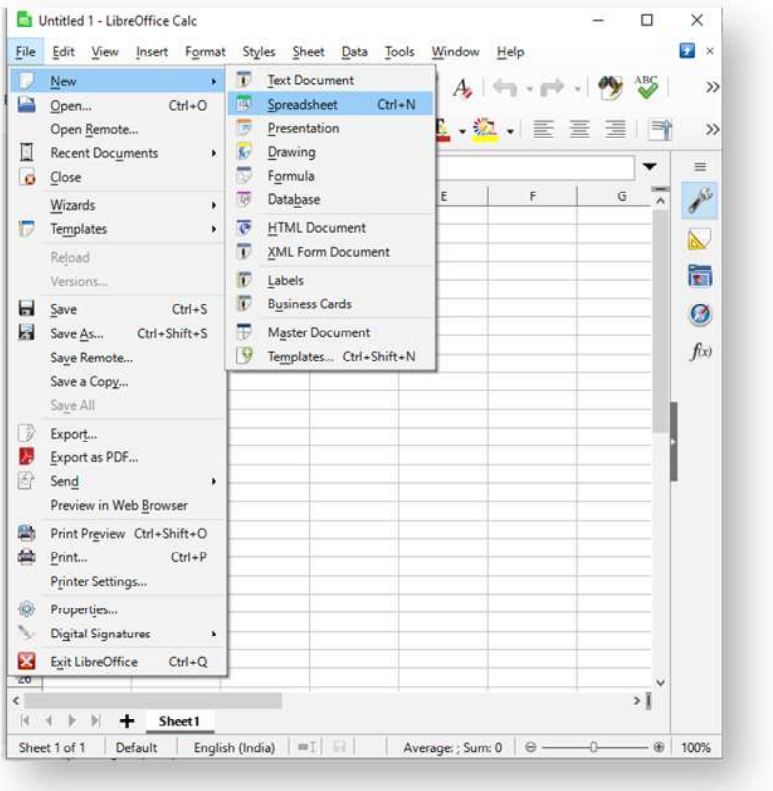




2. Open Calc: Once LibreOffice is open, click on the Calc Spreadsheet



3. Create a new spreadsheet: To create a new spreadsheet, click on the File menu and select New > Spreadsheet. Alternatively, you can press the shortcut key Ctrl+N to create a new spreadsheet.

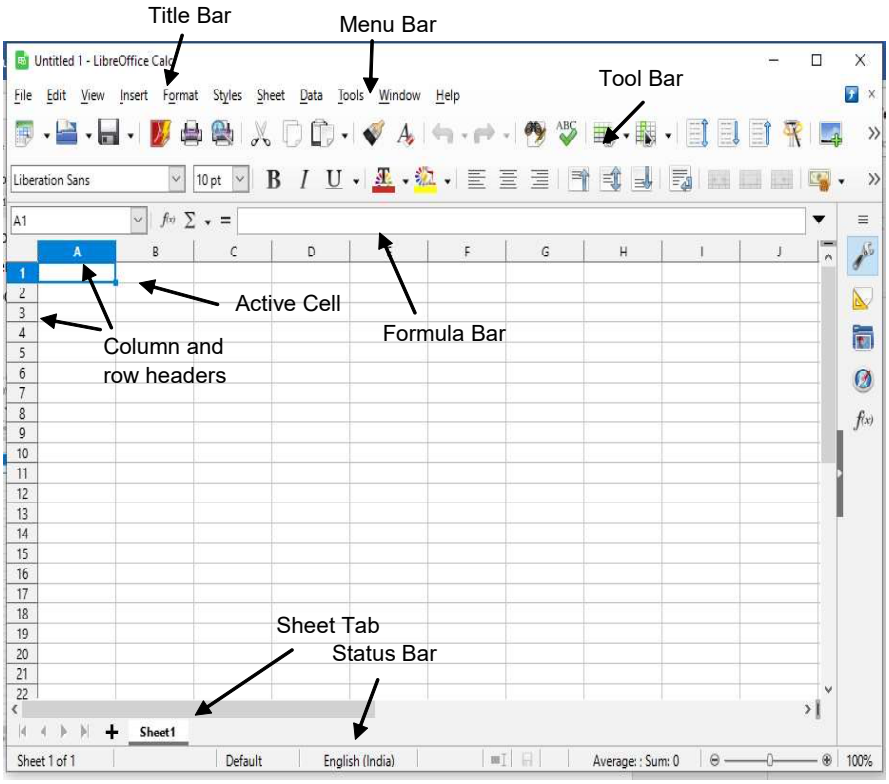


4. **Customize the spreadsheet:** Once you've created a new spreadsheet, you can customize it by adding or removing rows and columns, changing the font size and style, and changing the background color. You can also add borders and shading to cells, merge cells, and add conditional formatting.
5. **Add data:** To add data to your spreadsheet, simply click on a cell and start typing. You can also copy and paste data from other sources, such as a website or another spreadsheet program. Once you've added your data, you can use Calc's calculation and formula functions to perform calculations and analyse your data.
6. **Save the spreadsheet:** To save your spreadsheet, click on the File menu and select Save. You can also use the shortcut key Ctrl+S. Choose a location on your computer to save the spreadsheet, give it a name, and select a file format. Calc supports a range of file formats, including ODS, XLS, and CSV.

9.5 NAVIGATING THE CALC INTERFACE AND UNDERSTANDING THE DIFFERENT COMPONENTS OF THE WORKSHEET WINDOW

LibreOffice Calc is a spreadsheet application that allows users to create, edit, and manipulate data in a table format. Navigating the interface of LibreOffice Calc is essential to efficiently work with data in the worksheet window. The following steps will help you navigate the LibreOffice Calc interface and understand its different components.

Let us again open Calc as described above and open a new spreadsheet. Now the spreadsheet window is the primary working area of LibreOffice Calc, where you enter and manipulate data. The worksheet window is divided into several components, which include:



Title bar: The Title Bar is located at the very top of the window. On the Title Bar, Calc displays the name of the spreadsheet you are currently using with the application name. At the top of your window, you could see "Untitled 1 -LibreOffice Calc" or a similar name.

Menu bar: The menu bar is located at the top of the LibreOffice Calc window and contains a list of commands that you can use to manipulate data in your worksheet.

Toolbars: Toolbars are located below the menu bar and contain a set of tools that you can use to perform various tasks.

Formula bar: The formula bar is located below the toolbars and displays the contents of the currently selected cell or range of cells.

Column and row headers: Columns are labeled with letters from A to Z, and then AA to AZ, BA to BZ, and so on. Rows are labeled with numbers from 1 to 1048576.

Sheet tabs: Sheet tabs are located at the bottom of the worksheet window and allow you to switch between different sheets in your workbook.

Status bar: The status bar is located at the bottom of the LibreOffice Calc

window and displays information about the current status of your worksheet.

1. Navigating the worksheet window: To navigate the worksheet window, you can use the arrow keys on your keyboard or use the scroll bars on the right and bottom of the window to move up, down, left, or right.
2. Selecting cells and ranges: To select a single cell, click on it. To select a range of cells, click and drag the cursor over the cells you want to select, or hold down the Shift key while using the arrow keys to move to the range you want to select.
3. Entering data: To enter data in a cell, click on the cell, and start typing. You can also use the formula bar to enter data by typing it directly into the formula bar.
4. Saving your work: To save your work, click on the File menu and select Save or use the shortcut key Ctrl+S. You can also use the Save As option to save your workbook with a different name or in a different location.



CHECK YOUR PROGRESS 1

Choose the correct option

Q 1: What is Calc?

A) A word processing program B) A presentation program

C) A spreadsheet program D) A database program

Q 2: What is the purpose of macros in Calc?

A) To create data charts

B) To automate repetitive tasks

C) To import data from other sources

D) To filter and sort data

Q 3: What is the shortcut key to create a new spreadsheet in LibreOffice Calc?

A) Ctrl+S B) Ctrl+N

C) Ctrl+O D) Ctrl+P

Q 4: What is the purpose of the Formula bar in LibreOffice Calc?

A) To display the contents of the currently selected cell or range of cells

B) To customize the appearance of cells

C) To add or remove rows and columns

D) To save a spreadsheet

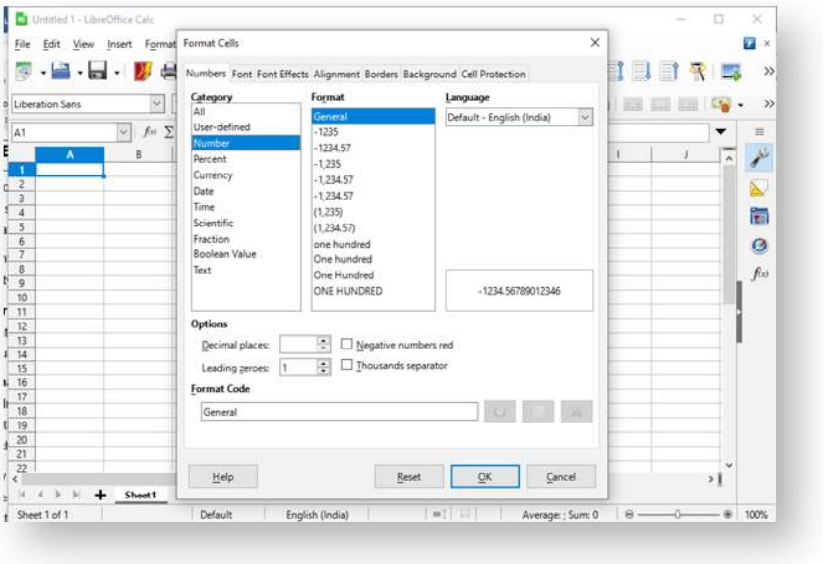
9.6 ENTERING AND FORMATTING DATA

Till now we have discussed about how to start LibreOffice Calc and create a new spreadsheet. Now let us discuss the steps involved in Entering and formatting data in LibreOffice Calc.

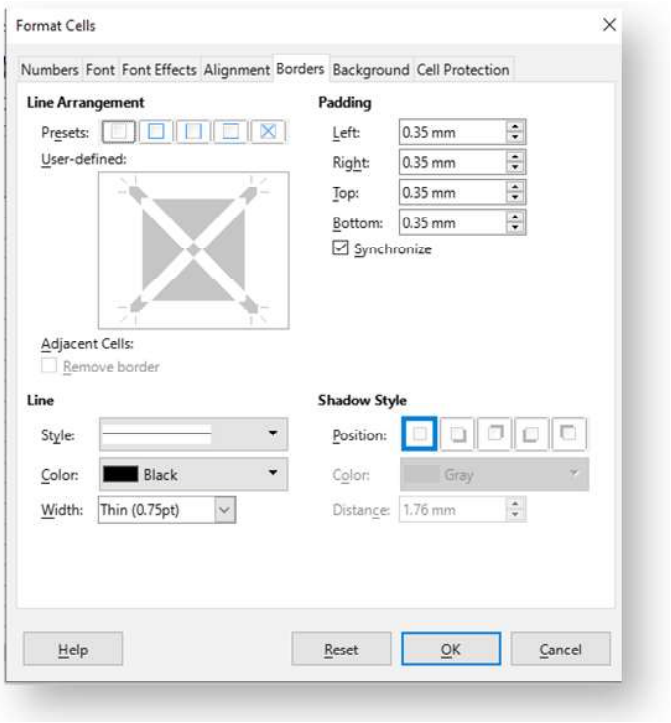
To enter data into a cell, simply click on the cell you want to enter data into and start typing. You can enter text, numbers, dates, and formulas.

Enter data into cells: To enter data into a cell, simply click on the cell you want to enter data into and start typing. You can enter text, numbers, dates, and formulas.

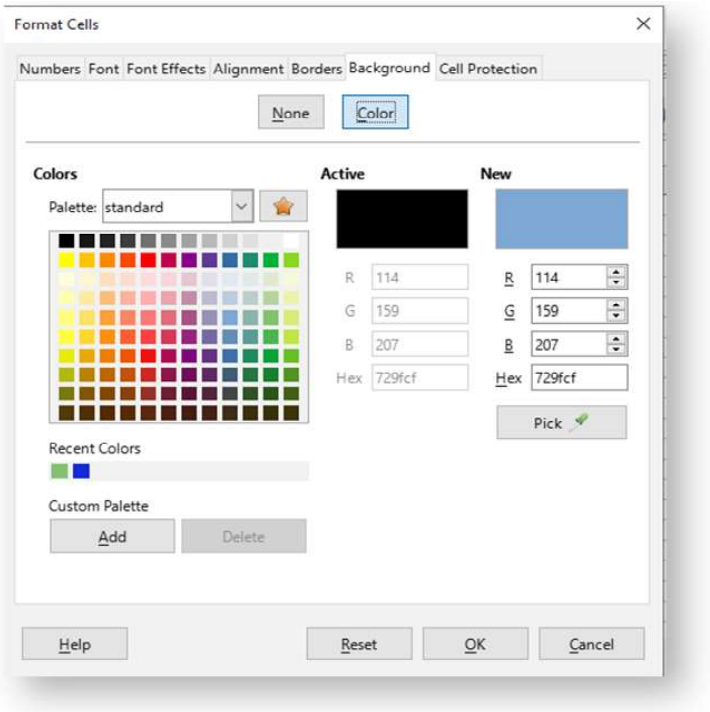
Format cells: To format cells, select the cells you want to format by clicking and dragging your mouse over them. Then, right-click and select “Format Cells” from the context menu. This will open the “Format Cells” dialog box, where you can choose the formatting options you want to apply.



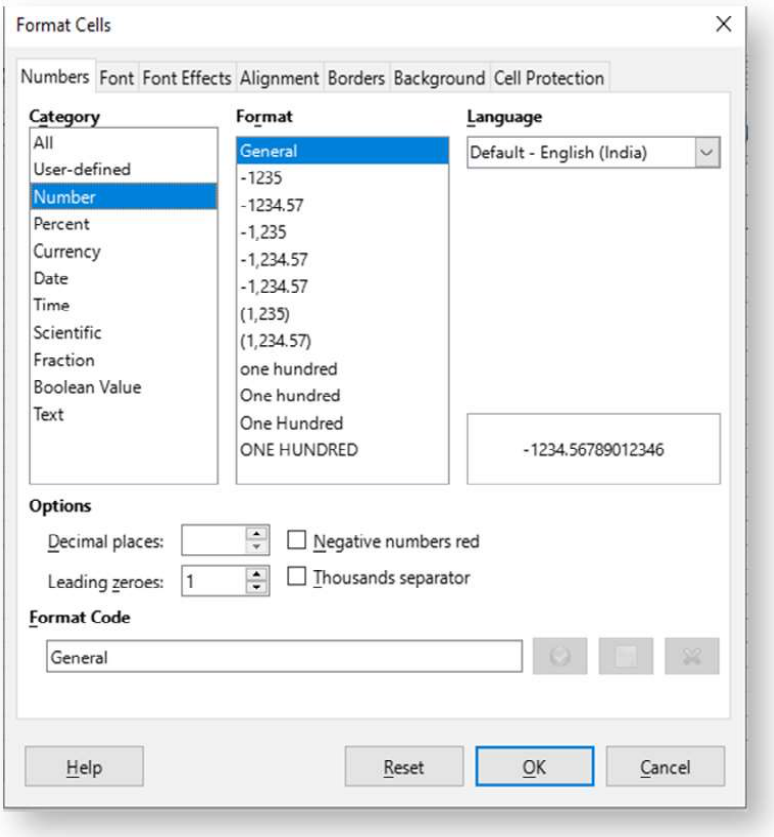
Apply cell borders: To apply cell borders, select the cells you want to apply borders to by clicking and dragging your mouse over them. Then, right-click and select “Format Cells” from the context menu. In the “Format Cells” dialog box, select the “Borders” tab and choose the border style you want to apply.



Apply cell background colour: To apply a background colour to cells, select the cells you want to apply the background colour to by clicking and dragging your mouse over them. Then, right-click and select “Format Cells” from the context menu. In the “Format Cells” dialog box, select the “Background” tab and choose the background color you want to apply.



Apply number formatting: To apply number formatting to cells, select the cells you want to apply number formatting to by clicking and dragging your mouse over them. Then, right-click and select “Format Cells” from the context menu. In the “Format Cells” dialog box, select the “Numbers” tab and choose the number formatting you want to apply.



Save your work: Once you have entered and formatted your data, it is important to save your work. To do this, select “File” > “Save” from the menu and choose a location on your computer to save the spreadsheet

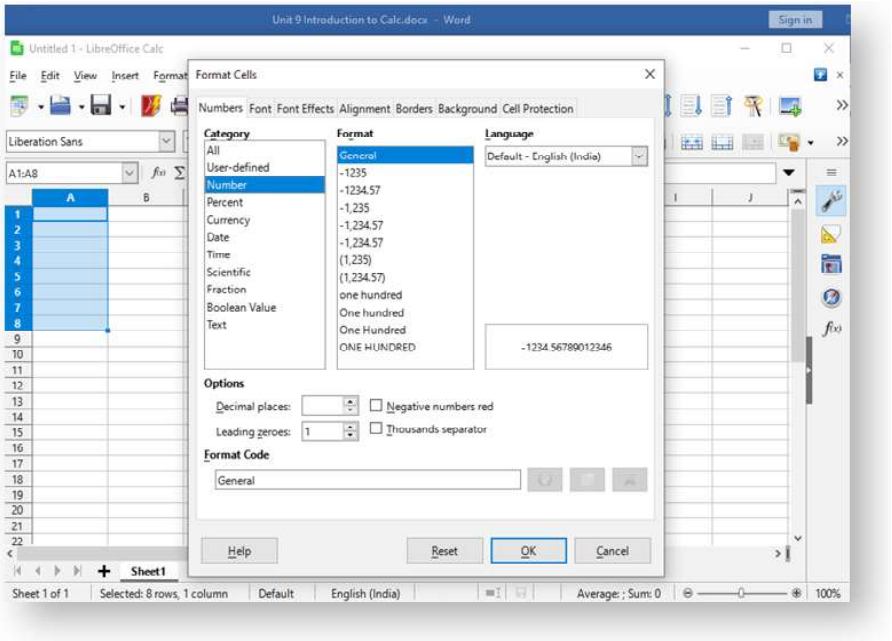
9.7 APPLYING CELL FORMATTING

LibreOffice Calc is a powerful spreadsheet program that allows you to apply a variety of cell formatting options to your data. Here are the steps involved in applying cell formatting in LibreOffice Calc:

1. Select the cell(s) you want to format: To apply formatting to a cell, first, you need to select the cell or range of cells you want to format. You can do this by clicking and dragging your mouse over the cells or

by clicking on the first cell and then holding down the Shift key while clicking on the last cell in the range.

2. Open the “Format Cells” dialog box: Once you have selected the cell(s) you want to format, right-click on the selected cell(s) and select “Format Cells” from the context menu. Alternatively, you can go to the “Format” menu and select “Cells.”



3. Choose the type of formatting you want to apply: In the “Format Cells” dialog box, you will see several tabs that allow you to choose the type of formatting you want to apply. For example, you can choose to format the cells as numbers, currency, percentages, dates, times, or text. You can also apply different types of alignment, borders, and background colors.

4. Customize the formatting options: Once you have selected the type of formatting you want to apply, you can customize the formatting options to meet your specific needs. For example, you can choose the number of decimal places to display, the currency symbol to use, or the date format o apply.

5. Preview your formatting: As you make changes to your formatting options, you can preview the changes in the “Preview” section of the “Format Cells” dialog box. This allows you to see how your data will

look before you apply the formatting.

6. Apply your formatting: Once you are satisfied with the formatting options, click the “OK” button to apply the formatting to your selected cells.

By following these simple steps, you can apply a wide range of formatting options to your data in LibreOffice Calc, making it easy to present your data in a clear and professional manner.



CHECK YOUR PROGRESS 2

Fill-up the gaps for the following

Q 5: To enter data into a cell in LibreOffice Calc, simply click on the cell you want to enter data into and start _____.

Q 6: To format cells in LibreOffice Calc, select the cells you want to format by clicking and dragging your mouse over them. Then, right-click and select “Format Cells” from the _____ menu.

Q 7: To apply cell borders in LibreOffice Calc, select the cells you want to apply borders to by clicking and dragging your mouse over them. Then, right-click and select “Format Cells” from the context menu. In the “Format Cells” dialog box, select the “Borders” tab and choose the border style you want to _____.

Q 8: To apply number formatting to cells in LibreOffice Calc, select the cells you want to apply number formatting to by clicking and dragging your mouse over them. Then, right-click and select “Format Cells” from the context menu. In the “Format Cells” dialog box, select the “Numbers” tab and choose the number formatting you want to _____.



9.8 LET US SUM UP

- Calc is a versatile and powerful open-source spreadsheet program that provides users with a range of functions for managing and analyzing data, including spreadsheet creation and editing, calculation and formulas, data analysis, compatibility with Microsoft Excel, collaboration features, and macros.
- With its ease of use, robust features, and compatibility with Microsoft Excel, Calc is an essential tool for businesses, individuals, and students who need to create and manage spreadsheets, perform complex calculations, analyze data, and collaborate with others.
- LibreOffice Calc is a free and open-source spreadsheet program that is available for Windows, macOS, and Linux and allows users to create and edit spreadsheets.
- To launch LibreOffice Calc and create a new spreadsheet, users need to open the LibreOffice program, select Calc Spreadsheet, create a new spreadsheet, customize it, add data, and save the file in a chosen file format.
- The LibreOffice Calc interface consists of several components, including the title bar, menu bar, toolbars, formula bar, column and row headers, sheet tabs, and status bar. Navigating and working with data in Calc requires an understanding of these different components.
- To enter and format data in Calc, you can click on a cell to enter data, select cells to apply formatting, and use various formatting options, such as cell borders, background colors, and number formatting. It is important to save your work regularly to avoid losing any changes.
- The steps involved in applying cell formatting in LibreOffice Calc include selecting the cell(s), opening the “Format Cells” dialog box, choosing the type of formatting, customizing the formatting options, previewing the formatting changes, and applying the formatting to the selected cells. By following these steps, users can apply various formatting

options to their data in LibreOffice Calc to present it in a clear and professional manner.



9.9 FURTHER READINGS

1) Lowenthal, M. (2015). Calc for dummies. John Wiley & Sons.

2) Starks, C. (2013). LibreOffice Calc Guide. The Document Foundation.



9.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: C) A spreadsheet program

Ans to Q No 2: B) To automate repetitive tasks

Ans to Q No 3: B) Ctrl+N

Ans to Q No 4: A) To display the contents of the currently selected cell or range of cells

Ans to Q No 5: Answer: typing

Ans to Q No 6: Answer: context

Ans to Q No 7: Answer: apply

Ans to Q No 8: Answer: apply



9.11 MODEL QUESTIONS

Q 1: What are some of the key features of LibreOffice Calc as a spreadsheet program, and how can they be used for data management and analysis?

Q 2: How can users launch LibreOffice Calc and create a new spreadsheet, and what customization options are available to them?

Q 3: What are the different components of the worksheet window in LibreOffice Calc, and how can users navigate the interface?

Q 4: How does LibreOffice Calc support collaboration among users, and what tools are available for sharing and tracking changes to spreadsheets?

Q 5: How can users automate repetitive tasks in LibreOffice Calc using macros, and what programming language is used to write macros?

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UNIT 10 : WORKING WITH FUNCTIONS AND FORMULAS IN CALC

UNIT STRUCTURE

10.1 Learning Objectives

10.2 Introduction

10.3 Using built-in Functions and Formulas for Common Calculations in Calc

10.4 Creating Custom Functions and Formulas for Complex Calculations

10.5 Using Conditional Formatting to Highlight Data Based on Certain Criteria

10.6 Let Us Sum Up

10.7 Further Readings

10.8 Answers to Check Your Progress

10.9 Model Questions

10.1 LEARNING OBJECTIVES

After going through this unit you will be able to

- apply the built in function in LibreOffice Calc.
- create custom functions and formulas in LibreOfficeCalc
- utilize the conditional formatting facility in Calc.

10.2 INTRODUCTION

In this unit, we will explore working with functions and formulas in LibreOffice Calc. Calc comes with a variety of built-in functions that allow you to perform common calculations on your data, such as summing a range of cells, finding the average of a range of cells, counting the number of cells with a certain value, and more. In addition to these built-in functions, you can also create custom functions and formulas using the Basic programming language to perform complex calculations. We will also look at how to use conditional formatting to highlight data based on certain criteria. By the end of this unit,

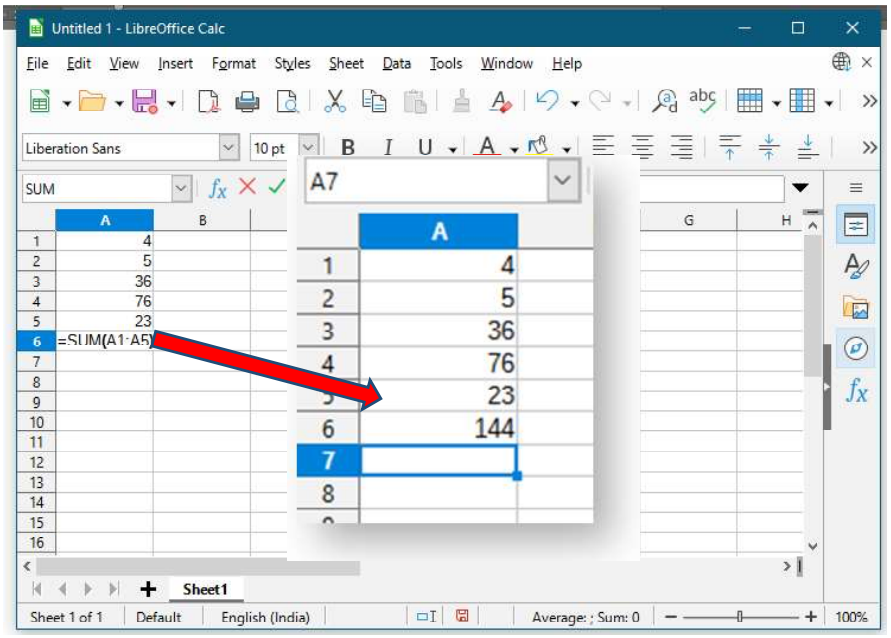
you will have a solid understanding of how to work with functions and formulas in Calc to efficiently analyse and manipulate your data.

10.3 USING BUILT-IN FUNCTIONS AND FORMULAS FOR COMMON CALCULATIONS IN CALC

LibreOfficeCalc comes with a variety of built-in functions that you can use to perform common calculations on your data. Here is a detailed guide on using built-in functions and formulas for common calculations in LibreOfficeCalc, along with examples:

1. Summing a range of cells: One of the most common calculations you may need to perform is adding up a range of cells. You can use the SUM function to do this.

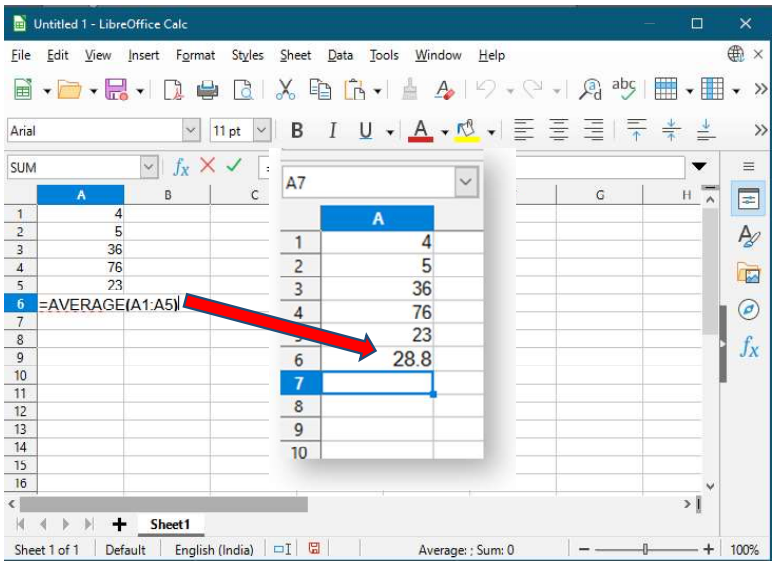
   For example, if you have a list of numbers in cells A1 to A5 and want to calculate their sum, you can use the formula "=SUM(A1:A5)" in another cell. This will add up the values in cells A1 to A5 and display the result in the cell with the formula.



2. Finding the average of a range of cells: If you have a list of numbers and want to find their average, you can use the AVERAGE function.

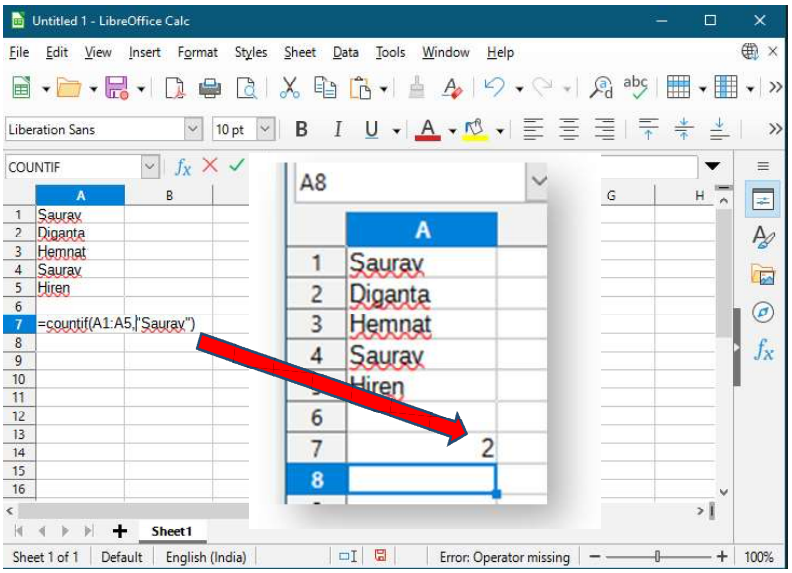
   For example, if you have a list of test scores in cells A1 to A5 and want to find their average, you can use the formula

"=AVERAGE(A1:A5)" in another cell. This will calculate the average of the values in cells A1 to A5 and display the result in the cell with the formula.



3. Counting the number of cells with a certain value: If you want to count the number of cells in a range that contain a certain value, you can use the COUNTIF function.

For example, if you have a list of names in cells A1 to A5 and want to count the number of cells that contain the name "Saurav," you can use the formula "=COUNTIF(A1:A5,"Saurav")" in another cell. This will count the number of cells in cells A1 to A5 that contain the name "Saurav" and display the result in the cell with the formula.

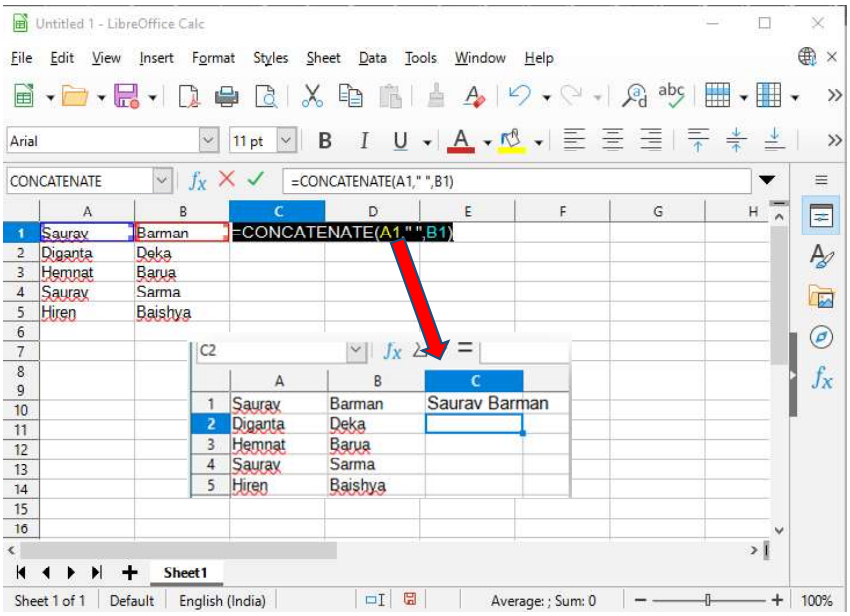


4. Finding the maximum or minimum value in a range of cells: If you want to find the maximum or minimum value in a range of cells, you can use the MAX or MIN function.

   For example, if you have a list of prices in cells A1 to A5 and want to find the highest price, you can use the formula "=MAX(A1:A5)" in another cell. This will find the maximum value in cells A1 to A5 and display the result in the cell with the formula.

5. Concatenating text strings: If you want to combine two or more text strings into one cell, you can use the CONCATENATE function.

   For example, if you have a first name in cell A1 and a last name in cell B1 and want to combine them into one cell, you can use the formula "=CONCATENATE(A1," ",B1)" in another cell. This will combine the values in cells A1 and B1 with a space in between and display the result in the cell with the formula.



6. Converting between units: If you want to convert a value from one unit to another, you can use the CONVERT function.

   For example, if you have a length in inches in cell A1 and want to convert it to centimeters, you can use the formula "=CONVERT(A1,"in","cm")" in another cell. This will convert the value in inches to centimeters and display the result in the cell with the formula.

In conclusion, LibreOfficeCalc comes with a wide range of built-in functions and formulas that you can use to perform common calculations on your data. By using these functions and formulas, you can save time and ensure accuracy in your calculations.



CHECK YOUR PROGRESS

Q 1: What function can you use to find the sum of a range of cells in LibreOfficeCalc?

.....

Q 2: How do you calculate the average of a range of cells in LibreOfficeCalc?

.....

Q 3: What function can you use to find the maximum or minimum value in a range of cells in LibreOfficeCalc?

.....

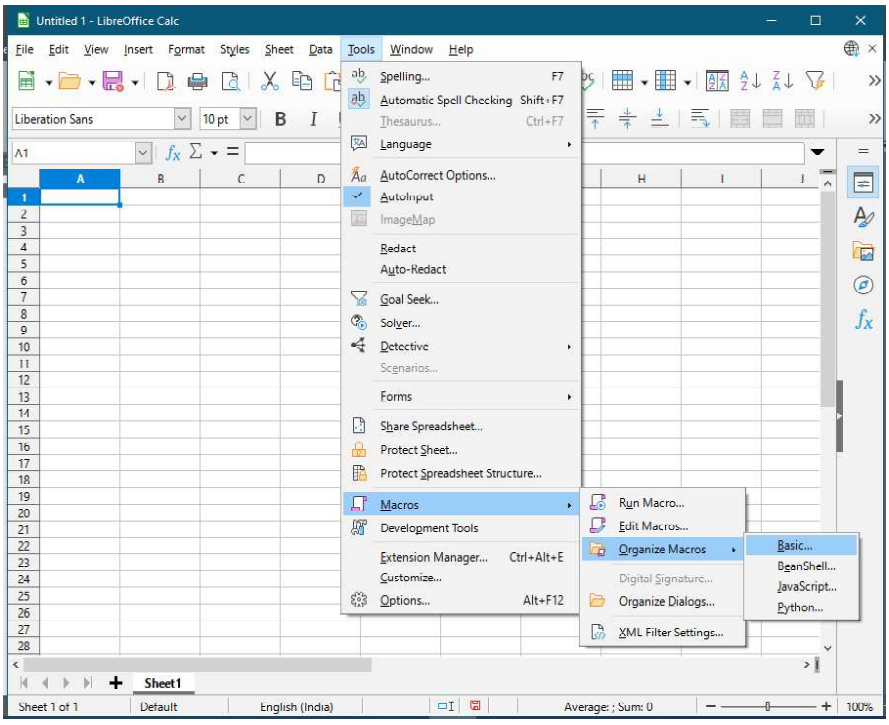
10.4 CREATING CUSTOM FUNCTIONS AND FORMULAS FOR COMPLEX CALCULATIONS

LibreOfficeCalc is a spreadsheet program that allows users to create complex calculations and formulas using built-in functions and also create custom functions to meet specific requirements. In this note, we will discuss how to create custom functions and formulas in LibreOfficeCalc with basic examples.

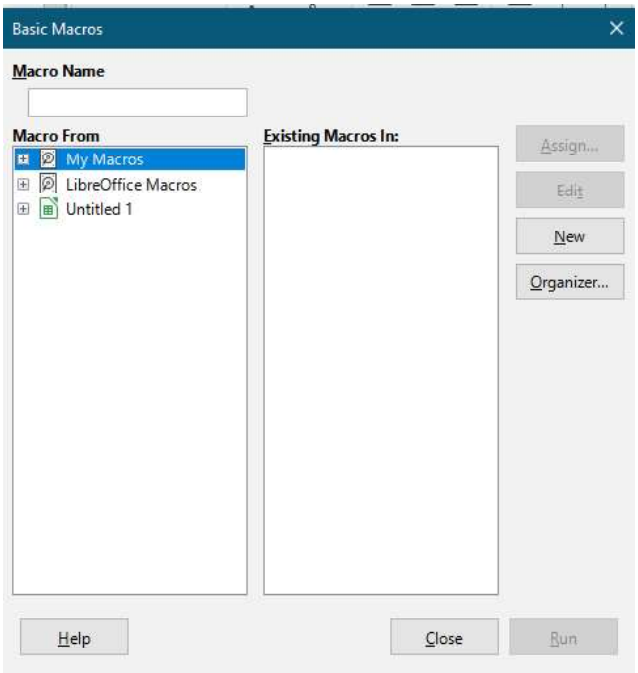
Creating Custom Functions:

Custom functions are user-defined functions that can be created to perform specific calculations. LibreOfficeCalc supports the creation of custom functions using the Basic programming language. Here are the steps to create a custom function:

- Open a new or existing spreadsheet in LibreOffice Calc.
- Go to “Tools” on the menu bar and select “Macros” -> “Organize Macros” -> “ Basic...”.



- In the " Basic Macros" dialog box, select "My Macros" and click "New".
- In the "New Module" dialog box, give a name to the module and click "OK".



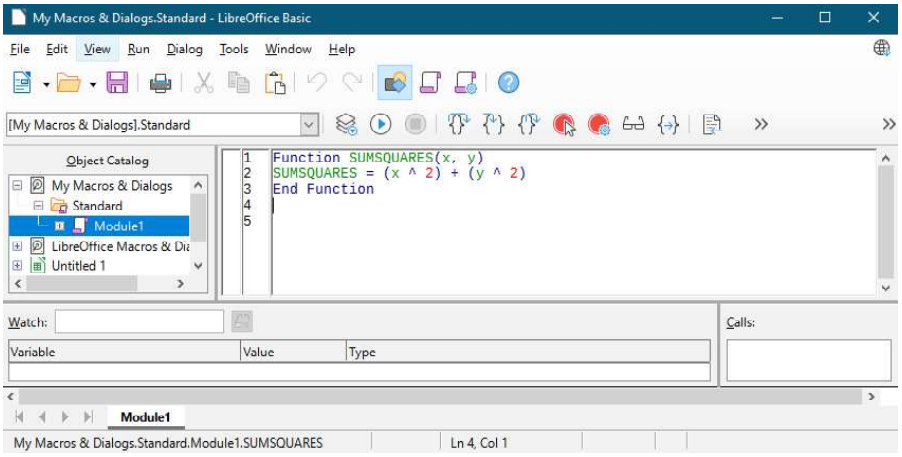
- In the Basic editor window, write the code for the custom function. For example, the following code creates a custom function called "SUMSQUARES" that calculates the sum of squares of two numbers:

Function SUMSQUARES(x, y)

SUMSQUARES = (x ^ 2) + (y ^ 2)

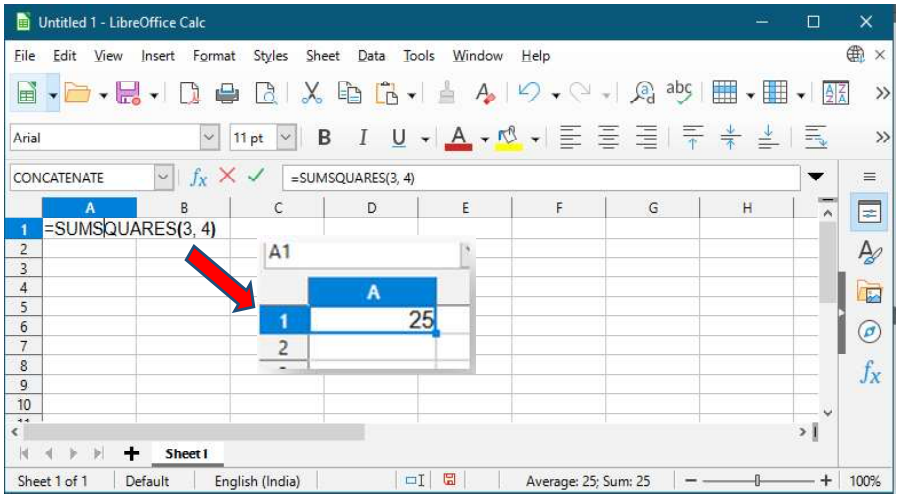
End Function

- Save the module by selecting “File” -> “Save” on the menu bar.



- Close the Basic editor window.

  Now that we have created the custom function, we can use it in our spreadsheet just like any other built-in function. For example, to use the SUMSQUARES function, we can type “=SUMSQUARES(3, 4)” in a cell, which would return the value 25.

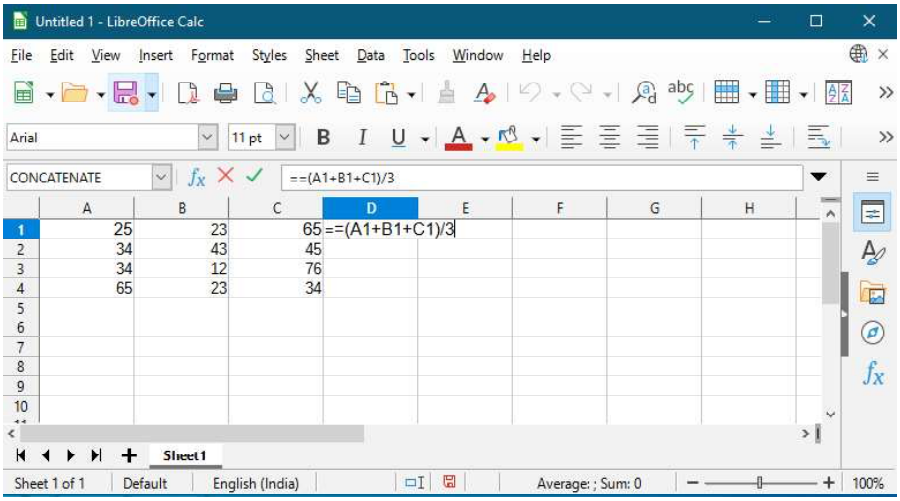


Creating Custom Formulas:

Custom formulas are user-defined formulas that can be created to perform specific calculations. LibreOfficeCalc supports the creation of custom formulas using built-in functions and operators. Here are the steps to create a custom formula:

- Open a new or existing spreadsheet in LibreOffice Calc.
- Select a cell where you want to create the custom formula.
- In the formula bar, type the formula using built-in functions and operators. For example, the following formula calculates the average of three numbers:

  =(A1+B1+C1)/3



- Once you have typed the formula, press “Enter” to calculate the result.
- To save the custom formula, select the cell with the formula and drag the fill handle (a small square at the bottom right corner of the cell) to other cells where you want to use the formula.
- Now that we have created the custom formula, we can use it in other cells just like any other built-in formula. For example, if we want to calculate the average of four numbers, we can simply change the formula to include the fourth number, like this:

  =(A1+B1+C1+D1)/4

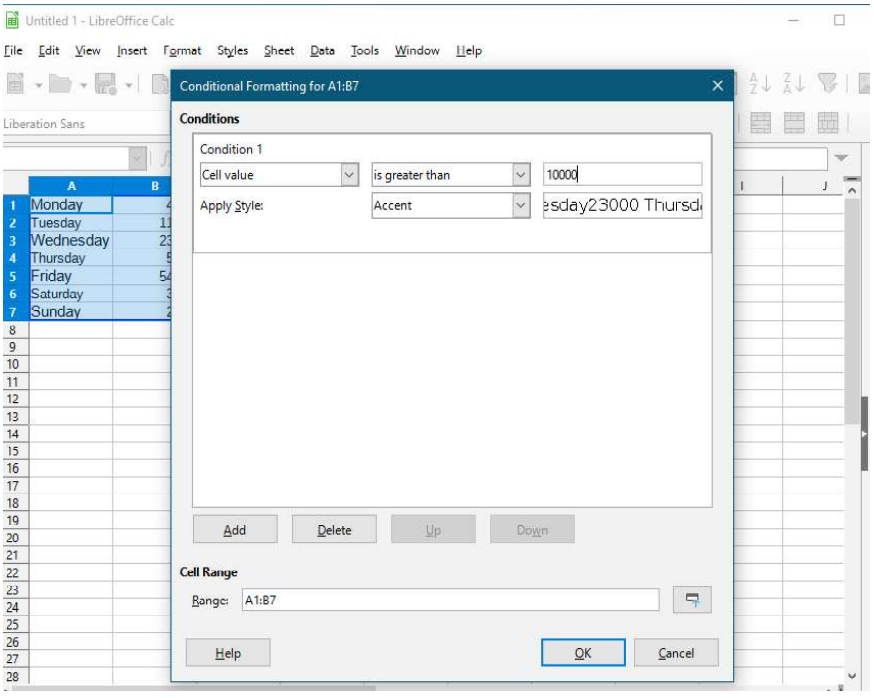
  Thus we can see that LibreOfficeCalc provides powerful tools for creating custom functions and formulas to perform complex calculations. By using these tools, users can meet specific requirements and achieve greater efficiency in their spreadsheet work.

10.5 USING CONDITIONAL FORMATTING TO HIGHLIGHT DATA BASED ON CERTAIN CRITERIA

Conditional formatting in LibreOfficeCalc is a useful feature that allows you to automatically format cells based on specific criteria. This can help you to quickly identify important data in your spreadsheets.

Here are some examples of how you can use conditional formatting to highlight data based on certain criteria in LibreOfficeCalc:

1. **Highlight cells that contain a certain value**: Let's say you have a spreadsheet of sales data, and you want to highlight all the cells that contain sales over Rs10,000. To do this, select the cells you want to format, and then click on Format > Conditional Formatting > Condition. In the Condition dialog box, select "Cell value is" from the first drop-down menu, and then select "greater than" from the second drop-down menu. In the third field, enter the value "10000". Then, choose the formatting you want to apply to the cells, such as a different background colour or font colour



2. Highlight cells that are within a certain range: Let's say you have a spreadsheet of student grades, and you want to highlight all the cells

that are between 70 and 90. To do this, select the cells you want to format, and then click on Format > Conditional Formatting > Condition. In the Condition dialog box, select “Cell value is” from the first drop-down menu, and then select “between” from the second drop-down menu. In the third field, enter the values “70” and “90”. Then, choose the formatting you want to apply to the cells.

3. Highlight cells that contain a certain text string: Let’s say you have a spreadsheet of customer data, and you want to highlight all the cells that contain the text “VIP”. To do this, select the cells you want to format, and then click on Format > Conditional Formatting > Condition. In the Condition dialog box, select “Cell contains” from the first drop-down menu, and then enter the text “VIP” in the second field. Then, choose the formatting you want to apply to the cells.

These are just a few examples of how you can use conditional formatting to highlight data based on certain criteria in LibreOffice Calc. There are many more possibilities, and you can experiment with different options to find the ones that work best for your needs.



CHECK YOUR PROGRESS

Q 4: What is conditional formatting in LibreOfficeCalc?

.....

.....

Q 5: How can you highlight cells that contain a certain value using conditional formatting in LibreOfficeCalc?

.....

.....

Q 6: How can you create custom functions in LibreOfficeCalc using Basic programming language?

.....

.....



10.6 LET US SUM UP

- LibreOfficeCalc has built-in functions for common calculations, such as SUM, AVERAGE, COUNTIF, MAX, MIN, CONCATENATE, and CONVERT.
- You can use the SUM function to add up a range of cells, AVERAGE to find the average of a range of cells, COUNTIF to count the number of cells with a certain value, MAX or MIN to find the highest or lowest value in a range of cells, CONCATENATE to combine two or more text strings, and CONVERT to convert between units.
- Using built-in functions and formulas can save time and ensure accuracy in calculations.
- Custom functions and formulas can be created in LibreOfficeCalc to perform specific calculations.
- Custom functions can be created using the Basic programming language by going to “Tools” -> “Macros” -> “Organize Macros” -> “Basic...” and writing the code in the Basic editor window.
- Custom formulas can be created using built-in functions and operators by typing the formula in a cell and pressing enter.
- Using custom functions and formulas can help meet specific requirements for complex calculations.



10.7 FURTHER READINGS

1) Lowenthal, M. (2015). Calc for dummies. John Wiley & Sons.
2) Starks, C. (2013). LibreOfficeCalc Guide. The Document Foundation.



10.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: The SUM function.

Ans to Q No 2: By using the AVERAGE function.

Ans to Q No 3: The MAX or MIN function.

Ans to Q No 4: Conditional formatting is a feature in LibreOfficeCalc that allows users to automatically format cells based on specific criteria.

Ans to Q No 5: To highlight cells that contain a certain value, select the cells to format, go to Format > Conditional Formatting > Condition, select “Cell value is” from the first drop-down menu, select “greater than” or “less than” from the second drop-down menu, and enter the desired value in the third field.

Ans to Q No 6: To create custom functions in LibreOfficeCalc, go to “Tools” on the menu bar and select “Macros” -> “Organize Macros” -> “Basic...”. In the “Basic Macros” dialog box, select “My Macros” and click “New”. In the “New Module” dialog box, give a name to the module and click “OK”. In the Basic editor window, write the code for the custom function and save the module by selecting “File” -> “Save” on the menu bar.



10.9 MODEL QUESTIONS

Q 1: What are some of the most common built-in functions in LibreOfficeCalc and how can they be used to perform common calculations on data? Provide examples of how to use these functions to perform tasks such as summing a range of cells, finding the average of a range of cells, counting the number of cells with a certain value, finding the maximum or minimum value in a range of cells, and concatenating text strings.

Q 2: How can you create custom functions in LibreOfficeCalc to perform

specific calculations? What programming language does LibreOfficeCalc support for creating custom functions? Provide a step-by-step guide on how to create a custom function in LibreOfficeCalc, using an example of a custom function that calculates the sum of squares of two numbers.

Q 3: How can you create custom formulas in LibreOfficeCalc to perform specific calculations using built-in functions and operators? Provide a step-by-step guide on how to create a custom formula in LibreOfficeCalc, using an example of a custom formula that calculates the area of a circle based on its radius.

Q 4: What are some of the benefits of using built-in functions and formulas in LibreOfficeCalc for common calculations, as opposed to manual calculations? How can these functions and formulas save time and ensure accuracy in your calculations? Provide examples to illustrate your answer.

Q 5: What are some of the limitations of using built-in functions and formulas in LibreOfficeCalc for complex calculations? When might it be necessary to create custom functions or formulas to perform more complex calculations? Provide examples to illustrate your answer.

*** ***** ***

UNIT 11: ADVANCED FORMATTING AND CHARTING IN CALC

UNIT STRUCTURE

11.1 Learning Objectives

11.2 Introduction

11.3 Applying Advanced Formatting Options

11.4 Creating and Modifying Charts

11.5 Using Calc's built-in Tools

11.6 Let Us Sum Up

11.7 Further Readings

11.8 Answers to Check Your Progress

11.9 Model Questions

11.1 LEARNING OBJECTIVE

After going through this unit, you will be able to

- Apply conditional formatting to highlight specific data.
- Validate data inputs to ensure they meet predefined criteria.
- Customize number formats
- Create and modify charts
- Use Calc's built-in filtering and sorting tools
- analyse and extract specific information from a dataset.

11.2 INTRODUCTION

The spreadsheet programme Calc, which is part of the LibreOffice package, is an effective tool for compiling and analysing data. Calc provides a variety of sophisticated formatting options and data analysis capabilities that let users to make sense of complicated datasets, in addition to fundamental spreadsheet features like entering and manipulating numerical data. A few of these features, including as conditional formatting, data validation, custom number formats, the construction and editing of charts, and built-in tools for data filtering, sorting, and analysis, will be covered in

this unit. You will have a good understanding of how to use these features by the conclusion of this unit to improve the look and ease of analysis of your data.

11.3 APPLYING ADVANCED FORMATTING OPTIONS

LibreOfficeCalc offers a wide range of advanced formatting options that allow users to customize and present their data in a visually appealing and informative way. These options include conditional formatting, data validation, cell styles, custom number formats, and more. With conditional formatting, users can highlight specific cells or ranges of cells based on certain criteria, such as cell values or text. Data validation enables users to set rules for data entry, ensuring that only valid and accurate data is entered. Cell styles allow users to apply a consistent look and feel to their worksheets, while custom number formats enable users to format numbers in a way that makes them more easily understandable. Overall, the advanced formatting options in LibreOffice Calc provide users with powerful tools to create professional-looking spreadsheets and effectively communicate their data.

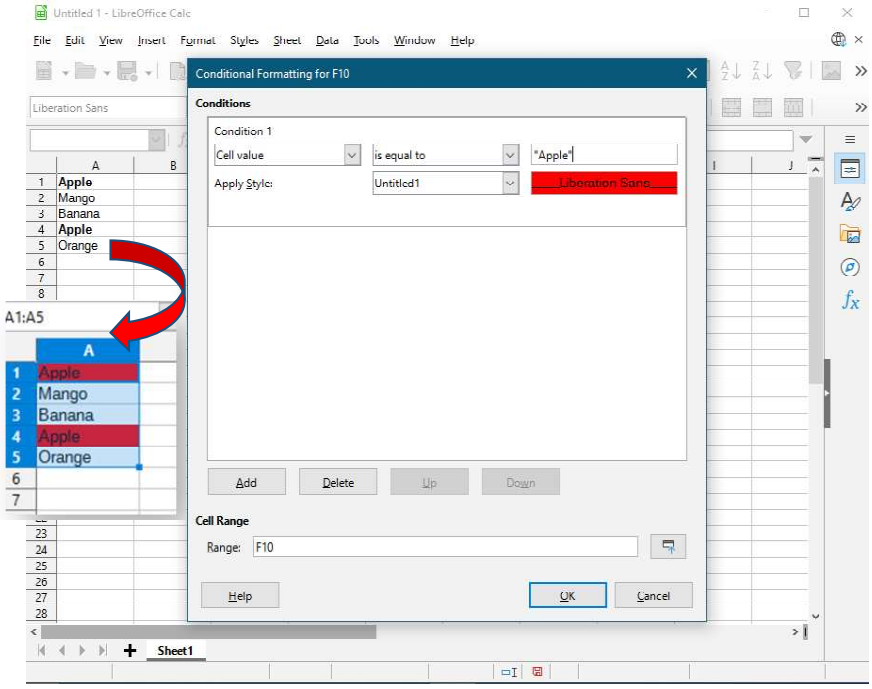
Conditional Formatting

Conditional formatting in LibreOffice Calc is a powerful feature that allows users to apply formatting to cells based on certain conditions. By using conditional formatting, users can easily highlight cells that meet specific criteria, making it easier to identify trends and patterns in their data.

Here are some examples of how to use conditional formatting in LibreOffice Calc:

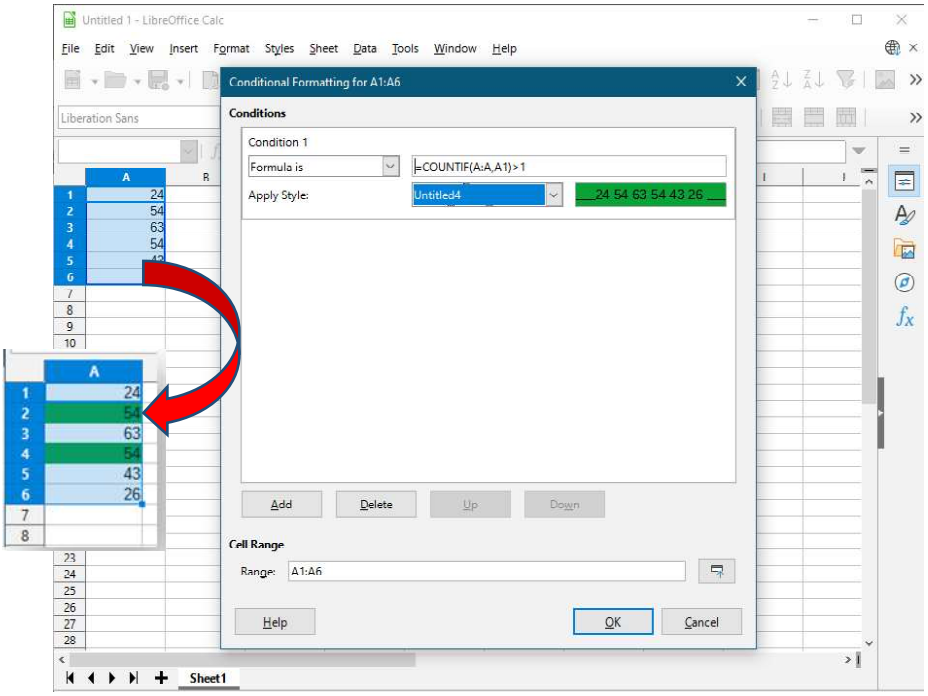
1. Highlight cells with specific text: Assume you have a column of data with different types of fruits in it. Cells that contain a particular fruit can be highlighted using conditional formatting. To do this, choose the range of cells you wish to format, then select “Conditional Formatting” from the menu bar’s “Format” drop-down menu. Select “Equal to” from the second drop-down list after selecting “Cell Value is” from the first drop-down list in the “Conditional Formatting” dialogue

box. Type the name of the fruit you want to highlight, such as “Apples,” in the following box. Select the formatting options you want to use, such as a background colour or font style, in the final step.



2. Highlight cells based on numerical values: Suppose you have a list of test scores and you want to highlight all scores above a certain threshold. To do this, select the range of cells you want to format, click on “Format” from the menu bar, and select “Conditional Formatting”. In the “Conditional Formatting” dialog box, choose “Cell Value is” from the drop-down list, and then select “Greater than” from the second drop-down list. In the next box, enter the threshold score, such as “80”. Finally, choose the formatting options you want to apply, such as a background colour or font style.
3. 1. Highlight cells based on numerical values: Assume you have a list of test results and want to emphasise any scores that are higher than a particular cutoff. To do this, choose the range of cells you wish to format, then select “Conditional Formatting” from the menu bar’s “Format” drop-down menu. Choose “Cell Value is” from the drop-down list in the “Conditional Formatting” dialogue box, and then pick “Greater than” from the subsequent drop-down list. Put the required score—

for example, “80”—in the following box. Select the formatting options you want to use, such as a background colour or font style, in the final step.



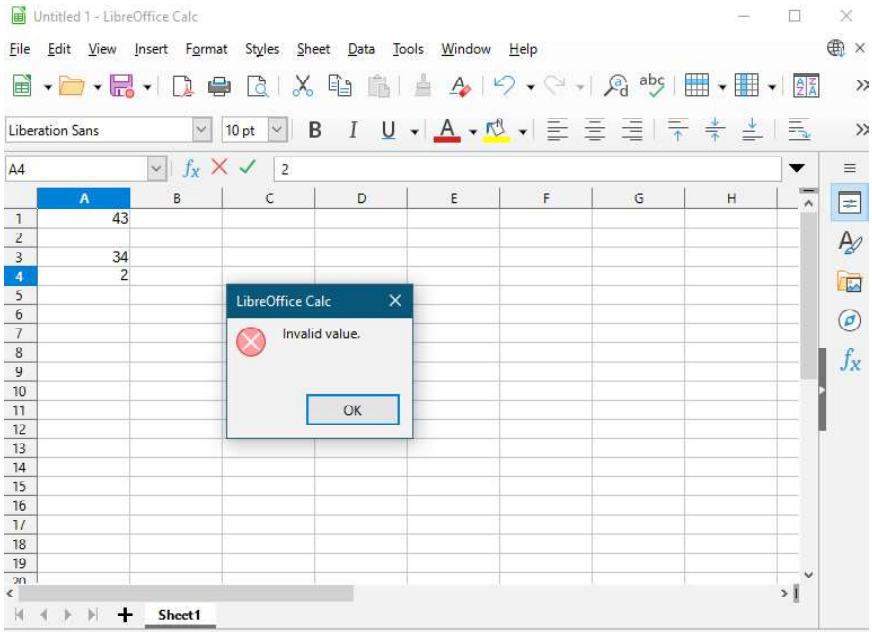
Data Validation

Users of LibreOfficeCalc can regulate the kind and scope of data that can be entered into cells using the data validation feature. This makes it easier to make sure that the information entered is correct and complies with a particular set of rules or guidelines. In LibreOfficeCalc, you can choose from a variety of data validation options, including those for text, numbers, dates, and more.

1. The steps below explain how to apply data validation to a cell or range of cells in LibreOffice Calc.
2. Choose the cell or range of cells to which data validation should be applied.
3. Select “Validity” from the “Data” menu by clicking on it.
4. From the “Allow” dropdown menu in the “Validity” dialogue box, choose the category of data you want to validate. There are many options available, including “Whole number,” “Decimal,” “Date,” “Time,” “Text length,” and more.

5. Set the parameters for the chosen data type. You can specify a minimum and maximum value for the number, for instance, if you chose “Whole number”.
6. You have the option to specify an error message that will be displayed if the user enters incorrect information.
7. To apply the data validation to the chosen cells, click “OK”.

For example, suppose you have a spreadsheet with a column for product prices, and you want to ensure that the prices entered are between Rs 10/- and Rs 100/-. To do this, select the column of prices, go to “Data” > “Validity”, select “Whole number” from the “Allow” dropdown menu, and enter 10 and 100 as the minimum and maximum values. Now, any time someone enters a price that falls outside of this range, an error message will appear.

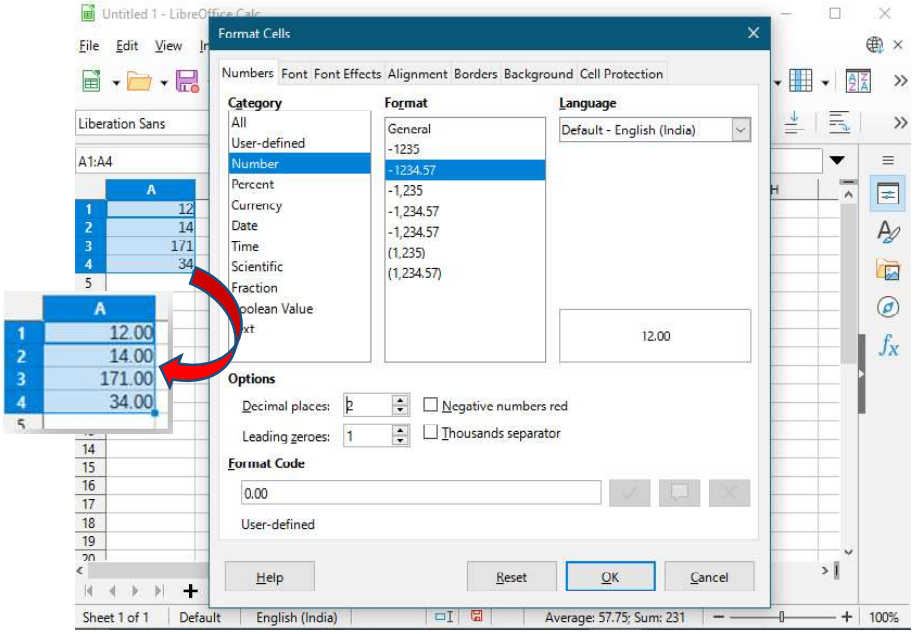


Setting up a dropdown list for a cell is another illustration of data validation. When you want to restrict the options available for a specific cell, this can be helpful. To accomplish this, first choose the cell that needs validation, then navigate to “Data” > “Validity,” choose “List” from the “Allow” dropdown menu, and then enter the options you want to show up in the dropdown list. Now, only the options you listed will be available to anyone who selects that cell.

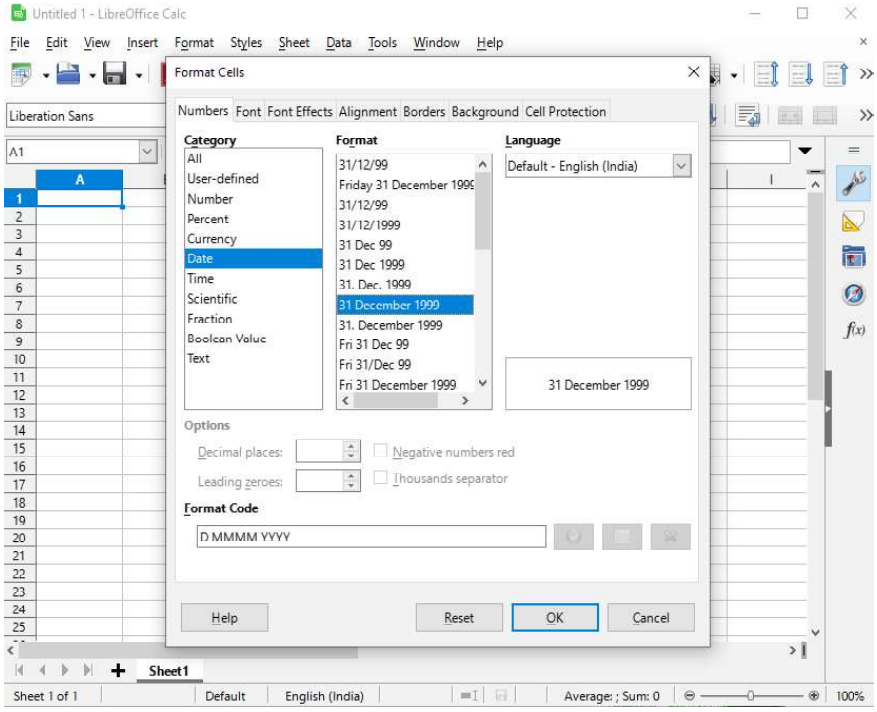
Custom Number Formats

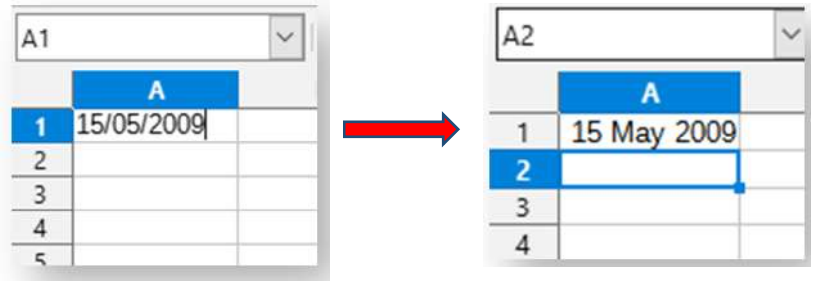
Users of LibreOfficeCalc can format numbers in a way that best suits their needs by using custom number formats. The appearance of numbers, including the number of decimal places, the use of currency symbols, and the display of negative numbers, can be customised by users. Dates, times, and other types of data can be displayed using custom number formats in a way that is simple to understand and read.Here are some examples of custom number formats in LibreOffice Calc:

1. **Number format with decimal places:**Select the cells you want to format, then select “Format” > “Cells” to format numbers with two decimal places. Select “Numbers” from the “Format Cells” dialogue box, and then type “0.00” in the “Format Code” field.



2. 2. Currency format: Select the cells you want to format and choose “Format” > “Cells” to format numbers as currencies. Choose “Numbers” from the “Format Cells” dialogue box, then choose the desired currency symbol from the drop-down list.
3. Formatting dates: Choose the desired cells and choose “Format” > “Cells” to format dates. Select “Date” in the “Format Cells” dialogue box, then select the desired format from the drop-down list.



4. 

5. 5. Scientific notation format: Select the cells you want to format and choose “Format” > “Cells” to format numbers in scientific notation. Select “Numbers” in the “Format Cells” dialogue box, and then type “#.###E+00” in the “Format Code” field.

6. Custom format for negative numbers: Negative numbers can be formatted in a specific way by choosing the desired cells and choosing “Format” > “Cells.” 6. Custom format for negative numbers. To display negative numbers in parentheses and with a currency symbol, choose “Numbers” from the “Format Cells” dialogue box, and then type a custom format code, such as “($#,##0.00);($#,##0.00)”.



CHECK YOUR PROGRESS

Fill in the blanks

Q 1: LibreOfficeCalc offers a wide range of _____ options to customize and present data.

Q 2: Conditional formatting allows users to easily highlight cells that meet specific _____.

Q 3: Data validation is a feature in LibreOfficeCalc that allows users to control the type and range of data that can be entered into _____.

Q 4: Custom number formats in LibreOfficeCalc allow users to format numbers in a way that meets their specific _____.

Q 5: A dropdown list can be set up for a cell using the _____ feature in LibreOffice Calc.

11.4 CREATING AND MODIFYING CHARTS

With the help of the robust spreadsheet programme LibreOfficeCalc, users can design and edit charts that present data in an easier-to-understand manner. Chart creation and modification in Calc is a fairly simple process that can be finished in a few easy steps.

Here are the steps to create and modify charts in LibreOffice Calc:

1. **Preparing the Data:**

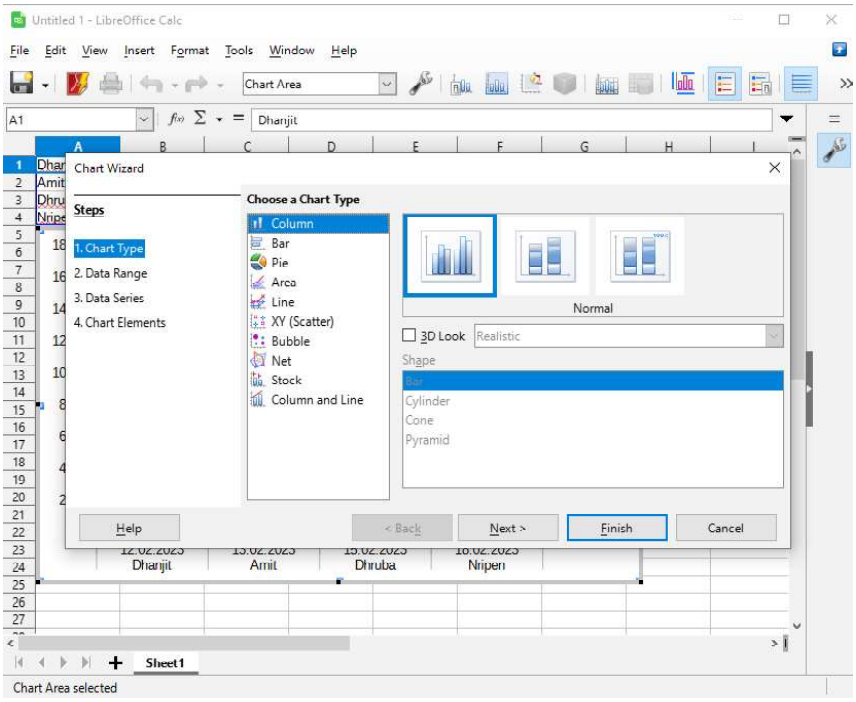
   It is essential to prepare the data that will be represented in the chart before beginning to create one. Each set of data should have its own row and column headings in a table with the data. Columns for salesperson names, sale dates, and sale amounts, for instance, might be included in a chart that displays sales data for a business.

2. **Selecting the Data:**

   Choose the cells you want to include in the chart after you have prepared the data. To select multiple cells at once, hold down the Shift key while clicking and dragging the mouse over the desired cells.

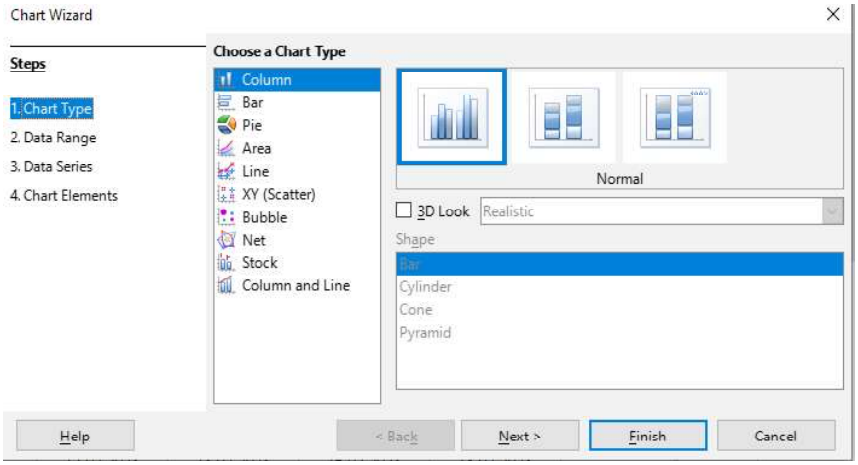
3. Inserting the Chart:

After choosing your data, choose “Chart” from the “Insert” menu in the menu bar. You can then follow the instructions in the “Chart Wizard” dialogue box to create the chart. In addition, you can utilise the “Chart” icon located in the toolbar..



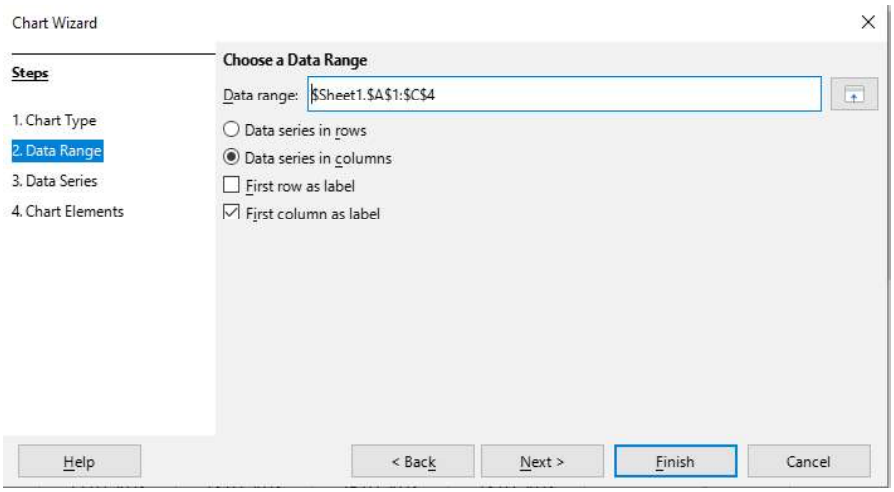
4. Choosing the Chart Type:

You must choose the type of chart you want to make in the Chart Wizard dialogue box. Calc supports the following chart types: Column, Line, Pie, Bar, Area, XY (Scatter), Net, and Stock. Pick the option that most closely fits your needs.



5. Defining the Chart Data Range:

The next step is to specify the data range for your chart. The categories and data series must be specified in this. A data series is a collection of associated data points, and each data series has a category label. The values of each data point are shown next to the data point in the chart as data labels, which are an additional option.



6. Customizing the Chart:

You can alter the chart's appearance, layout, and formatting after specifying the data range. The chart's title, legend, axis labels, and axis scales can all be changed. Additionally, you can alter the chart's colours, fonts, and other visual components.

7. Saving and Exporting the Chart:

Once the chart has been designed and customised, you can export it to a file format like PNG, JPG, or PDF or save it to your spreadsheet.



ACTIVITY

Suppose you have a table with sales data for the past six months. To create a column chart for this data, follow these steps:

1. Select the cells that contain the sales data.
2. Click on the "Insert" menu in the menu bar and select "Chart."
3. In the Chart Wizard dialog box, select "Column" as the chart type.

4. Define the data range by selecting the cells containing the data series and categories.
5. Customize the chart by changing the title, axis labels, and colours.
6. Save the chart to your spreadsheet or export it to a file format.

11.5 USING CALC'S BUILT-IN TOOLS

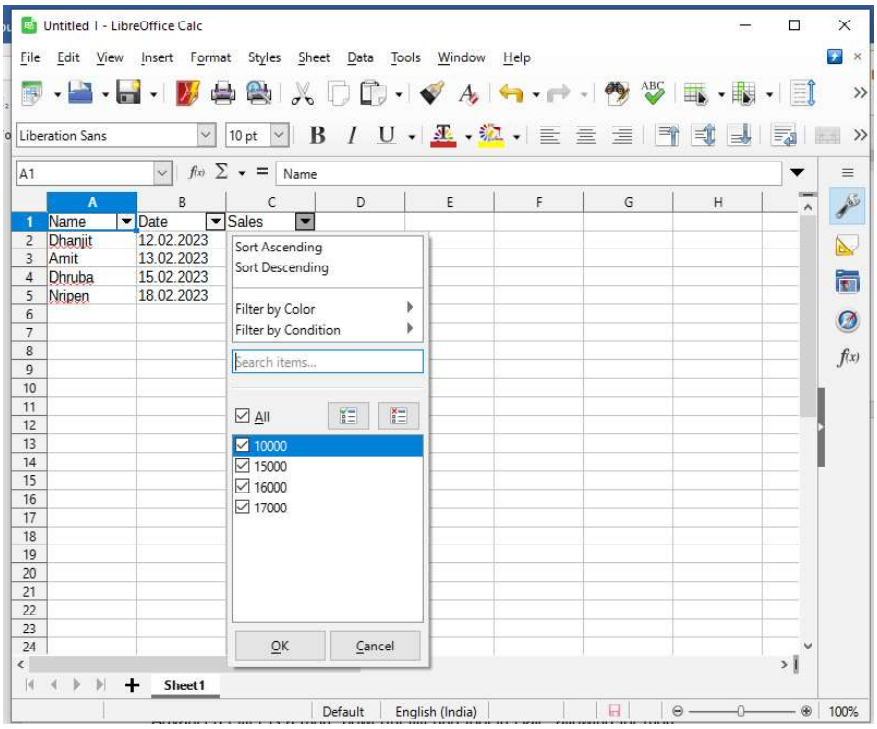
Dealing with large datasets is made simpler by a variety of built-in tools for filtering, sorting, and analysis provided by LibreOffice Calc. Users of the filtering tool can limit the display of data to only that which satisfies their criteria, enabling more focused analysis. Sorting enables users to group data according to different criteria, such as numerical value or alphabetical order, making it simpler to spot patterns and trends in the data. Additionally, Calc offers a variety of tools for data analysis, including pivot tables, which enable users to meaningfully summarise and visualise data. Overall, Calc's built-in tools make it simpler for users to work with data and extract insights from sizable datasets without the use of additional programmes or tools.

1. FILTERING DATA

- There is a robust set of built-in data filtering tools available in LibreOffice Calc. With the help of these tools, users can choose to display only the data that satisfies specific criteria, which can aid in performing focused analysis and comprehending particular subsets of data. Here are some examples and instructions for using these tools to filter data in Calc:

AutoFilter:

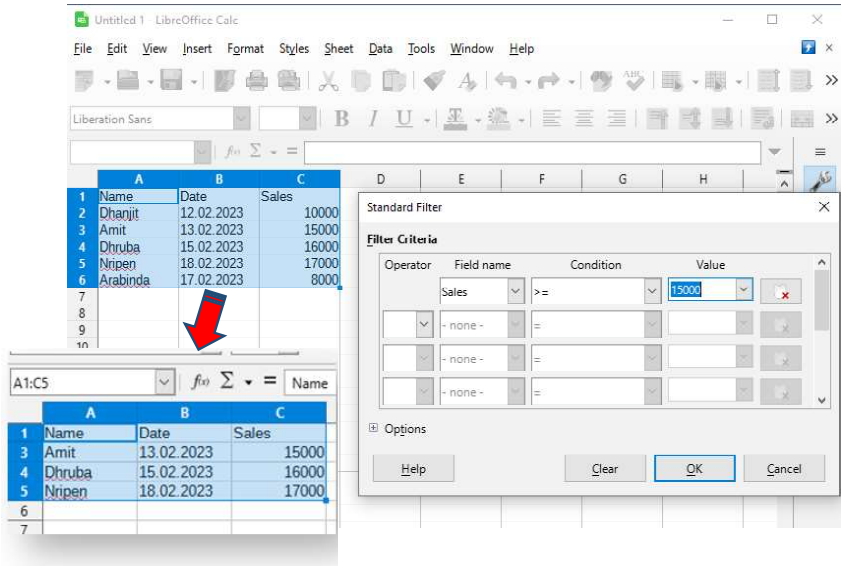
Data filtering in Calc is quick and simple thanks to AutoFilter. Selecting the cells containing the data you wish to filter before selecting the "Data" menu from the menu bar will activate AutoFilter. Choose "Filter" and then "AutoFilter" from there. Each column's header will have a tiny arrow that you can use to select or deselect particular values to filter the data.



- **Advanced Filter:**

  Calc's Advanced Filter is a more powerful filtering tool that supports more complicated filtering criteria. Select the cells containing the data you wish to filter, and then click the "Data" menu link in the menu bar to access Advanced Filter. Choose "Filter" and then "Advanced Filter" from there. You can specify the filtering criteria based on various conditions in the ensuing dialogue box, such as values in other cells, regular expressions, and more.

  For example, suppose you have a table containing the sales data for different salespersons, and you want to see only the sales figures for the salespersons who sold more than Rs 15,000 worth of products. Using Advanced Filter, you can specify the filtering criteria to show only the salespersons whose sales figures meet this condition.



- **Form Filter:**

  Another filtering tool in Calc that lets users filter data based on form entries is called Form Filter. To use Form Filter, click the “Data” menu in the menu bar, choose “Form,” and then fill out the form that appears with the filtering requirements.

  Consider the scenario where you have a table with the sales information for various salespeople and you want to view only the sales data for a particular salesperson. The salesperson’s name can be entered into the form using Form Filter, and then the filter can be applied to only show the data that matches the entered criteria.

2. SORTING OF DATA

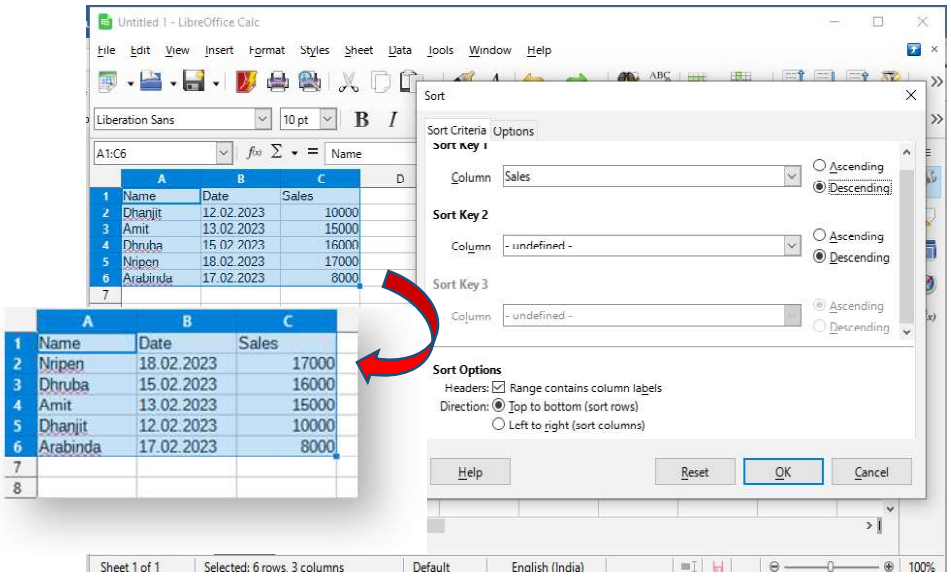
Many built-in data sorting tools in LibreOfficeCalc can aid in more effective data organisation and analysis for huge datasets. Basic sorting, multi-level sorting, and custom sorting are some of these tools.

Basic Sorting:

Users of Calc’s basic sorting tool can arrange data according to a single column or row. To use this tool, choose the desired data, then click the “Data” menu and choose “Sort.” By doing so, the “Sort” dialogue box will open, allowing you to choose the column or row and the sort order (ascending or descending).

For instance, if you have a table of sales data with columns for salesperson names and sales amounts, you can use the basic sorting

tool to determine which salesperson has sold the most by sorting the data based on the sales amounts in descending order.



- **Multi-Level Sorting:**

  Users of Calc can sort data based on multiple columns or rows using the multi-level sorting tool. To use this tool, choose the desired data, then click the “Data” menu and choose “Sort.” You can add more sorting levels in the “Sort” dialogue box by selecting the “Add Level” button. This will enable you to group the data according to a variety of criteria, such as sales volume followed by salesperson name.

  For example, if you have a table of sales data that includes columns for salesperson names, sales dates, and sales amounts, you can use the multi-level sorting tool to sort the data first by salesperson name and then by sales amount in descending order to see the total sales amount for each salesperson.

- **Custom Sorting:**

  Users can sort data in Calc using custom criteria by using the tool for custom sorting. To use this tool, choose the desired data, then click the “Data” menu and choose “Sort.” Choose “Custom sort order” from the “Sort by” drop-down menu in the “Sort” dialogue box. By adding new criteria, you can customise the sort order by opening the “Custom Sort” dialogue box.

For example, if you have a table of inventory data that includes columns for item names and stock levels, you can use the custom sorting tool to sort the data based on the item names, but with a custom sort order that places certain items at the top of the list, regardless of their alphabetical order.

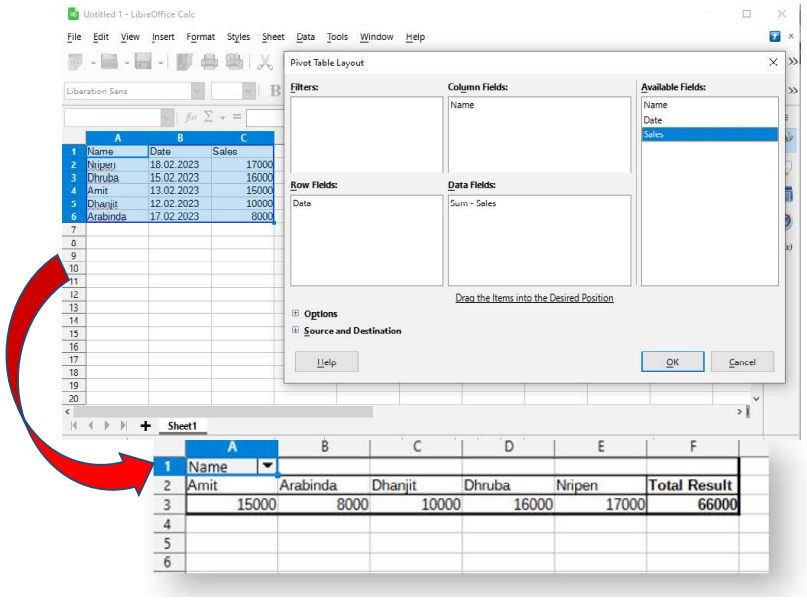
3. ANALYSING DATA

Several built-in data analysis tools in LibreOfficeCalc are helpful for gaining insights into sizable datasets. Here are a few instances of how to analyse data using Calc's built-in tools:

- **Pivot Tables:**

Powerful tools for data analysis and summarization include pivot tables. They enable you to easily summarise sizable datasets and present them in a more readable manner. Select the data you want to analyse before you can create a pivot table in Calc. Then click the "Data" menu, choose "Pivot Table," and adhere to the wizard's directions. A pivot table can be made more unique by dragging and dropping fields to alter the layout and produce different summaries after it has been created.

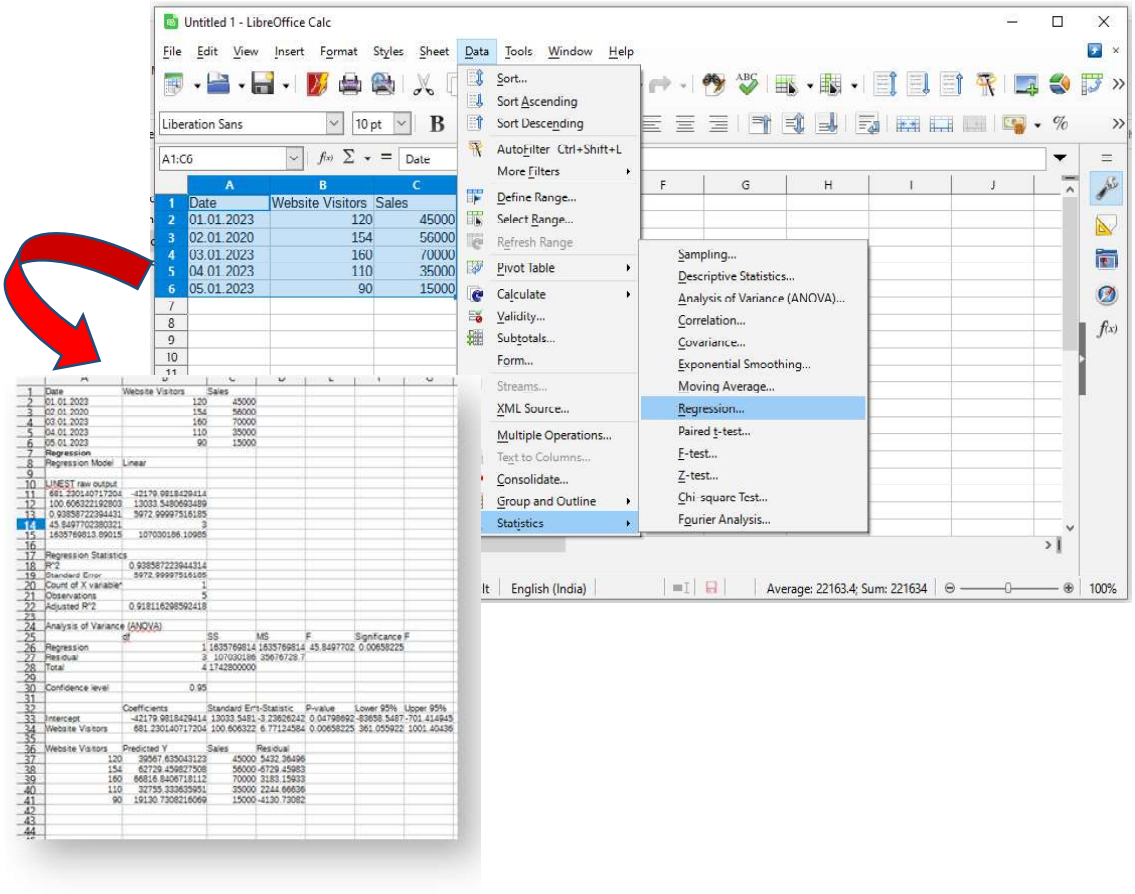
Example: Suppose you have a dataset that includes sales data for a company. You could use a pivot table to summarize the data by salesperson, month, or product category, and analyse which salesperson or product category is performing the best.



- **Data Analysis Tools:**

  Regression analysis, Fourier analysis, and moving average are just a few of the data analysis tools available in Calc. These tools can help you predict the future based on historical data and understand the relationship between various variables. Click on the “Data” menu, choose “Statistics,” and then select the tool you want to use to access the data analysis tools.

  Example: Suppose you have a dataset that includes information on the number of visitors to a website and the corresponding sales data. You could use regression analysis to understand the relationship between the number of visitors and sales, and predict future sales based on the number of visitors.



  Similarly, other analysis like sampling, co-relation, chi-square etc can be done using Calc and all these above potential makes Libre office a great open source software for data analysis.



CHECK YOUR PROGRESS

Q 1: What is the first step to create and modify charts in LibreOfficeCalc?

a) Insert the chart
b) Define the chart data range
c) Select the data
d) Customize the chart

Q 2: Which of the following is a built-in tool in LibreOfficeCalc for analyzing data?

a) Pivot tables
b) Photoshop
c) AutoCAD
d) InDesign

Q 3: How can users use AutoFilter to filter data in Calc?

a) Click on the “Insert” menu and select “AutoFilter”
b) Click on the “Data” menu and select “Filter” and then “AutoFilter”
c) Click on the “Chart” menu and select “AutoFilter”
d) Click on the “Format” menu and select “AutoFilter”

Q 4: Which of the following is a more powerful filtering tool in Calc?

a) AutoFilter
b) Basic Filter
c) Advanced Filter
d) Form Filter

Q 5: What is the purpose of sorting data in LibreOfficeCalc?

a) To create charts
b) To customize the chart
c) To organize and analyse large datasets
d) To export the chart to a file format



11.6 LET US SUM UP

- LibreOfficeCalc offers a variety of advanced formatting options that allow users to customize and present their data in a visually appealing and informative way.
- Conditional formatting is a powerful feature in LibreOfficeCalc that allows users to highlight cells based on specific conditions, making it easier to identify trends and patterns in their data.
- Data validation is another feature in LibreOfficeCalc that enables users to control the type and range of data that can be entered into cells, ensuring that only valid and accurate data is entered.
- Cell styles and custom number formats can be used to apply a consistent look and feel to worksheets and format numbers in a way that makes them more easily understandable.
- Examples of how to use conditional formatting in LibreOfficeCalc include highlighting cells based on specific text, numerical values, and duplicate values.
- Data validation can be applied to cells to ensure that the data entered conforms to specific rules or guidelines, such as limiting the options available for a particular cell or setting minimum and maximum values for numerical data.
- LibreOfficeCalc is a powerful spreadsheet application that allows users to create and modify charts to visualize data in a more accessible and understandable format.
- To create and modify charts in Calc, the data needs to be prepared in a table with headings for each column and rows for each set of data.
- Calc provides a variety of built-in tools for filtering, sorting, and analyzing data, making it easier to work with large datasets.
- Filtering tools in Calc allow users to selectively display only the data that meets certain criteria, which can help in performing targeted analysis and understanding specific subsets of data.

- Sorting tools in Calc allow users to organize data based on various criteria, such as alphabetically or by numerical value, making it easier to see patterns and trends in the data.
- Calc also provides a range of tools for analyzing data, such as pivot tables, which can help users summarize and visualize data in a meaningful way.
- Overall, these built-in tools make it easier for users to work with data in Calc and gain insights from large datasets without the need for external software or tools.



11.7 FURTHER READINGS

1) Lowenthal, M. (2015). Calc for dummies. John Wiley & Sons.
2) Starks, C. (2013). LibreOfficeCalc Guide. The Document Foundation.



11.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: formatting

Ans to Q No 2: criteria

Ans to Q No 3: cells

Ans to Q No 4: needs

Ans to Q No 5: data validation

Ans to Q No 6: c) Select the data

Ans to Q No 7: a) Pivot tables

Ans to Q No 8: b) Click on the “Data” menu and select “Filter” and then “AutoFilter”

Ans to Q No 9: c) Advanced Filter

Ans to Q No 10: c) To organize and analyse large datasets.



11.9 MODEL QUESTIONS

Q 1: How can conditional formatting be used to highlight specific cells or ranges of cells based on certain criteria in LibreOfficeCalc? Provide at least three examples of how conditional formatting can be used effectively to analyse data and improve its presentation.

Q 2: Data validation is an important feature in LibreOfficeCalc that allows users to control the type and range of data that can be entered into cells. Explain how to apply data validation to a cell or range of cells in LibreOfficeCalc, and provide an example of how data validation can be used to ensure accurate data entry. In addition, discuss at least two other types of data validation options available in LibreOfficeCalc and how they can be useful in data analysis.

Q 3: How can LibreOfficeCalc's built-in tools for filtering, sorting, and analyzing data be used to gain insights from large datasets? Provide examples of how each tool can be used to manipulate data and extract specific information from a dataset.

Q 4: Describe the steps involved in creating and modifying charts in LibreOffice Calc. What are some of the customization options available to users when creating a chart, and how can these options be used to create a visually appealing and informative chart?

Q 5: How can LibreOfficeCalc be used to perform statistical analysis on a dataset? What are some of the statistical functions and tools available in Calc, and how can they be used to extract meaningful insights from a dataset? Provide examples of how statistical analysis can be used to identify trends and patterns in data.

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UNIT12: INTRODUCTION TO IMPRESS

UNIT STRUCTURE

12.1 Learning Objectives

12.2 Introduction

12.3 Overview of Impress

12.4 Features as a Presentation Program

12.5 Launching Impress

12.6 Creating a New Presentation

12.7 Navigating the Impress Interface

12.8 Understanding the Different Components of the Slide Window

12.9 Adding and Formatting Slides

12.10 Applying Transitions

12.11 Customizing Presentations Settings

12.13 Let Us Sum Up

12.14 Further Reading

12.15 Answers to Check Your Progress

12.16 Model Questions

12.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- start with Impres
- understand the different parts of the Impress such as the Title bar, Menu bar, Status bar, Horizontal and Vertical Scroll bar
- understand different component of Impress.
- create a new presentation.

12.2 INTRODUCTION

We use slide presentation to deliver lectures in classrooms or in conference room with texts,audio-visual objects and animation effects.Office tools such as LibreOffice Impress is used to create slide presentation. Impress is the presentation tool (slide show) included in LibreOffice.We can create slides that contain many different features, including text, bulleted

and numbered lists, tables, charts, and a wide range of graphic objects such as clipart, drawings, and photographs.This unit will guide you through the Impress environment while designing your presentations.

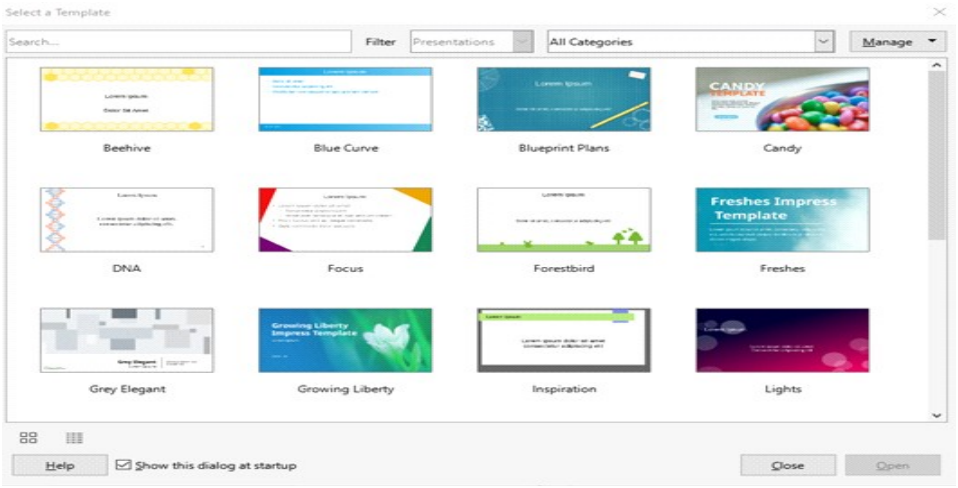
12.3 OVERVIEW OF IMPRESS

Impress is the presentation program in LibreOffice. Impress is like a slide show.You can create slides that contain many different features, including text, bulleted and numbered lists, tables, charts, and a wide range of graphic objects such as clip-art, drawings and photographs. Impress also includes a spelling checker, a thesaurus, text styles, and background styles.

12.4 LAUNCHING IMPRESS

Starting Impress

When you start Impress for the first time, the main Impress window opens with the Select a Template dialog will appear



(Figure 1).

The main Impress window (Figure 2) has three parts: the *Slides pane*, the *Workspace* and the *Tasks pane*.

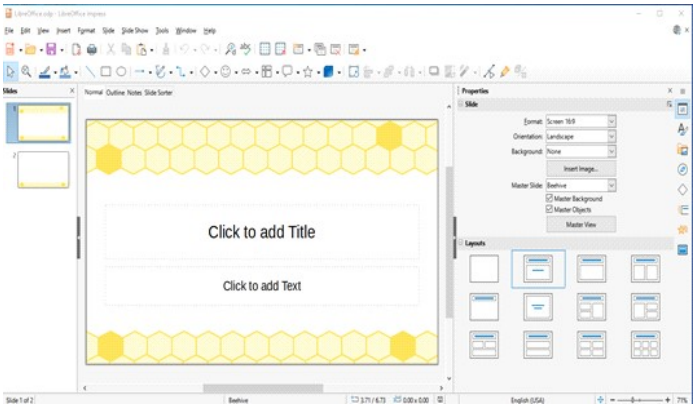


Figure 2: Impress main window

12.5 UNDERSTANDING THE DIFFERENT COMPONENTS OF THE SLIDE WINDOW

The Slides Pane

The Slides pane contains thumbnail pictures of the slides in your presentation; in the order the slides will be shown. Clicking a slide in this pane selects it and places it in the Workspace. When a slide is in the Workspace, you can make any changes you like.

You can also use it to:

- Add new slides to the presentation.
- Mark a slide as hidden so that it will not be shown as part of the presentation.
- Delete a slide from the presentation if it is no longer needed.
- Rename a slide.
- Duplicate a slide (copy and paste) or move it to a different position in the presentation (cut and paste).
- Change the slide transition following the selected slide or after each slide in a group of slides.
- Change the sequence of slides in the presentation.
- Change the slide design.
- Change slide layout for a group of slides simultaneously.

The Tasks Pane

The Tasks pane has five sections.

Master Pages

Here you define the page (slide) style for your presentation. Impress includes several designs of Master Pages (slide masters). One of them—Default—is blank and the rest have background and styled text.

Layouts

The layouts included in Impress are shown here.

Custom Animation

A variety of animations can be used to emphasise or enhance different elements of each slide. The Custom Animation section provides an easy way to add, change, or remove animations.

Slide Transition

The Slide Transition section provides access to a number of slide transition options.

The Workspace

The Workspace (normally in the center) has five tabs: **Normal**, **Outline**, **Notes**, **Handout** and **Slide Sorter** (Figure 3). These five tabs are called View buttons. The Workspace below the View buttons changes depending on the chosen view.

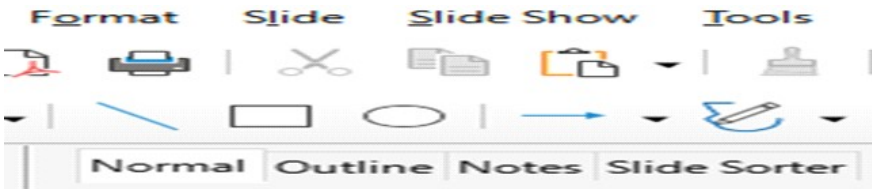


Figure 3

Outline view

Outline view in the Workspace (Figure 128) contains all of the slides of the presentation in their numbered sequence. It shows topic titles, bulleted lists, and numbered lists for each slide in outline format.

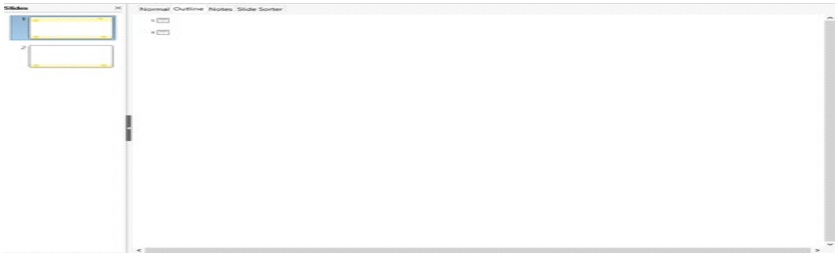


Figure 4:Outline view in the workspace

Notes view

Use Notes view in the Workspace (Figure 130) to add notes to a slide.



Figure 5: *Notes view in the Workspace*

Slide Sorter view

The Slide Sorter view in the Workspace (Figure 6) contains all the thumbnails of slides used in your presentation.

Status bar

The Status bar (Figure 4), located at the bottom of the Impress window



Figure 4



CHECK YOUR ROGRESS

Q.1: What do you understand by a presentation?

Q.2: Define a template in Impress.

Q.3: What is a Normal view? Explain.

Q.4: How many types of views are provided by Impress to its users?

Q.5: Define the Slide Sorter view and its significance.



12.13 LET US SUM UP

- To create a new presentation, click File –> New... and then click "Blank Presentation" in "New Presentation" task pane.
- There are three types of views of a presentation– Normal View, Slide Sorter View and Reading View.
- To create/insert a new slide in to your presentation, click on the slide after which you want to insert the new slide then click Home –> New Slide.
- You can change your font and font-styles of your text with the help of either Home menu or by short-cut buttons/keys.
- To delete an existing slide, right-click on the slide and then click "Delete Slide" option.
- You can also apply designs to your slides by using the design templates provided in Impress. To apply design template, select the "Design" menu and then select a design template.



12.14 FURTHER READINGS

1) Gupta, Vikas. Comdex Linux and Open Office Course Kit (with CD Rom). New Delhi: Dreamtech Press, 2010. Print.

2) Wikipedia, the Free Encyclopedia (2012). OpenOffice.org. Web. 15 April 2013. <http://en.wikipedia.org/wiki/OpenOffice.org \>.

3) The Document Foundation. LibreOffice 4.0 Getting Started Guide. 2013. Web. 20 April 2013. <http://www.libreoffice.org/get-help/documentation>.



12.16 MODEL QUESTIONS

Q.1: What are the purposes for which LibreOffice Impress can be used?

Q.2: What are the different types of views of Impress presentation?

Q.3: What view is useful to see possibly all the slides in a single window?

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UNIT13 : WORKING WITH MULTIMEDIA AND ANIMATIONS IN IMPRESS

UNIT STRUCTURE

13.1 Learning Objectives

13.2 Introduction

13.3 Adding Images, Audio and Video to a Presentation

13.4 Creating and Modifying Animations to Enhance Visual Effects

13.5 Using Impress's Bulting Tools for Recording and Rehearing presentations

13.6 Let Us Sum Up

13.7 Answers to Check Your Progress

13.8 Further Reading

13.9 Model Questions

13.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- add images, audio and video to a presentation
- create and modify animations to enhance visual effects
- use Impress's building tools for recording and rehearing presentations.

13.2 INTRODUCTION

In the previous unit we have learnt about the basic concept of PowerPoint presentation. This unit will help you to create and modify your presentation, i.e. inserting and deleting slides, applying existing design templates to the slides, adding animations to the contents of the slides and also adding slide transition effects to the slides. To begin this lesson, start Microsoft PowerPoint.

13.3 ADDING IMAGES, AUDIO AND VIDEO TO A PRESENTATION

In order to insert an image in OpenOffice Impress, place the cursor in the place where you want the image to be inserted. Then, Click Insert '! select Picture '! From File option from the Insert menu. Figure 1. OpenOffice Impress will display the dialog box, where you can select the image from the specific location and select open. The image will be inserted in the specified location. Figure 2

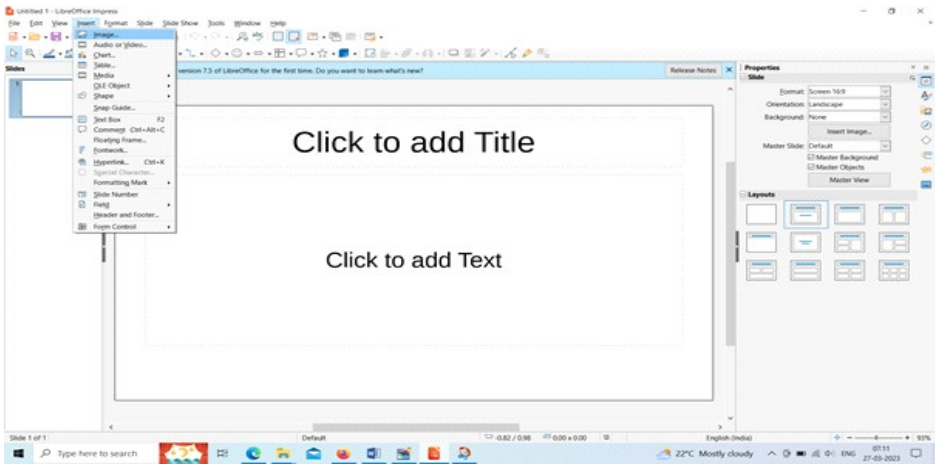


Figure 1 Inserting an image using insert menu

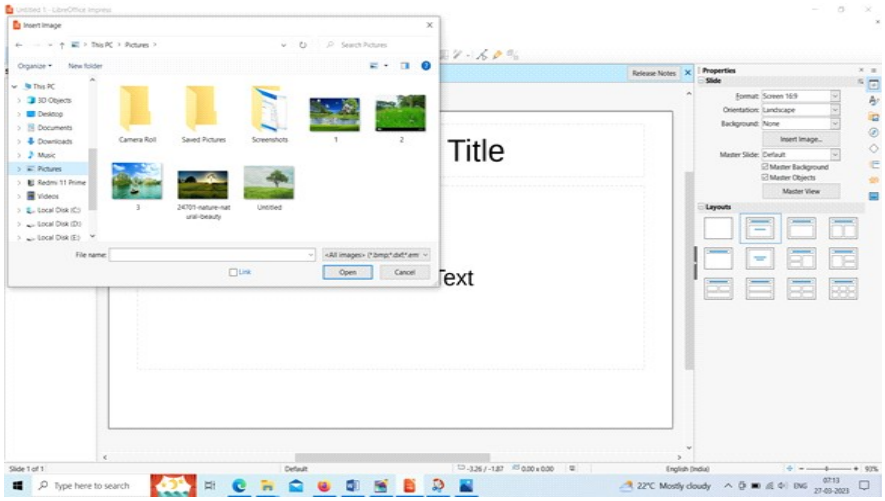


Figure Figure 2 Selecting the image from a location

Libre Office Impres will let you insert audio files or movei files. The audio and move files can be inserted by clicking Insert Movie and Sounds opetion from the Insert menu. Figure 3

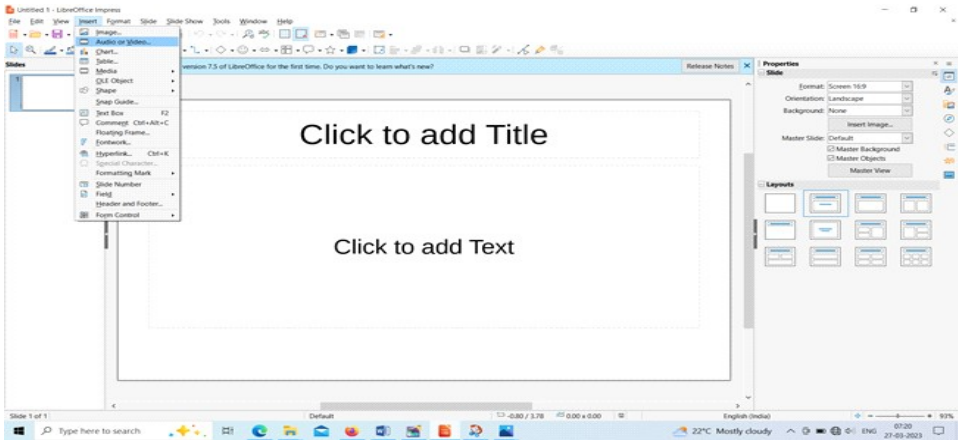


Figure 3 Inserting Movie and Sound

Same as inserting images here also, a dialog box will be oepned. Select the audio or movie file form the specified location and open. It will be opened in the slide. Figure 4. The movie or audio file inserted will be played during the slide show by clicking the mouse over it.

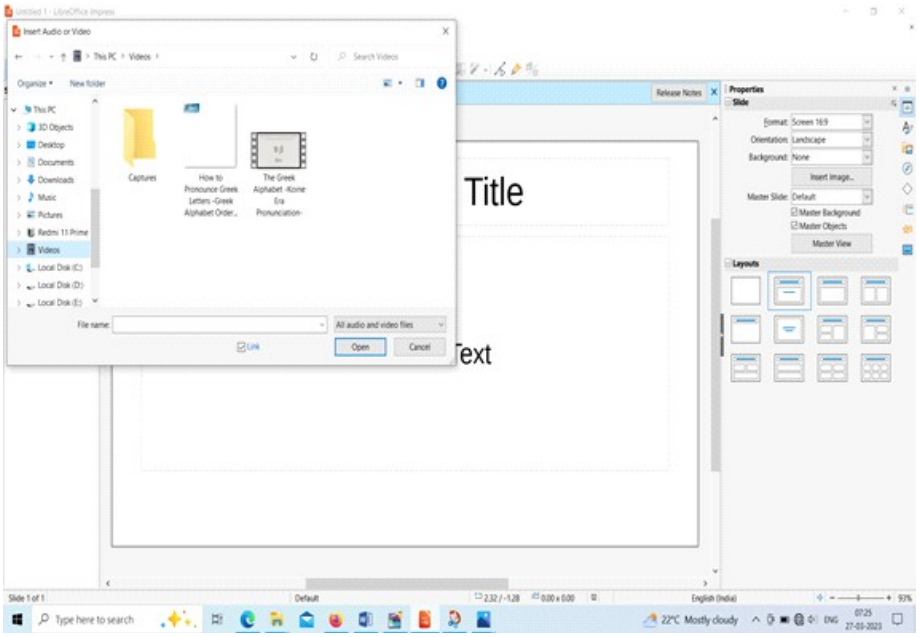


Figure 4 Selecting the Movie / Sound file styles.



CHECK YOUR PROGRESS

Q.1: How can you add image or picture inyour presentation in Impress? Explain.

Q.2: How can you add audio or video in your presentation in Impress?Explain.



13.7 LET US SUM UP

You can also apply custom animations to the content of your slides.To apply custom animation, select the object and also select the "Animations" menu. Now, select the animation as you like.

To apply slide transitions, select the slide and also select the "Transitions" menu. Now, select the transition effect you like.



13.8 FURTHER READINGS

1) Gupta, Vikas. Comdex Linux and Open Office Course Kit (with CD-Rom). New Delhi: Dreamtech Press, 2010. Print.

2) Wikipedia, the Free Encyclopedia (2012). OpenOffice.org. Web. 15 April 2013. <http://en.wikipedia.org/wiki/OpenOffice.org \>.

3) The Document Foundation. LibreOffice 4.0 Getting Started Guide. 2013. Web. 20 April 2013. <http://www.libreoffice.org/get-help/documentation>.



13.9 MODEL QUESTIONS

Q.1: What do you mean by custom animation? Write down the steps for applying an animation effect.

Q.2: What are the different kinds of animation effects?

Q.3: Are the slide transition effect and custom animation effect means the same? Explain your answer.

Q.4: Create a Impress about your institute and animation effects and transitions effects to the contents of the slides and the slides respectively. Make at least 5 slides for the presentation.

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UNIT 14 : INTRODUCTION TO BASE

UNIT STRUCTURE

14.1 Learning Objectives

14.2 Introduction

14.3 Overview of Base

- 14.3.1 What is Base?
- 14.3.2 Features of Base

14.4 Launching Base and Creating a New Database

- 14.4.1 Opening Base
- 14.4.2 Creating a New Database

14.5 Creating Tables

- 14.5.1 What are Tables?
- 14.5.2 Creating a Table Using the Table Design View
- 14.5.3 Entering Data into a Table

14.6 Creating Forms

- 14.6.1 What are Forms?
- 14.6.2 Creating a Form Using the Form Design View
- 14.6.3 Adding fields to a Form

14.7 Creating Queries

- 14.7.1 What are Queries?
- 14.7.2 Creating a Query Using the Query Design View
- 14.7.3 Adding Criteria to a Query

14.8 Creating Reports

- 14.8.1 What are Reports?
- 14.8.2 Creating a Report Using the Report Design View
- 14.8.3 Adding Fields to a Report

14.9 Let Us Sum Up

14.10 Further Readings

14.11 Answers to Check Your Progress

14.12 Model Questions

14.1 LEARNING OBJECTIVES

After going through this unit, the learners will be able to

- understand the purpose and features of Base as a database management system.
- learn how to launch Base and create a new database.
- understand the concept of tables and learn how to create tables using the Table Design View.
- learn how to enter data into a table and manipulate table data.
- understand the concept of forms and learn how to create forms using the Form Design View.
- learn how to add fields to a form and manipulate form data.
- understand the concept of queries and learn how to create queries using the Query Design View.
- learn how to add criteria to a query and retrieve specific data from tables.
- understand the concept of reports and learn how to create reports using the Report Design View.
- learn how to add fields to a report and manipulate report data.

14.2 INTRODUCTION

Base is a powerful database management system (DBMS) that is included in the LibreOffice suite of productivity software. With Base, users can create, edit, and manage databases that can store a wide range of information, from simple lists to complex relational data. It offers features such as creating tables, forms, queries, and reports, and it can connect to various database engines. In this article, we will explore the basic features and functionality of Base, including how to create a new database, design tables, create forms, queries, and reports. By the end of this article, you will have a basic understanding of Base and be able to start creating your own databases.

14.3 OVERVIEW OF BASE

14.3.1 What is Base?

LibreOffice Base is a database management system (DBMS) that is included in the LibreOffice suite of productivity software. It provides a user-friendly interface for creating and managing databases, allowing users to store, organize, and retrieve various types of data. Base allows users to create tables, forms, queries, and reports, and it can connect to various database engines such as MySQL, PostgreSQL, and Microsoft Access. Base is open-source software, which means that it is free to download, use, and distribute. It is available for Windows, macOS, and Linux operating systems, making it a versatile and accessible tool for managing databases across different platforms.

14.3.2 Features of Base

The features of LibreOffice Base, a database management system, are:

(a) Creating and managing databases: Users can create and manage multiple databases within Base. They can connect to various database engines such as MySQL, PostgreSQL, and Microsoft Access.

(b) Designing Tables: Users can design tables with multiple fields and data types, set primary keys, and set relationships between tables.

(c) Creating Forms: Base allows users to create forms to enter, edit, and view data in tables. Users can customize the form layouts, create sub-forms, and add controls such as buttons and drop-down lists.

(d) Creating Queries: Base allows users to create queries to retrieve specific data from one or multiple tables. Users can filter, sort, and calculate data using queries.

(e) Creating Reports: Users can create reports to present data in a visually appealing format. Users can customize the report layout, add charts, graphs, and other design elements.

(f) Importing and Exporting Data: Base allows users to import and export data from various formats, such as CSV, Excel, and Access.

Overall, LibreOffice Base provides a powerful and flexible platform for creating, managing, and analyzing data in a variety of contexts, from personal data tracking to complex business operations.

14.4 LAUNCHING BASE AND CREATING A NEW DATABASE

14.4.1 Opening Base

To open LibreOffice Base, you can follow these steps:

1. Click on the “Start” menu button on your computer’s desktop.
2. Type “LibreOffice” in the search bar to locate the application.
3. Click on the “LibreOffice” icon to launch the LibreOffice suite.
4. From the LibreOffice Welcome screen, click on the “Base” icon to launch LibreOffice Base.

14.4.2 Creating a new database

Here is the step-by-step procedure to create a new database in LibreOffice Base:

1. Open LibreOffice Base: Click on the “Start” button, select “All Programs,” and then choose LibreOffice Base. Alternatively, you can open LibreOffice and select “Base” from the list of applications.
2. Create a new database: In the LibreOffice Base window, click on the “Create a new database” icon or select “File” > “New” > “Database” from the menu bar.

3. Select the database type: Choose the type of database you want to create. You can select from the following options:
   - “Connect to an existing database”: Connect to an existing database file.
   - “Create a new database”: Create a new database file.
   - “Open a database file”: Open an existing database file.
4. Choose the location and name of the database: In the “Save As” dialog box, select the location where you want to save the database file, give it a name, and click “Save.”
5. Select the database engine: Choose the database engine you want to use. The default is “HSQLDB Embedded,” which is suitable for small to medium-sized databases. For larger databases, you may want to consider using a different database engine such as MySQL or PostgreSQL.
6. Set up the database: In the “Set up the database” dialog box, choose the options you want for your database, such as the default table type, default character set, and default collation. Click “Next” when you’re done.
7. Choose the user authentication method: Choose the user authentication method you want to use. The default is “User-defined,” which means you can create your own usernames and passwords. You can also choose “System” to use the system login information or “No authentication” to have no authentication at all.
8. Create the database: Review your database settings and click “Create” to create the new database. Once the database is created, you can start designing tables, forms, queries, and reports.

14.5 CREATING TABLES

14.5.1 What are tables?

In LibreOffice Base, a table is a collection of related data organized into rows and columns. It is similar to a table in a spreadsheet program like LibreOfficeCalc or Microsoft Excel, but in Base, tables are used to store data in a database.

Tables in Base have the following properties:

Columns: Each table has a set of columns that define the type of data that can be stored in each field. For example, a column might be defined as text, date, or number.

Rows: The data stored in a table is organized into rows, with each row representing a separate record. Each row contains data that corresponds to the columns in the table.

Keys: A table can have one or more columns designated as keys, which are used to uniquely identify each record in the table.

Relationships: Tables can be related to one another through common columns, allowing data to be shared between them.

Tables are the foundation of any database in LibreOffice Base, and they are used to store and organize all of the data in the database. Other database objects, such as forms and queries, are built on top of tables, making them an essential component of any database application.

14.5.2 Creating a table using the Table Design View

The step-by-step procedure to create a table using the Table Design View:

1. Open LibreOffice Base and create a new database or open an existing one.
2. In the main window of LibreOffice Base, click on the “Tables” icon in the left-hand panel.
3. Click the “Create Table in Design View” button at the bottom

of the window.

4. In the “Table Design” dialog box, enter a name for your table in the “Table Name” field.
5. In the “Field Name” column, enter a name for the first field in your table.
6. In the “Type” column, select the data type for the first field. You can choose from options such as “Text”, “Number”, “Date”, etc.
7. If you want to specify any additional options for the field, such as a default value or maximum length, you can do so in the “Properties” column.
8. Repeat steps 5-7 for each additional field you want to add to your table.
9. If you want to set a primary key for your table, select the field or fields that will be part of the key and click the “Primary Key” button at the top of the window.
10. Click the “Save” button to save your new table.
11. In the “Save As” dialog box, choose a location to save the table and enter a name for the table.
12. Click “OK” to save the table and close the “Table Design” dialog box.

Your new table will now be listed in the “Tables” section of the LibreOffice Base window. You can open the table to view and edit the data stored in it, or use it as the basis for creating forms, queries, and reports in LibreOffice Base.

14.5.3 Entering data into a table

Here’s a step-by-step procedure to enter data into a table:

1. Open LibreOffice Base and create a new database file or open an existing one.
2. In the main menu, click on “Tables” and select the table you want to add data to.

3. Click on the “Edit” button to open the table in edit mode.
4. You should see an empty grid with the column names of your table. Start by typing the data for the first row in the appropriate cells.
5. You can use the Tab key to move to the next cell or the Enter key to move to the next row.
6. Keep entering data until you have filled in all the necessary rows and columns.
7. Once you are done, click on the “Save” button to save your changes to the table.
8. Close the table edit mode by clicking on the “Close” button.
9. You can now view the data you entered by going to the “Forms” or “Queries” section, selecting the appropriate form or query, and opening it.

14.6 CREATING FORMS

14.6.1 What are forms?

Forms in LibreOffice Base are graphical user interfaces that allow you to view, input, modify, and delete data in a database. Forms are a fundamental feature of any database application, as they allow users to interact with the database in a more user-friendly way than working directly with the raw data in tables.

Forms in LibreOffice Base can be created using a wizard or by designing them manually using the Form Design view. Once created, forms can be customized to suit your needs by adding controls such as text boxes, drop-down lists, and buttons, as well as applying formatting and validation rules to ensure data is entered correctly.

14.6.2 Creating a form using the Form Design View

Here are the step-by-step procedure for creating a form using the Form Design View in LibreOffice Base:

1. Open LibreOffice Base and select the database you want to create a form for.
2. Click on the “Forms” tab in the main window to display the available forms.
3. Click on the “Use Wizard to Create Form” button to launch the form creation wizard, or select “Create Form in Design View” from the “Forms” drop-down menu to create a form manually.
4. In the Form Design View, click on the “Design Mode On/Off” button in the toolbar to turn on design mode if it is not already on.
5. Use the “Controls” toolbar to add controls such as text boxes, labels, and buttons to the form. You can click and drag the controls to move them around the form, and resize them by clicking and dragging the handles on the edges.
6. Use the “Properties” panel to customize the properties of each control. For example, you can set the name, data type, and validation rules for a text box.
7. Use the “Form Navigator” panel to add, remove, or rearrange fields on the form. You can also use this panel to create sub-forms or set up master-detail relationships between tables.
8. Use the “Form Design Toolbar” to customize the appearance of the form. You can change the font, color, and style of the form elements, as well as set up conditional formatting to highlight certain data.
9. When you are satisfied with the form design, click on the “Save” button in the toolbar to save the form. You can give the form a name and choose where to save it in the database.
10. To test the form, switch to “Form Design Off” mode by clicking on the “Design Mode On/Off” button in the toolbar. You can then use the form to view, input, modify, or delete data in the database.

With these steps, you should be able to create a form using the Form Design View in LibreOffice Base.

14.6.3 Adding fields to a form

Here are the step-by-step procedures to add fields to a form in LibreOffice Base:

1. Open LibreOffice Base and open the database containing the table to which you want to add fields to the form.
2. Click on the Forms tab at the bottom of the LibreOffice Base window to open the Forms section.
3. Click on the Create Form in Design View option to create a new form in the design view.
4. In the Form Design view, select the Controls icon in the left-hand sidebar, then select the type of control you want to add to the form from the list. For example, select Text Box for a field that will accept text input.
5. Click and drag the control onto the form where you want to place it.
6. Right-click on the new control and select Control Properties from the context menu.
7. In the Control Properties dialog box, select the Data tab.
8. In the Data tab, select the table to which you want to bind the control from the Table drop-down menu.
9. Select the field from the table that you want to associate with the control from the Field drop-down menu.
10. Adjust any other settings or properties for the control as desired, such as default values or validation rules.
11. Repeat the above steps to add additional fields to the form as needed.
12. Save the form when finished by selecting File > Save from the menu bar or by using the keyboard shortcut Ctrl + S.

Your form should now be updated with the new fields, and you can use it to input, view, or modify data in your database.

14.7 CREATING QUERIES

14.7.1 What are queries?

Queries in LibreOffice Base are a powerful tool for retrieving specific data from a database. A query is essentially a search that you perform on the data in your database to extract only the information that meets specific criteria.

Queries can be saved and reused, which makes them a useful tool for generating reports or answering recurring questions. By creating a query once, you can extract the information you need quickly and easily each time you need it, without having to manually search through the entire database.

14.7.2 Creating a query using the Query Design View

Here's a step-by-step procedure to create a query using the Query Design View in LibreOffice Base:

1. Open LibreOffice Base and open the database you want to work with.
2. Click on the "Queries" icon in the left-hand pane of the main window.
3. Click on the "Create Query in Design View" button in the toolbar.
4. In the "Tables" pane, select the tables or queries you want to include in the query by double-clicking on them or dragging them to the main pane.
5. Drag the fields you want to include in the query from the "Tables" pane to the main pane. You can also use the "Add Field" button in the toolbar.
6. If you want to include criteria for the query, use the "Criteria" row in the main pane. For example, if you only want to include records where the value in a certain field is greater than a specific number, you would enter "> [number]" in the Criteria row for that field.

7. If you want to sort the results of the query, use the “Sort” row in the main pane. You can specify ascending or descending order for each field.
8. Click the “Run Query” button in the toolbar to preview the results of the query. You can also use the “Run” menu and select “Run Query”.
9. If the query is returning the results you want, save it by clicking the “Save” button in the toolbar or using the “File” menu.
10. Give the query a name and click “OK”. The query will be saved and can be run or edited in the future.

14.7.3 Adding criteria to a query

Here are the step-by-step procedures to add criteria to a query in LibreOffice Base:

1. Open LibreOffice Base and select the database that contains the table you want to query.
2. Click on the “Queries” icon in the left sidebar to open the Queries section.
3. Click on the “Create Query in SQL View” button to create a new query.
4. In the Query Design View, click on the “Criteria” row in the grid that corresponds to the field you want to filter.
5. Type the criteria you want to use to filter the field. For example, if you want to find all records where the “Age” field is greater than 25, you would enter “>25” in the Criteria cell.
6. Repeat steps 4-5 for each field you want to filter.
7. Click on the “Run Query” button to view the results of your query.
8. If necessary, refine your criteria until you get the desired results. You can do this by changing the values in the Criteria cells or by adding additional criteria.
9. When you’re satisfied with your query, save it by clicking on the “Save” button in the toolbar.

10. You can now reuse your query whenever you need to retrieve data that meets your criteria by opening it from the Queries section in the left sidebar.

Overall, adding criteria to a query in LibreOffice Base is a simple process that allows you to extract specific data from your database quickly and efficiently. By refining your criteria, you can further narrow down your search and get the information you need with ease.

14.8 CREATING REPORTS

14.8.1 What are reports?

In LibreOffice Base, a report is a document that presents data from a database in a structured and formatted manner. Reports can be used to create professional-looking documents such as invoices, letters, or other business documents. Reports can be based on queries or tables, and can include data from multiple tables or queries.

14.8.2 Creating a report using the Report Design View

Followings are step-by-step procedure to create a report using the Report Design View in LibreOffice Base:

1. Open LibreOffice Base and select the database that contains the table or query you want to base your report on.
2. Click on the “Reports” icon in the left-hand panel to open the reports section.
3. Right-click on an empty space in the reports section and select “Create Report in Design View” from the context menu.
4. In the “Select Database Tables” dialog box, select the table or query you want to base your report on and click “Add”.
5. In the “Report Design” view, you will see the “Report Navigator” pane on the left, and the “Design” pane on the right. The “Design” pane is where you will create your report layout.
6. Drag and drop the fields from the “Table Field List” pane onto

the “Design” pane to add them to your report. You can also use the “Report Wizard” to guide you through this process.

7. To format your report, select the field or section you want to format, and use the formatting options in the “Properties” pane on the right.
8. To add headers, footers, or page numbers to your report, right-click on the corresponding section in the “Report Navigator” pane, and select “Edit”.
9. Preview your report by clicking the “Preview” button in the toolbar. You can also print your report or export it to a different format.
10. Save your report by clicking on “File” and selecting “Save” or “Save As”.

14.8.3 Adding fields to a report

Followings are step-by-step procedure to add fields to a report in LibreOffice Base:

1. Open your database in LibreOffice Base and click on the “Reports” icon in the main window.
2. Select the report you want to modify from the list of available reports and click “Edit.”
3. In the report editor, click on the “Design View” button to switch to design mode.
4. To add a new field to the report, click on the “Insert Field” button in the toolbar. This will open the “Insert Field” dialog box.
5. In the “Insert Field” dialog box, select the table or query that contains the field you want to add to the report.
6. Choose the field you want to add from the list of available fields, and click “OK.”
7. The new field will now be added to the report, and you can position it by dragging it to the desired location on the report.
8. To modify the formatting of the field, right-click on the field

and select “Properties.” This will open the “Properties” dialog box, where you can change the font, color, alignment, and other formatting options for the field.

9. Repeat steps 4-8 to add any additional fields you want to include in the report.
10. Once you have added all the desired fields and modified their formatting, save the report by clicking on the “Save” button in the toolbar.
11. To view the report with the new fields, click on the “Preview” button in the toolbar. This will generate a preview of the report that you can view and print.



CHECK YOUR PROGRESS

Choose the correct option:

Q 1: What is LibreOffice Base?

A. A spreadsheet program
B. A database management system
C. A word processing program
D. An email client

Q 2: What types of data can be stored in a table in Base?

A. Text, images, and videos
B. Numbers, dates, and times
C. Music, movies, and podcasts
D. All of the above

Q 3: Which of the following is NOT a feature of Base?

A. Creating and managing databases
B. Designing tables
C. Creating animations
D. Importing and exporting data

Q 4: Which operating systems is Base available on?

A. Windows and Linux
B. macOS and Windows
C. macOS and Linux

D. iOS and Android

Q 5: What is a key in a table?

A. A tool used to open the table

B. A column used to uniquely identify each record in the table

C. A type of data that can be stored in the table

D. A relationship between tables

Q 6: What is the purpose of a query in Base?

A. To create charts and graphs

B. To filter and sort data from one or multiple tables

C. To create sub-forms

D. To create reports

Q 7: What is a query in LibreOffice Base?

A. A tool for retrieving specific data from a database

B. A tool for creating professional-looking documents

C. A tool for formatting data in a structured manner

D. A tool for creating tables and fields in a database

Q 8: What is the purpose of creating a query in LibreOffice Base?

A. To create reports

B. To create tables

C. To extract specific data from a database

D. To format data in a structured manner

Q 9: Which view is used to create a query in LibreOffice Base?

A. Report Design View

B. Table Design View

C. Form Design View

D. Query Design View

Q 10: How can you add criteria to a query in LibreOffice Base?

A. By using the Report Design View

B. By using the Table Design View

C. By using the Form Design View

D. By using the Query Design View

Q 11: What is a report in LibreOffice Base?

A. A tool for retrieving specific data from a database

B. A tool for creating professional-looking documents

C. A tool for formatting data in a structured manner

D. A tool for creating tables and fields in a database

Q 12: Which view is used to create a report in LibreOffice Base?

A. Report Design View

B. Table Design View

C. Form Design View

D. Query Design View



14.9 LET US SUM UP

- Base provides various features such as creating and managing databases, designing tables, creating forms, queries, and reports, importing and exporting data, etc.
- To create a new database in LibreOffice Base, users can follow a simple step-by-step process that involves selecting the database type, location, name, database engine, and user authentication method.
- Tables are a fundamental component of a database in Base and consist of columns, rows, keys, and relationships that help store and organize data.
- Queries are a powerful tool in LibreOffice Base used for retrieving specific data from a database by searching and extracting information that meets specific criteria.
- Queries can be saved and reused, which makes them useful for generating reports or answering recurring questions.
- Criteria can be added to a query to further narrow down the search for specific data, and the query can be refined until the desired results are obtained.
- Reports in LibreOffice Base are structured and formatted documents that present data from a database and can be based on queries or tables.
- Reports can be created using the Report Design View, which provides

tools for adding fields, formatting options, and sections such as headers, footers, and page numbers.

- Reports can be previewed and saved, and can be used to create professional-looking documents such as invoices, letters, or other business documents.



14.10 FURTHER READINGS

1. "Getting Started with LibreOffice Writer," The Document Foundation, accessed March 11, 2023, https://documentation.libreoffice.org/en/english-documentation/getting-started-writer/.
2. "LibreOffice Writer Guide," The Document Foundation, accessed March 11, 2023, https://documentation.libreoffice.org/en/english-documentation/writer-guide/.
3. "LibreOffice Writer Tutorial," Tutorials Point, accessed March 11, 2023, https://www.tutorialspoint.com/libreoffice/libreoffice_writer_tutorial.htm.



14.11 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: B

Ans to Q No 2: B

Ans to Q No 3: C

Ans to Q No 4: B

Ans to Q No 5: B

Ans to Q No 6: B

Ans to Q No 7: A

Ans to Q No 8: C

Ans to Q No 9: D

Ans to Q No 10: D

Ans to Q No 11: B

Ans to Q No 12: A



14.12 MODEL QUESTIONS

Q 1: What is LibreOffice Base, and what are its main features?

Q 2: How do you launch LibreOffice Base, and what are the steps involved in creating a new database?

Q 3: What are tables in LibreOffice Base, and what properties do they have?

Q 4: How do you design tables in LibreOffice Base, and what are some of the options available for customizing their structure and properties?

Q 5: What are forms in LibreOffice Base and how do they enhance user interaction with the database?

Q 6: What are the two ways to create a form in LibreOffice Base, and what are the advantages of each approach?

Q 7: What are the basic steps involved in creating a form using the Form Design View in LibreOffice Base, and what are some of the key features and tools available in this view?

Q 8: How do you add fields to a form in LibreOffice Base, and what are some of the options and settings you can configure for these fields?

Q 9: What are queries in LibreOffice Base, and how do they help you extract specific information from a database? What are the basic steps involved in creating a query using the Query Design View, and what are some of the tools and options available in this view?

Q 10: What is a report in LibreOffice Base?

Q 11: What are the steps to create a report using the Report Design View in LibreOffice Base?

Q 12: How do you add fields to a report in LibreOffice Base?

Q 13: Can reports be based on multiple tables or queries in LibreOffice Base?

Q 14: How do you modify the formatting of a field in a report in LibreOffice Base?

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