UNIT 4: LIBRARY SOFTWARE PACKAGES

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4.1 LEARNING OBJECTIVES

After going through this unit you will be able to

- Know about library software packages;
- Know about the concept and terminologies used in conjunction with library software packages;
- Know about the criteria for evaluation of library software packages;
- Know about different library management software packages.

4.2 INTRODUCTION

The computer cannot do anything without some programme or instruction or software. Unlike the hardware, software cannot be touched but it instructs the computer what to do in a particular situation. Any type of computer programme designed to perform some kind of library activities is known as library software. It may be a simple programme to perform the job

of acquisition or cataloguing or integrated library management software that will perform the job of acquisition, cataloguing, circulation, serial control and others. It may also be digital library management software which will manage the digital resources of the library or some other types, say a Learning Management System or Content Management System, etc.

This unit will describe each and every aspect of the library software packages. Due attention is given to list the free software packages (open source and proprietary) that can be implemented without giving much stress on library finance. Sometimes a few commercial software packages that are also well proven also listed out to have a comparative study of the trend of available functionality in both categories.

4.3 TYPES OF LIBRARY SOFTWARE PACKAGES

There are different library software packages, and each of them has different functionability. The amalgamation of features adds a lot of difficulties in categorizing the library software packages. However for the purpose of our study, an attempt is made to categorize the library software packages into the following:

A) Based on Function Performed

i) Database Creation Software (E.g CDS/ISIS)

ii) Library House Keeping / Management Software Packages (Libsys, OASIS, Sanjay, SLIM, SOUL)

iii) Institutional Repository Software Packages (CDSWare, Dspace, E-prints, Fedora, Ganesha digital library, Greenstone)

B) Based on Source Code Availability

a) Proprietary software (SOUL)

b) Open Source Software Packages (Koha)

C) Based on Cost Factor

a) Completely Commercial (LibSys)

b) In-house Developed;

c) Shareware

d) Freeware (Gratis / Libre software)

e) Open Source Software

4.4 CONCEPTS RELATED TO SOFTWARE PACKAGES

Open-source software is computer software whose source code is available under a licence that permits the users to study, change, and improve the software, and to redistribute it in modified or unmodified form.

When we talk about the software packages especially Open Sources Software, we will come across some concepts or terminologies. Some of the popular concept or terminologies are discussed below-

a) **Open Archives Initiative (OAI):** The Open Archives Initiative (OAI) is an attempt to build a low-barrier interoperability framework for archives or institutional repositories containing digital content. It allows service providers to harvest metadata from the data providers. The collected metadata thus obtained is used to provide "value-added services". More: http://www.openarchives.org/

b) **Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH):** It is a protocol developed by the Open Archives Initiative. It is used to harvest (or collect) the metadata descriptions of the records in an archive so that services can be built using metadata from many archives. A number of software systems support the OAI-PMH, including GNU EPrints from the University of Southampton and DSpace from MIT. The OAI Protocol has been widely adopted by many digital libraries, institutional repositories, and digital archives. Commercial search engines have started using OAI-PMH to acquire more resources. Google has started to accept OAI-PMH as part of their Sitemap Protocol, and they are using OAI-PMH to harvest information from the National Library of Australia Digital Object Repository. In 2004, Yahoo! acquired content from OAIster (University of Michigan) that was obtained through metadata harvesting with OAI-PMH. The mod_oai project is using OAI-PMH to expose content to web crawlers that is accessible from Apache Web servers. A number of large archives support the protocol including arXiv and the CERN Document Server.

c) **Directory of Open Access Repositories (OpenDOAR):** OpenDOAR is an authoritative directory of academic open access repositories. It

provides the facility to “search for repositories” or “search repository contents”. It also provides tools and support to both repository administrators and service providers in sharing the best practice and improving the quality of the repository infrastructure. Website: http://www.opendoar.org/

d) **Richard Matthew Stallman:** Richard Matthew Stallman often abbreviated as "rms" (http://stallman.org/) is an American software freedom activist and computer programmer. In September 1983, he launched the GNU Project (http://www.gnu.org/gnu/initial-announcement.html) to create a free Unix-like operating system. In October 1985 he founded the Free Software Foundation (FSF). Stallman pioneered the concept of copyleft and he is the main author of several copyleft licences including the GNU General Public Licence, the most widely used free software licence.

e) **Application Programming Interface (API):** An Application Programming Interface (API) is an interface implemented by a software programme which enables it to interact with other software. It facilitates interaction between different software programmes similar to the way the user interface facilitates interaction between humans and computers. An API is implemented by applications, libraries, and operating systems to determine their vocabularies and calling conventions, and is used to access their services.

f) **The Digital Library Federation (DLF):** The Digital Library Federation (DLF) is an international consortium of libraries and related agencies that are pioneering the use of electronic-information technologies to extend collections and services. Since its formation in 1995, DLF has made a number of significant contributions to the academic library and library services vendor communities. Website: http://www.diglib.org/

g) **The Dublin Core Metadata Initiative:** The Dublin Core Metadata Initiative, or "DCMI", is an open organization engaged in the development of interoperable metadata standards that support a broad range of purposes and business models. The Dublin Core set of metadata elements provide a small and fundamental group of text elements through which

most resources can be described and catalogued. It can describe physical resources such as books, digital materials such as video, sound, image, or text files, and composite media like web pages. Metadata records based on Dublin Core are intended to be used for cross-domain information resource description and have become standard in the fields of library science and computer science. Implementations of Dublin Core typically make use of XML and are Resource Description Framework based. Website: http://dublincore.org/

h) **Search / Retrieval via URL (SRU):** SRU is a standard XML-focussed search protocol for Internet search queries, utilizing Contextual Query Language (CQL), a standard syntax for representing queries. Website: http://www.loc.gov/standards/ or http://www.loc.gov/standards/sru/

i) **Free Software Foundation (FSF):** The Free Software Foundation (FSF) is a non-profit corporation founded by Richard Stallman in October 1985 to support the free software movement, a copyleft-based movement which aims to promote the universal freedom to create, distribute and modify computer software. Website: http://www.fsf.org/

j) **Copyleft Licenses:** Copyleft is a general method for making a program (or other work) free, and requiring all modified and extended versions of the program to be free as well. The GNU General Public Licence, originally written by Richard Stallman, was the first copyleft licence to see extensive use, and continues to dominate the licencing of copylefted software. Creative Commons, a non-profit organization founded by Lawrence Lessig, provides a similar licence called ShareAlike.

4.5 CRITERIA FOR SELECTION AND EVALUATION OF LIBRARY SOFTWARE PACKAGES

In any endeavour in which we make a substantial investment of money, energy, and time or other resources, we like to know what kind of return we are getting. The ability to evaluate the return on our investment gives us the basis on which to choose between alternatives. So an evaluation is basically a judgment of worth, it is a matter of comparison of actual

result with external standard, in the light of existing institutional realities which may be relevant to evaluating the future trajectory of the programme or services and provide an objective basis for decision making. Like any evaluative process, library software evaluation is also quite a difficult task. It mainly involves four basic aspects i.e.

a) Whether software will be commercial;
b) In-house developed software packages;
c) Freeware
d) Open Source Software

In case of commercial software, it will cost a huge investment. In case of In-house developed software packages, it will consume much of the library budget, time from the library staff (in the form of constant evaluation and modification to the library software packages to become stable) and create problem in retrospective conversion. In case of freeware, there is a problem with technical support. But the Open Source Software has not any major disadvantages, if it has a online community for technical support. But in all cases, we have to consider the following procedure, features and aids to evaluate the software package.

A) Preliminary Steps

a) Consulting Others: No one wants chosen software to stop unexpectedly, slow down on large network, report error message. So, before making a choice, it will be better to consult a person who has already used the software in the same way or consult people who have already gained experience on that software package.

b) Reputation of the Referrer: The reputation of a person or the institution, his/her/its experience on that particular software is the next point to be considered. The relation between the evaluator and the referrer should also be justified at this point.

c) Existing Literature: It is better to go for the software after carefully examining the existing literature and documentation on the particular software packages.

B) Manufacturers and Vendor

a) **Reputation of the Manufacturer and Vendor:** What is the reputation of the software vendor or manufacturer in the market or for how long they are working in the field is the next important thing to consider.

b) **Training:** Does the company or authority of the particular software provide training? Where and how the training is conducted, whether it is online, onsite? It is another point to be considered.

c) **Documentation / Manual:** Is training accompanied by easy-to-follow supporting print material or manual. How good the manual is? It is also an important point to consider.

d) **Updating:** Does the library automation system company from their own website help to install, upgrade (web based updates), and patches or simply help one with a particular function. How is the new modification / new version of the software to be obtained by the librarian?

e) **Post Installation Support:** Post installation support from the vendor.

C) General Features of the Software Package

a) **Multiple Platforms:** The software package chosen should run on various computer platforms i.e. server, mainframe to simple PCs. The software should also be able to run in multiple platforms such as windows XP, windows 2000, windows N.T., etc.

b) **Existing Standard :** Software should support internationally known standards such as MARC 21, CCF, AACR2, LCSH and data export/ import in ISO 2709 (MARC/ CCF). If possible, the software chosen should also comply with UNICODE.

c) **Integrated :** The software should permit collaborative working and all modules should be integrated in nature.

d) **Flexibility :** The software should make it easy to switch between the OPAC and writing station because there are times when one would want the public OPAC station to function as writing station and at other times when would like the writing station to function as OPAC. The software package chosen should also be so flexible as

to handle the records of variable sizes.

e) **Capacity :** The restriction in total number of database / information / records in a database enable the software to be handled effectively.

f) **Speed :** Speed of operation in different environment.

g) **Standardize Data Format for Import and Export :** The software should use standardized data format for importing and exporting of data from and to the software.

h) **De-Bugging Facility :** De-bugging facility and scope of proper error message while executing the software are to be ensured.

i) **User Friendliness :** The software should build on GUI based environment. It should provide expert advice and assistance in performing any task. It should empower the experienced user with short cut and inexperienced user with menu driven icon, dialogue box, etc. giving clickable access to the software. The software that is built on other platform should have the mnemonic based command.

j) **Object Linking and Embedding (OLE) :** The Object Linking and Embedding feature helps to create objects in one application and then to embed it in a record of the software package running on the computer. If the software package chosen has this feature then it is good.

k) **Effectiveness :** Does the system meet the specification?

l) **Reliability :** Does the search in the software give consistent result?

m) **Customization and Expandability :** The system should permit addition of new feature to meet the local need and use.

D) Services

a) **Acquisition:** Does the system carry out duplicate checking while entering the data. Does it have the capacity to print accession register? How effective the system is for data entry? Does the software provide an easy way for editing records? Are insertion and deletion of records easy?

b) **Cataloguing:** Cataloguing through retrospective conversion facility, provision of catalogue card printing, etc.

c) **Circulation :** Provision for issue, return, renewal, grace period,

overdue alert, computation of fines, reservation of document etc.

d) **Serial Control:** Provision of monitoring multiple issue of a serial, provision of grace period for receiving the serial, provision of renewal, overdue alert, entering the abstract of a serial.

e) **OPAC:** Provision of reservation through OPAC, provision of searching OPAC from outside the library, provision of searching the OPAC and web simultaneously (Meta search) using a single word search.

f) **Library Administration:** The software should allow generation of different kinds of reports i.e. collection statistics, circulation statistics and also should be helpful to create one's own specialized report to meet the specialized need. It should also have the facility to assign different right to the software for different categories of library staff.

E) **New Technologies:** The library software package should keep pace with global technology, web enhancement, online information, virtual services, provision of barcode facility, handling un-catalogued item etc.

a) **Network Capabilities:** Provision of LAN connectivity, scope of integration of the software package with other school department, provision of accessing the software from computer outside the school walls via a web browser.

b) **Web Enabling:** Provision of web enabling through link to the Application Service Provider (ASP) or to the school web server, provision of internet connectivity, Email connectivity, etc. This is an advantage, where the cataloguer can work from remote location and OPAC can be accessed from both home and school, 24 hours a day.

c) **Enhanced MARC Data:** Many softwares allow to catalogue website, E-Books, AV resources in addition to the library resources. The websites are added by the library media specialist manually.

d) **Open Standard Technologies:** Is the database built on open standard technologies such as SQL, cold fusion, or XML that allows different types of software to talk to each other? That means, different modules of the software can easily and automatically share and update any information is common e.g. students name, address etc.

F) Securities

a) Log on/off: The software should provide the students and staff members the user id and passwords to log on/off facilities on their own. The system must also allow the administrator to provide access restriction to certain records/ fields of importance.

b) Power out Feature: Is any power out feature included? The system should be with a manual hand scanner available to check the material in and out in the event of power failure that can later on easily be connected to the computer system.

G) Cost Factor of the Software Package

a) Total Cost of the Software Package : If the system comes in different modules (available in only circulation module, circulation plus cataloguing module) then the total cost of the system. Is to be considered whether the total cost is affordable or justified.

b) Cost of Support : Cost of training, on site support, etc.

c) Cost of Upgrade : Cost of future upgrades.

d) Future Exist Cost : In near future, if one wants to switch over to another package then the cost involved in such cases should also be considered.

e) Warranty: The software should come with performance and service warranty.

The technologies are shifting the horizon of library software packages every day, so, in choosing any software for library automation, if possible, we should look for the software package that has also the facility for federated search, and comply with the Open URL and Barcode and RFID technologies.

4.6 LIBRARY MANAGEMENT SOFTWARE PACKAGES

Library management or automation software provides centralized management and processes for different types of libraries and library activities such as acquisition, cataloguing, circulation, administration,

reporting and patron records. It provides integration of self-service kiosks and online web portal access for catalogue search, content delivery or reservation requests and such others. They also track and automate notification of overdue books and fines.

In the following paragraphs, an attempt is made to list some of the popular free and open source library automation software packages. A very few commercial software packages are also discussed.

a) **Automatización de Bibliotecas y Centros de Documentación (ABCD):** ABCD stands for "Automatización de Bibliotecas y Centros de Documentación" (Spanish), which means: Library and Documentation Centers Automation. Its development is promoted and coordinated by BIREME, with the support of VLIR. ABCD is an integrated library management system that covers all the major functions in a library. It is able to manage acquisitions, management of bibliographic databases, user management, loan management, control of periodicals, and so on. It uses MARC-21 cataloguing formats and other current standards or protocols (Dublin Core, METS, Z39.50) and published as Free and Open Source Software (FOSS) with the accompanying tools for the developer community. Website: http://reddes.bvsaude.org/projects/abcd or http://sites.google.com/site/abcdtutorials/

b) **DEL-PLUS:** This software was designed and developed by Developing Library Network (DELNET), New Delhi exclusively to work under all kinds of libraries. It is able to manage the acquisition, cataloguing, circulation, and administrative work of the library. It also has an OPAC end and follows internationally recommended standards and formats such as MARC 21. It is suitable for small and medium size libraries which have collections upto one lakh holdings. It also supports Barcode. Website: http://delnet.nic.in/software-development.htm

c) **E-Granthalaya:** e-Granthalaya is a library automation software from National Informatics Centre, Department of Information Technology, Ministry of Communications and Information Technology, Government of India. Using this software the libraries can automate in-house activities as well as user services. The software can be implemented either in

stand-alone or in client-server mode where the database and WebOPAC are installed on the server PC while the data entry programme is installed on client PCs. The software runs on Windows platform. The software is provided at zero cost to the Ministries / Departments / Public / Academic / Universities / Colleges and school libraries. Besides, libraries set up in Public / Private sectors may also approach the NIC for free copy of the software. Website: http://egranthalaya.nic.in/

d) **Evergreen:** Evergreen is an open source library management software, freely licensed under the GNU GPL. It was first launched in September, 2006 in Georgia's PINES consortium. It is highly-scalable software for libraries that helps library patrons find library materials, and helps the libraries to manage, catalogue, and circulate those materials, no matter how large or complex the libraries. are Evergreen has an active community that participates in its coding, documentation, and direction of the project. Website: http://www.open-ils.org/

e) **FireFly:** FireFly is a Complete Public Library system. It is being written in Python, Perl, with all data being stored in XML. The driving force behind this project is to give public libraries a Free-Software set to run and maintain library systems. Website: http://savannah.nongnu.org/projects/firefly/

f) **Koha:** Koha is the world's first open-source Integrated Library System (ILS) and it is distributed free of cost (open source, and so no license fee, ever). It was initially developed in New Zealand by Katipo Communications Ltd and first deployed in January of 2000 for Horowhenua Library Trust. It is currently maintained by a team of software providers and library technology staff from around the globe and is in use worldwide in the libraries of all sizes. The name “Koha” comes from the Maori word for a gift or donation.It runs on Linux, Unix, Windows and MacOS platform. Koha is a comprehensive system that has the capacity to intelligently run a library, large or small, real or virtual. Koha is compliance with copy cataloguing and z39.50, MARC21 and UNIMARC for professional cataloguers. The software can also be used as document manager or digital library. Website: http://koha.org/

g) **Library Information and Management System (LIMS):** LIMS is a unique library system, designed, developed, implemented and fully tested by library professionals. It is distributed free of cost to the libraries. Website: http://www.paklag.org/limsFreeware.htm

h) **Library Manager:** Library Manager is a library management software. It has been developed under GPL licence. Website: http://libman.sourceforge.net/

i) **LibSys 7:** It is a web based library software product from Libsys Ltd., Gurgaon, Haryana. It has the modules for acquisition, cataloguing, circulation, serials, article indexing, Web-OPAC, and reports. It supports international standard like MARC21 (USMARC + CANMARC), Unicode, SRU-SRW, Z39.50, NCIP-NISO, SICI-Barcode. If any library has the sufficient fund, then it can be treated as the most field-proven library system in a wide spectrum of libraries with unmatchable depth in functionality and features. Website: http://www.libsys.co.in/

j) **NewGenLib:** NewGenLib is an integrated library management system developed by Verus Solutions Pvt Ltd. Domain expertise is provided by Kesavan Institute of Information and Knowledge Management in Hyderabad, India. On 9th January 2008, NewGenLib was declared as Open Source Software under GNU GPL Licence by Verus Solutions. It is estimated that 2,500 libraries across 58 countries are using NewGenLib as their Primary integrated library management system. Website: http://www.verussolutions.biz

k) **OpenBiblio:** OpenBiblio is an easy to use, automated library system written in PHP containing OPAC, circulation, cataloguing, and staff administration functionality. The software is free. Website: http://obiblio.sourceforge.net

l) **Sanjay:** The NISSAT sponsored a project to DESIDOC for developing programmes on UNESCO's CDS/ISIS for enabling a library to do acquisition, circulation, etc. DESIDOC has successfully modified the programmes and a new package based on CDS/ISIS was released in 1992 by the name of SANJAY. So, Sanjay is an augmented version of

CDS/ISIS with modules prepared for the various house keeping operations. The software is totally menu driven and works in windows environment with LAN support. In India, NISSAT is the marketing agent of this software. The package was released for marketing in September 1995.

m) **Small Library Organizer Pro:** It is a complete software for small private, public, or corporate libraries. It able to manages all the library collections, member / patron information, and keeps track of the library circulation data. The package has a separate module called Designer. With Designer one can modify Small Library solution or can build their own. This is a freeware. Website: http://small-library-organizer-pro.software.informer.com/1.0/

n) **SOUL 2.0:** Software for University Libraries (SOUL) is the state-of-the-art library automation software designed and developed by the INFLIBNET Centre, Ahmedabad. It is a user-friendly software developed to work under client-server environment. Looking at the name of the software, one may think that it is meant for the university libraries only, but, in fact, it is flexible enough to be used for automating any type or size of library. It is one of the best and proven software for all types of libraries. Website: http://www.inflibnet.ac.in/soul/

o) **WEBLIS:** WEBLIS is a free-of-charge Web based Library Integrated System based on CDS/ISIS. The system has been developed by the Institute for Computer and Information Engineering (ICIE), Poland. The current version of WEBLIS, available in English, consists of the cataloguing system, OPAC (search), LOAN module, and statistical module. WEBLIS runs through the WWW-ISIS engine. More: http://portal.unesco.org/ci/fr/ev.php-URL_ID=16841&URL_DO=DO_TOPIC&URL_ SECTION=201.html

4.7 INSTITUTIONAL REPOSITORY SOFTWARE PACKAGES

An Institutional Repository (IR) is an online locus for collecting and preserving in digital form the intellectual output of an institution, particularly

a research institution. For a university, this would include materials such as research journal articles (before (preprints) and after (postprints) undergoing peer review, and digital versions of theses and dissertations, but it might also include other digital assets generated by normal academic life, such as administrative documents, course notes, or learning objects. The main objectives for having an institutional repository is to provide open access to institutional research output by self-archiving it and to store and preserve other institutional digital assets, including the unpublished or otherwise easily lost (grey) literature (e.g., theses or technical reports).

IRs are partly linked to the notion of a digital library i.e., collecting, housing, classifying, cataloguing, curating, preserving, and providing access to digital content, analogous with the library's conventional function of collecting, housing, classifying, curating, preserving and providing access to analog content.

There are different softwares for building institutional repositories. Some well known software packages are described bellow

a) **Dspace:** Dspace was developed by Massachusetts Institute of Technology (MIT) libraries & Hewlett-Packard labs. It runs on Unix or Linux machine and Apache web server, Tomcat servlet engine and the postgre SQL relational database system are required. The software is released under BSD license. Website: http://www.dspace.org/

b) **EPrints:** Eprints was developed by University of Southampton and released under GNU General Public License. It runs on Unix machine and Apache, MySQL database, Perl language is necessary for its installation and operation. Website: http://www.eprints.org/software/

c) **Green Stone Digital Library software (GSDL):** The Greenstone Digital Library Software is a suit of Open Source, multilingual software package for building and distributing Digital Libraries. It provides a new way of organizing information and publishing it on the Internet or on CD-ROM. The software has been developed by the New Zealand Digital Library Project at the University of Waikato, New Zealand. Greenstone is supported by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Human Info NGO, based in Antwerp,

Belgium for spreading the benefits of this software to developing countries. It is released under GNU General Public License and runs on Windows, Linux / Unix machine that have Apache web server, MySQL database and Perl language. Website: http://www.greenstone.org

4.8 CONTENT MANAGEMENT SYSTEM (CMS)

A Content Management System (CMS) is a computer application used to create, edit, manage, search and publish various kinds of digital media and electronic text. CMSs are frequently used for storing, controlling, versioning, and publishing industry-specific documentation such as news articles, operators' manuals, technical manuals, sales guides, and marketing brochures. A CMS may support the following features-

a) Identification of all key users and their content management roles;
b) Ability to assign roles and responsibilities to different content categories or types;
c) Definition of workflow tasks for collaborative creation, often coupled with event messaging so that content managers are alerted to changes in content (for example, a content creator submits a story, which is published only after the copy editor revises it and the editor-in-chief approves it.);
d) Ability to track and manage multiple versions of a single instance of content;
e) Ability to capture the content (e.g. scanning);
f) Ability to publish the content to a repository to support access to the content through different search and retrieval techniques;

Besides the above, a CMS may also have the following provisions:

g) Communication application such as video conferencing;
h) Administration components such as whiteboards for brainstorming, appointment scheduling, project management, etc.

A CMS has the following advantages over other paper based information sources

a) Reduction of paper handling and error-prone manual processes;
b) Reduction of paper storage;
c) Reduction of lost documents;
d) Faster access to information;
e) Online access to information that was formerly available only on paper, microfilm, or microfiche;
f) Improved control over documents and document-oriented processes;
f) Streamlining of time-consuming business processes;
g) Security over document access and modification;
h) Providing reliable and accurate audit trail;
i) Improved tracking and monitoring, with the ability to identify bottlenecks and modifying the system to improve efficiency.

In the following paragraphs a few widely used CMS are discussed in brief.

a) Drupal: Drupal is a free and open source content management system (CMS) written in PHP and distributed under the GNU General Public License. The Drupal contains basic features common to most CMSs. These include user account registration and maintenance, menu management, RSS-feeds, page layout customization, and system administration. The Drupal core installation can be used as a brochureware website, a single- or multi-user blog, an Internet forum, or a community website providing for user-generated content. Website: http://drupal.org/

b) Joomla: Joomla is a free and open source content management system for publishing content on the World Wide Web and intranets. It includes features such as page caching, RSS feeds, printable versions of pages, news flashes, blogs, polls, search, and support for language internationalization. Website: http://www.joomla.org/

c) MediaWiki: MediaWiki is a popular free web-based wiki software application developed by and used on all projects of the Wikimedia Foundation, as well as on many other wiki websites worldwide. The first version of the software was deployed to serve the needs of the free content Wikipedia encyclopedia in 2002. Now it is deployed by many

companies as a content management system for internal knowledge management. Website: http://www.mediawiki.org/wiki/MediaWiki

d) **Zope:** Z Object Publishing Environment (Zope) is a free and open-source, object-oriented web application server written in the Python programming language. Zope is used for building web applications, content management systems, and dynamic websites of all kinds. Website: http://www.zope.org/

4.9 LEARNING MANAGEMENT SYSTEM (LMS)

A Learning Management System (LMS) or Courseware Management System is a software application for the administration, documentation, tracking, and reporting of training programmes, classroom and online events, e-learning programmes, and training content.

LMSs range from systems for managing training and educational records to software for distributing courses over the Internet with features for online collaboration. Student self-service (e.g., self-registration on instructor-led training), training workflow (e.g., user notification, manager approval, wait-list management), the provision of on-line learning (e.g., computer-based training, read & understand), on-line assessment, management of continuous professional education (CPE), collaborative learning (e.g., application sharing, discussion threads), and training resource management (e.g., instructors, facilities, equipment), are dimensions to Learning Management Systems.

The following are some of the popular LMS softwares

a) **ATutor:** ATutor is an Open Source Web-based Learning Management System (LMS). It is used in various contexts, including online course management, continuing professional development for teachers, career development, and academic research. The software is cited as unique for its accessibility features, (useful to visually-impaired and disabled learners); and for its suitability for educational use. Website: http:// www.atutor.ca/

b) **Brihaspati (The Virtual Classroom):** Brihaspati is an open source

learning management system and of Indian origin. Website: http://home.iitk.ac.in/~ynsingh/tool/brihaspati.shtml

c) **Claroline:** Claroline is a collaborative eLearning and eWorking platform (Learning Management System) released under the GPL Open Source license. It allows hundreds of organizations worldwide ranging from universities to schools and from companies to associations to create and administer courses and collaboration spaces over the web. Website: http://www.claroline.net

d) **Moodle:** Modular Object-Oriented Dynamic Learning Environment (Moodle) is a free and open-source e-learning software platform, also known as a Course Management System, Learning Management System, or Virtual Learning Environment (VLE). It is developed by Martin Dougiamas to help the educators create online courses with a focus on interaction and collaborative construction of content. Website: http://moodle.org/



CHECK YOUR PROGRESS

Q 1 : Match the Following

a) OpenDOAR	i) Founded Free Software Foundation (FSF).
b) Richard Matthew Stallman	ii) Developed by the Open Archives Initiative.
c) Digital Library Federation (DLF)	iii) A Copyleft License.
d) The GNU General Public License	iv) An international consortium of libraries and related agencies.
e) OAI-PMH Protocol	v) Authoritative directory of academic open access repositories.

Q 2 : Match the Following

a) LibSys 7	i) Developed by Wikimedia Foundation.
b) Dspace	ii) Example of Content Management System (CMS).

c) GSDL	iii) Developed by Massachusetts Instituteof Technology (MIT) libraries & Hewlett-Packard labs.
d) EPrints	iv) Developed by the New Zealand Digital Library Project at the University of Waikato, New Zealand.
e) Drupal Package.	v) Institutional Repository Software
f) MediaWiki	vi) An example of Learning Management System (LMS).
g) Moodle	vii) Example of Library Management Software.

Q 3: Write Full Form of the Following

a) API. .....
b) CMS. .....
c) DCMI. .....
d) DLF .....
e) FSF .....
f) GSDL. .....
g) OAI. .....
h) OAI-PMH. .....
i) SRU. .....



4.10 LET US SUM UP

There are different software packages available for different activities of a library. Sometime they are bundled together with lots of cool features to form an integrated library management software.

The open source softwares are gaining importance day by day. They provide a free licence with the additional facility of extensive customization

to meet the local need. In case of commercial proprietary library management software SOUL 2.0, and LibSys 7 are popular in India. In case of free proprietary software, the E-Granthalaya of NIC is gaining importance and in case of Open Source software, Koha is day by day heading to win the race.

In case of Institutional Repository Software Packages, the Green Stone Digital Library software (GSDL), EPrints, and Dspace are deployed in different institutions in India. In the category of Content Management System (CMC), Drupal, Joomla, and MediaWiki is used where as from the category of Learning Management System (LMS), Moodle are favoring by large number of institutes.



4.11 FURTHER READINGS

1) Baruah, Deepa (2002). *A study on the library software packages SOUL and LIBPLUS with special reference to data entry and data retrieval techniques (M*LISc Dissertation, Gauhati University).
2) Borkakati, Shatabdi (2001). *Evaluation of library software packages (*MLISc Dissertation, Gauhati university).
3) Mukhopadhyay, Partha Sarathi. *Progress of Library Management Softwares: an Indian Scenario.* Available over web at: https:// drtc.isibang.ac.in/bitstream/handle/1849/189/lmss2a.PDF?sequence=2
4) Schrock, Kathy. *Library automation: A buying guide*. Available over web at : http://www.techlearning.com/story/showarticle.jhtml?a rticleid=17602661
5) Welgus, Barry. *Library automation:* software functionality issues. Available over web at: http://www.curriculum.ed.au/scis/connections/ cnetw02/42automation.htm

4.12 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1:

a) OpenDOAR	i) Authoritative directory of aca demic open access repositories.
b) Richard Matthew Stallman	ii) Founded Free Software Foun dation (FSF).
c) Digital Library Federation (DLF)	iii) An international consortium of libraries and related agencies.
d) The GNU General Public License	iv) A Copyleft License.
e) OAI-PMH Protocol	v) Developed by the Open Archives Initiative.

Ans to Q No 2:

a) LibSys 7	i)Example of Library Management Software.
b) Dspace	ii)Developed by Massachusetts Institute of Technology (MIT) libraries & Hewlett-Packard labs.
c) GSDL	iii)Developed by the New Zealand Digital Library Project at the University of Waikato, New Zealand.
d) EPrints	iv)Institutional Repository Software Package.
e) Drupal	v)Example of Content Management System (CMS).
f) MediaWiki	vi)Developed by Wikimedia Foundation.
g) Moodle	vi)An example of Learning Management System (LMS)

Ans to Q No 3:

a) API = Application Programming Interface.

b) CMS = Content Management System.

c) DCMI = Dublin Core Metadata Initiative.

d) DLF = Digital Library Federation.

e) FSF = Free Software Foundation.

f) GSDL = Green Stone Digital Library software.

g) OAI = Open Archives Initiative.

h) OAI-PMH = Open Archives Initiative Protocol for Metadata Harvesting.

i) SRU = Search / Retrieval via URL.



4.13 PROBABLE QUESTIONS

A) Write Short Notes on the Following

a) E-Granthalaya

b) Koha

c) SOUL 2.0

B) Essay Type Questions

a) Describe the criteria for selection and evaluation of library software packages.

b) Describe the library management software with a few examples.

c) Write descriptive notes on Institutional repository softwares.

d) What is a CMS. Describe with examples.

e) Describe LMS with examples.

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