

LIBRARY MANAGEMENT SOFTWARE: A COMPARATIVE STUDY

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ABSTRACT

This article will concentrate on library management software that provides either a web interface for some of its modules or a full web-based solution for all of its modules. Additionally, this article will investigate the evolution of such software, as well as its features and trends. A secondary purpose of this article is to assess library automation software by comparing and evaluating its features, services, and capacities. The findings of a survey that was carried out among software vendors in Delhi, India, are presented in this article. The survey was carried out with the intention of obtaining information on the features of the six software packages that were selected for this study. The information was acquired via the use of a questionnaire that was sent to the firms that supply software. The software industry provides a diverse range of programs, as can be seen in the previous observation. However, there are only a handful of them that function faultlessly on the web and provide access to all of the most recent technological specifications. The only software packages that are being investigated for this research are those that are available in Delhi. It is possible that library directors who are considering automating their libraries may find the comparison of library management software systems presented in this research to be helpful. This is because it will assist them in selecting and maintaining the program that is most suitable for their needs. There has not been a comprehensive examination of the web interfaces of library management software systems across the country of India.

Keywords: *Library Automation, Library Management, Questionnaire, Supply Software.*

Introduction

A large number of people are in agreement that library management software (LMS) systems are essential for providing effective customer service, inventory control, and service administration in today's libraries. Their foundation is based on the knowledge that librarians have acquired over the course of many years of professional experience. The advancement of learning management systems has taken a significant stride forward in the direction of reaching new heights. This has been made possible by the dropping costs of hardware, software, and connectivity, as well as the rising utility of these many components. As of right now, the norm for learning management systems is integrated solutions that are built on relational database architectures. In these kinds of systems, the files are linked in such a manner that any changes made to one file (whether they be deletions, additions, or other kinds of changes) will cause matching changes to be made to other files that are related with that file.

The National Information System on Science and Technology (NISSAT) was responsible for introducing the UNESCO CDS/ISIS software package to Indian libraries in the middle of the 1980s. This marked the beginning of a crucial period in which library software packages were being developed and created in India. A number of Indian libraries and information centers were inspired to create their very own software as a result of the information that was received via the use of CDS/ISIS, MINISIS, and other programs of a similar kind. DESIDOC was the company that pioneered the Defense Library Management System (DELMS), which was a multi-user, UNIX-based, COBOL-based system that was established in 1988. The Defense Science Library (DSL) was one of the organizations that contributed to the implementation of this system. The National Science Library (NSL) at what is now known as NISCAIR, which is a component of the Indian National Scientific Documentation Centre (INSDOC), was responsible for the development and use of another software that was referred to as Catman. By

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developing the Sanjay package for tiny libraries, DESIDOC was able to design a model-automated library. This was accomplished via one of their projects. As part of an endeavor to promote CDS/ISIS that was carried out by NISSAT, this package was placed in the Technology Bhawan Library, which is part of the Department of Science and Technology (DST).

The Evolution of Learning Management Systems

The year 1994 marked the beginning of libraries' efforts to build their online presence by opening their own websites. Subsequently, the web became an essential component of learning management systems (LMS), although in less developed countries, this spread was slow but ongoing. When learning management systems were first introduced, they were "module based" and did not exhibit any form of integration between the many components that made up the system. The modules that libraries install function on proprietary platforms and hardware, and they are customized to meet the specific requirements of each library specifically. As a result of this, learning management systems (LMS) became cross-platform and module integration was developed; these systems were either command-driven or menu-driven. UNIX and DOS-based computers were introduced after that. This led to the development of library management systems (LMS) that were relational database-based and fully integrated library systems. The incorporation of Graphical User Interfaces (GUIs) was one of the many standards that they adopted, which was a significant step forward on the path to Open System Interconnection (OSI). Currently, learning management systems (LMSs) are constructed using a web-centric architecture. This implies that they are able to link to other servers that are located online and include a wide variety of multimedia sources into a single user interface.

Unfortunately, there is a lack of current comparative studies on software packages that are of a high quality, which makes it difficult for libraries to choose software that is suitable for their needs. As a result, this article makes an attempt to evaluate a variety of software products that are used by information centers and libraries. This ranking was derived from a combination of literature research, questionnaires, and in-depth interviews with company representatives that provide software. The findings of this study could be valuable to other libraries when they are considering which automation software to use.

Objectives

The objectives of this study were to:

- Find out what kinds of platforms and environments are compatible with the program;
- Verify that the program complies with different technological and library criteria;
- Look at the software's online public access catalog to see whether it has flexible library search options.

Research Methodology

In-person interviews, questionnaires, and site visits were the three primary methods that were used in the survey. In order to collect information on the capabilities of the program, a comprehensive questionnaire was sent to the software providers and linked to the library management software systems that they use. When choosing learning management systems, one of the most important considerations was whether or not the administrative modules were web-connected.

Software Packages for Library Automation: A Profile

Given the sheer number of library automation software packages now available, it would be difficult to provide a comprehensive analysis of each individual application. As a result, in this section, we will briefly discuss a few software packages, some of which are brand new and have been developed to ease global communication between the libraries that are a part of our group and other libraries located all over the globe.

Liberty

Softlink Liberty was developed by a collaborative effort amongst software engineers who had prior experience in library science and information science. The implementation of Liberty 3, which integrates cutting-edge innovation with tried-and-true procedures and standards, has made it possible for libraries to now provide their patrons services of the highest possible quality. The web-based architecture of Liberty 3 combines cutting-edge technology with user-friendliness, interoperability, and the possibility to customize the system. Due to the fact that it is fully browser-based, Liberty 3 is an excellent choice for usage in a wireless network environment.

Traits that stand out significantly: Among the many remarkable qualities that Liberty 3 has are the following:

- All of Liberty 3's modules are supported by a web-based solution.
- Among Liberty 3's time-saving features are keyboard shortcuts, hyperlinked navigation, automated data inputs, one-click serials check-in, and automatic routing.
- It comes with optional add-ons including Quest (a Federated Searching system), Book, and e-reference (an electronic reference management system developed by Soft Link).
- Which is where SIP2, Z39.50 cross-library searching, and Syndectics OPAC enrichments come in. Liberty 3 seamlessly incorporates these characteristics.
- The use of RFID and SIP2 technologies is enabled in their entirety by Liberty 3. It is possible for the self-check devices at the library to communicate with Liberty 3 using SIP 2.
- Integration of systems from other parties is simple and straightforward with Liberty 3. Easy access to and use of the online public access catalog (OPA) is made possible by the integrated learning portals and repositories that are included in Liberty 3.
- You may quickly add and edit your own material from the library's home page. This content can include text, images, RSS feeds, URL links, direct OPAC searches, and connections.
- People who wish to utilize the library as a repository for information may take use of a feature called "Infonet" that is available in Liberty 3, which is an optional extension. For your convenience, Infonet will automatically index all of the text files, PDF files, and Microsoft Word files that are stored on your network. They are completely searchable via the online public access catalog that the library maintains.

Alice for Windows

Many different companies in the United States, Australia, Britain, Iceland, India, Malaysia, New Zealand, and Singapore sell this Learning Management System (LMS), a software package that is used globally and was developed by Softlink International, Australia. In Iceland, for marketing purposes, it is called Embla; in the rest of Europe, Alice; in Australia and South East Asia, OASIS; and in the US and other countries, Annie. Softlink International has chosen to rename the Windows software worldwide as Alice. We tried to be consistent in our decision-making.

Listed below are some of the most significant features that Alice possesses: For each of its four editions, the intended readers are public libraries, special libraries, academic libraries, and school libraries. One of three categories is assigned to each of the components that are responsible for the construction of each bundle. A number of departments, including OPAC, Circulation, Reports and Utilities, and Administration, are included in the Standard Set. Additionally included in the Advanced Set are the following: acquisition, publishing, journal indexing, multimedia, and online inquiry techniques. In addition to the Standard and Advanced sets, the Special Set includes the following capabilities: the ability to make reservations, self-checkout for customers, rapid retro conversion, features for a wide variety of languages, self-circulation, union catalog, and interlibrary loan.

Among the distinguishing characteristics of Alice for Windows are the following:

- A variety of support services, such as free newsletters, user groups for feedback, ongoing research and development, and on-site training programs, are available to support the LMS.
- It may be used to handle presentations, audio and videocassettes, paper clippings, maps, charts, electronic papers, and websites in addition to conventional library items. Library maps are useful for locating papers inside the library. Authority files may be used to maintain uniformity in the way that objects are recorded.
- Alice is able to store an infinite number of records.
- Eleven search criteria in all may be used to search the database via the internet, intranet, or any other system (UNIX, MAC, Apple, etc.).
- In addition to the 800 pre-formatted reports that come with the Standard package, it helps to build bespoke reports.
- Both barcode technology and built-in communication capabilities are supported. The LMS has unique features such as an online lesson and support system, quick retro-conversion capability, and data security measures.
- Also, it gives customers the freedom to use RFID technology to carry out circulation tasks independently.

- By only scanning their fingerprints, students may have access to their borrower profiles. It is possible to swiftly identify a borrower using fingerprint recognition technology without requiring a student ID card.

Virtua

Virginia Tech's VTLIS Inc., which is situated in the United States, is responsible for the development of the web-based library automation tool known as Virtua. ILS (Integrated Library System) Virtua is a fully integrated, open-source, and standards-based library management system. In addition to providing comprehensive language support, Virtua makes use of a powerful Oracle foundation. Furthermore, it contains sophisticated features including support for mobile computing, the ability to rate and review people, the ability to get update alerts via SDI, and FRBR, or Functional Requirements for Bibliographic Records. Because no two libraries are exactly alike, VTLIS has developed flexible software that enables each library to generate individual profiles for its customers and workers. This control over who has access to the system's more than 600 functions is made possible by the program's adaptability. Because of its intuitive user interface and robust capabilities, Virtua was developed to cater to the requirements of library personnel as well as users. It provides the customer with the ability to personalize the system in accordance with the needs of their own library. A public access catalog (OPA) that is accessible online, cataloging, acquisitions, serials, circulation, and reporting are all included in the integrated capabilities of Virtua. Additionally, it is easy to learn and use. As other components, there is the Software Development Initiative (SDI), Open URL, Consortium Databases, and Union Catalogs.

Traits that stand out significantly: These are the most important elements of Virtua:

- The six primary technologies that Virtua software is founded upon include relational database management systems, quick development tools, three-tier client/server architecture, database warehousing, Unicode support, and ATM network optimized applications.
- It provides fully supported technologies and standards, including email recommendations and warnings, all MARC formats, Z39.50, UNICODE, Hebrew, linked authorities, and RFID.
- More user-friendly than earlier cataloging systems, FRBR (Functional Requirements for Bibliographic Records) provides a new way to organize and retrieve information.
- It offers access to outside resources like RLIN and OCLC.
- Update alerts using selective distribution of information (SDI) enable users to keep track of new library collection additions with the aid of the VECTORS iportal. Clients may store as many keyword searches as they'd like, automatically, at a predetermined interval, thanks to SDI.
- EDI, a time-saving technology standard that permits the electronic exchange of documents including purchase orders, invoices, and claims, is compliant with Virtua. Users may find out more about the products that their patrons are interested in by visiting the Selection List on the Virtua VECTORS iportal.
- Users of the Selection List may request goods that they would want the library to purchase using an iPortal form. The system alerts the requestor via email right away if the item is ordered, placing it on hold until it is delivered.

Ls-Premia (LibSys)

According to Info-Tek Consultants Pvt. Ltd., a software company based in New Delhi that has been providing general insurance and ERP/CRM software solutions since 1984, the primary objective of the company is to "libSys for library automation." The LibSys system has become the de facto standard for libraries in India as a result of its consistent growth over the course of the last twelve years. The acceptance of this system in the international market strengthens its already robust national reputation as the library system that has been field-tested the most across a wide variety of libraries, providing an unprecedented level of functionality and capabilities. A multi-user integrated library management system called LibSys was created especially for professionals who work in libraries and information centers. It offers a tree structure system specifically, where each system is made up of many subsystems with never-before-seen levels of functionality depth.

Special Features

- LibSys has had an open-system architecture (three-tier) from the start. It started off as a host multi-user system and progressed to a Client-Server implementation before becoming a completely web-based solution.
- In addition to a windows-based OPAC, LibSys has a robust and intuitive online OPAC.

- LibSys uses the GIST of C-DAC and ISM publisher to handle Indian languages and scripts. LibSys now has UNICODE support, which makes managing Indian and international languages easier.
- Since LibSys can manage digital items as well as a variety of multimedia files and electronic resources, it is quite possible to construct a virtual library.
- Bar Code Printing: LibSys comes with an integrated tool that makes it easier to print bar code labels for things such as books.
- Thesaurus Construction: This feature is used to look for concepts that are both wider and narrower as well as synonyms.
- Resource Sharing: The LibSys search engine's Z39.50 compatible functionality enables network connection and resource sharing.

E-Granthalaya

- Since its inception, LibSys has used an open-system architecture (three-tier architecture), progressing from a multi-user host system to a Client-Server setup and, in the end, becoming a completely web-based solution.
- In addition to a windows-based OPAC, LibSys has a robust and intuitive online OPAC.
- LibSys uses the GIST of C-DAC and ISM publisher to handle Indian languages and scripts. LibSys now has UNICODE support, which makes managing Indian and international languages easier.
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- Resource Sharing: The LibSys search engine's Z39.50 compatible functionality enables network connection and resource sharing.

Special features:

- A national library database, web-based data input modules, and common search interfaces for union catalogs from dispersed databases utilizing SRW (Search/Retrieval Web services) based search engines are all included in E-Granthalaya version 3, which is being developed in collaboration with Microsoft.
- The online public access catalog (OPA) module is built in ASP.NET, whilst the E-Granthalaya data input modules are in VB.NET.
- It's compatible with UNICODE and a huge number of Indian languages. The online public access catalog (OPAC) is available.
- The "click-one" idea allows for automated deployment from a server PC.
- Union catalogs from many library clusters may be accessed using "Single Window Access" thanks to the XML-based SRW client and server software.

NettLib

According to the description of the program, many different types of libraries might potentially benefit from the extensive management tools that NettLib offers. The creation and maintenance of NettLib is a collaborative effort between a group of highly skilled software engineers and library professionals. NettLib is kept "state-of-the-art" via the implementation of consistent upgrades. NettLib is a trustworthy, effective, and user-friendly library that was constructed using cutting-edge technology and industry standards. It is possible to run NettLib on a client-server architecture; however, it also functions quite well in standalone, local area network, and wide area network settings. NettLib's modular architecture, open standards, and object-based design make it simple to add new features to the system. It is also possible to access this application online.

Special Features

- It offers smart card options and an integrated barcode capability for library automation.
- The software has an online interface for managing patrons and the OPAC.
- NettLib offers RFID technology support so that users may easily locate missing papers, use increased security features, and return library materials.
- NettLib is also adaptable enough to provide customization based on the needs of the library.

Table 1: Software Versions for E-Granthlaya

Version	Operating environment	Design Environment	Year
1.0	Window Form based	VB6.0/non UNICODE	2002
2.0	Window Form based	VB6.0/non UNICODE	2005
3.0	Window Form based	VB.Net/Smart Client technology/UNICODE	2006

Data Analysis

Now that we have completed the preliminary work, we are able to evaluate the six learning management systems that were selected. The following five factors are taken into account in the comparison study: the hardware requirements, the facilities of the modules that are available, the technology that the LMS systems support, security, and customer support.

The Very Minimum Needed to Establish a Learning Management System

Application software, system software, and hardware are the three components that are necessary for the successful operation of any learning management system (LMS). Before selecting any learning management system (LMS), it is essential to have a thorough understanding of the bare minimum of hardware and software requirements that must be met in order to effectively operate software. This section of the appendix provides information on the essential backend software and the minimum hardware requirements for the various learning management system (LMS) alternatives that were selected.

Various Modules' Functions and Report Creation

The Cataloguing module stores, arranges, and retrieves information in addition to carrying out many tasks carried out by the software's several administrative modules. The Acquisition module is in charge of acquiring and purchasing library assets. Therefore, in every program, each module will have its own set of responsibilities. These details pertain to the core features and capabilities of the various management modules.

Features Offered by the Acquisition Module

There is information that pertains to the activities that are carried out by an acquisition module that is shown below. In addition to that, it provides specifications on a few reports that are associated with the acquisition module. Table II shows that the Acquisition module of Liberty, Ls-Premia, Virtua, and NettLib all includes the following features: budget control, duplication checking, book verification with order file, accession work, recording requests for claims or cancellation of outstanding orders, and access to external databases. Regrettably, neither E-Granthalaya nor Alice for Windows allowed users to log queries or access other databases or information sources. Requests could not be recorded by users in any of these applications. The applications are all capable of producing a variety of reports in their own unique ways.

Functions that are Accessible via the Cataloging Module

Making an attempt to assemble data from the several reports for the different cataloging module characteristics was one of the things that was done. The cataloging modules of all six kinds of software (as indicated in Table III) have the following capabilities: automatic keyword development, record editing and deletion, a shelf list, centralized or cooperative cataloguing, multimedia file cataloguing, and primary or original cataloguing. These functionalities are accessible to users. A required requirement is that each and every one of these functionalities be included into the cataloging modules. E-Granthalaya is the only platform that makes it impossible for users to import materials from MARC 21. the remaining four software applications are able to. NettLib, Alice for Windows, and E-Granthalaya do not provide any data entry options that are based on the MARC standard. No other software package supports MARC 21 resource import. On the other hand, Virtua does not possess the potential to build shelf lists, and Ls-Premia has restrictions when it comes to the information that can be taken from databases. A report generating capability is included in each of the six software products, with the exception of Virtua, which does not contain a cataloging module that is included in the software.

**Table 2: Acquisition Modules and the LMSs that Accompany them
Provide a Variety of Reports and Functionality**

Functions	LMS systems (1 represents presence and 0 represents absence of the services)					
	Liberty	LS-Premia	Alice for Windows	E-Granthalaya	NettLib	Virtua
Access to external database of information source	1	1	1	0	1	1
Recording request	1	1	0	0	1	1
Budget control	1	1	1	1	1	1
Checking of duplication	1	1	1	1	1	1
Verification of book with order file	1	1	1	1	1	1
requesting the termination of an unfulfilled order	1	1	1	1	1	1
Maintaining documentation of materials obtained and other materials	1	1	1	1	1	1
Reports						
Getting order slips and cards ready	1	1	1	1	1	1
Print-out of received or non-supplied document	1	1	1	1	1	1
Status of orders	1	1	1	1	1	1
Status of request	1	1	1	1	1	1
Status of funds	1	1	1	1	1	1
Total = 12	12	12	11	10	12	12

**Table 3: Cataloguing Modules and the LMSs that Enable them
Provide a Variety of Reports and Capabilities**

Functions	LMS systems (1 represents presence and 0 represents absence of the services)					
	Liberty	LS-Premia	Alice for Windows	E-Granthalaya	NettLib	Virtua
Primary or original cataloguing	1	1	1	1	1	1
Import of data from MARC 21	1	1	1	0	1	1
MARC-based data entry	1	1	0	0	0	1
Import of records from external sources	1	1	1	0	1	1
Editing and deletion of records	1	1	1	1	1	1
Shelf list	1	1	1	1	1	0
Centralized/co-operative or shared cataloguing	1	1	1	1	1	1
Cataloguing multimedia files	1	1	1	1	1	1
Automatic keyword generation	1	1	1	0	1	1
Reports						
List of new catalogue records	1	1	1	1	1	1
List of new or dropped authority terms	1	1	1	1	1	1
Spine labels, book labels and barcode labels	1	1	1	1	1	1
Catalogue cards	1	1	1	1	1	0
Total = 14	13	13	12	9	12	11

Facilities Available in Serial Control Module

All of the software that was selected (as indicated in Table IV) included the core functions of serial control modules, with the exception of Alice for Windows and E-Granthalaya, which did not have the power to handle binding and reporting.

Facilities Available in Circulation Module

Information was obtained about the circulation operations, which included the issuing and return of documents, the construction of ID cards, and the records of members, among other things. With the exception of E-Granthalaya, which did not provide support for self-issue returns and parameter setting for the functioning of a variety of products, all of the other software that was selected provided support for all of the aspects that were listed of the circulation modules (Table III). The application that was selected was able to produce each and every one of the reports that were indicated.

Services Offered by the Online OPAC

There was an attempt made to collect information on the several features that are accessible via the online OPAC of the software that was selected. As a result of the fact that users are able to search for and retrieve material of their choice with the assistance of the OPAC, it is an essential component of the application.

The six capabilities that are deemed crucial are present in Liberty, Virtua, and Alice for Windows, as shown in Table VI. Subsequently, Ls-Premia offered all of the functions, with the exception of the OPAC customization. NettLib's online public access catalog (OPAC) was lacking in capabilities such as user-defined search parameters, the option to filter results based on specified criteria, and the capability to link media assets (such as photographs, audio, and videos). In comparison, E-Granthalaya's OPAC included all of these elements. E-Granthalaya's online public access catalog (OPA) lacked capabilities such as search limits, search refinements, and the capability to link audio and video files. These were some of the elements that were missing.

Enhancements to OPAC and Online OPAC Worth Considering

Software now provides value-added services that may not fit within the scope of learning management systems (LMSs), but which may be handled with the appropriate mix of hardware, software, and connectivity. This is achieved as a result of developments in information and communication technology. There are several different services that may be found in this software's OPAC, and Table VII compares them all. Listed below, as stated in the table, are the value-added services that are used by the selected LMS systems in their online public access catalogs. Both Liberty and Virtua are shown to include all six categories of OPAC services, as this indicates. Second, with a few notable exceptions, Ls-Premia and Alice for Windows both provide the majority of the services that are listed in the Online Public Access Catalogue (OPA). Alice for Windows, on the other hand, does not have any search engine capabilities or ILL capabilities in its online public access catalog (OPA), in contrast to Ls-Premia, which does not have any search engine or library map capabilities. When compared to other learning management systems (LMS), E-Granthalaya and NettLib have the fewest features in their online public access catalog (OPC) than their competitors.

Searching Facilities Available in OPAC

Research was conducted to assess the search capabilities of the selected learning management systems. All of the other learning management systems (LMS) use a variety of search algorithms, as seen in Table VIII. The only exceptions to this are NettLib and E-Granthalaya. None of these databases, including NettLib and E-Granthalaya, let you to search by word proximity or adjacency, and none of them permit you to truncate words.

Table 4: Various Reports and Features are Accessible via Serial Control Modules and LMS Systems that are Supported

Functions	LMS Systems (1 represents Presence and 0 Represents Absence of the Services)					
	Liberty	Ls-Premia	Alice for Windows	E-Granthalaya	NettLib	Virtua
Creating purchase order, renewals and new subscription	1	1	1	1	1	1
Receipt of issues and fund accounting	1	1	1	1	1	1
Claiming issues not received	1	1	1	1	1	1
Details of current holding	1	1	1	1	1	1
Accession bound volumes	1	1	1	1	1	1
Administration of binding	1	1	0	0	1	1
Entering the abstract of serials	1	1	1	1	1	1
Reports:						
List of serials holdings	1	1	1	1	1	1
Total = 8	8	8	7	7	8	8

Table 5: The Circulation Modules and LMS Systems that are Supported Provide a Variety of Functions and Reports

Functions	LMS Systems (1 Represents Presence and 0 Represents Absence of the Services)					
	Liberty	Ls-Premia	Alice for Windows	E-Granthalaya	NettLib	Virtua
Registration of users	1	1	1	1	1	1
Issue and return of the documents	1	1	1	1	1	1
Renewal	1	1	0	1	1	1
Reservation of items	1	1	1	1	1	1
Calculation of fine and fine receiving	1	1	1	1	1	1
Setting parameters for members	1	1	1	1	1	1
Setting parameters for items	1	1	1	0	1	1
Handling photographs of members	1	1	1	1	1	1
Generating ID card	1	1	1	1	1	1
Self issue-return	1	1	1	0	1	1
Reports						
Book status	1	1	1	1	1	1
Book issue history	1	1	1	1	1	1
Period-wise issue history	1	1	1	1	1	1
Overdue notice production	1	1	1	1	1	1
Production of membership cards	1	1	1	1	1	1
List of members	1	1	1	1	1	1
Total = 16	16	16	15	14	16	16

The LMS Systems' Value-Added Services

The majority of the time, library management systems do not include these core processes and services of library administration. Nevertheless, as a result of developments in hardware, software, and networking, learning management systems are now making an effort to provide software solutions for the aforementioned duties and services. This article compares and discusses the many learning management systems that are available in this domain.

The software industry is undergoing a significant amount of transformation as a direct consequence of the advancements in technology. Both Liberty and Virtua are on par with one another when it comes to their willingness to embrace cutting-edge innovation. Ls-Premia, Alice for Windows, E-Granthalaya, and NettLib are some of the other applications that support the most popular technologies. Furthermore, these two programs are not the only ones that support these technologies. The Z39.50 server, customisation, RSS feeds, RFID hardware, and other biometric devices are all included in this category.

That the assertion that "Web-based library management software systems use more advanced technology rather than general library management software systems" is thus conclusively shown.

Security Features of the Software

In today's world, one of the most significant concerns in a networking environment is the safety of the software and the information that is stored inside it. Recent technology improvements have made it feasible for software vendors to currently offer a wide range of approaches to the protection of data and software. All of the specified learning management system security capabilities. The servers are the only places where data can be accessed and processed, and Liberty employs firewalls to ensure that everyone and everything is protected. To utilize the NettLib application, users must first have a Log in ID and Windows authentication set up with the database. Only then will they be allowed to use the program. Everyone else has control over the login ID and password from this point on.

Findings

When we evaluate the selected library management software systems based on how well they support library standards and technology standards, how effectively they offer enhanced services, and how well they embrace the most current technological breakthroughs, we discover that Liberty and Virtua are the finest software. A collection of these information was obtained from the software firms.

Almost all functions are supported by these software packages, in addition to the fact that they are compatible with a broad variety of hardware and software platforms. According to the statistics, NettLib trailed Virtua in supporting the highest library standards. This is the case if the data is trustworthy.

Liberty and Ls-Premia, on the other hand, provide a full web-based solution for each of their administrative modules, taking into consideration the compatibility of the web. Furthermore, according to the research that was conducted on the subject of providing enhanced services, Liberty was the only program that was able to deliver the most improved services out of all the LMS systems that were included in the study.

The fact that several of the software packages that were selected for the study did not contain key features that were anticipated of them is both surprising and unsettling. This is due to the fact that librarians are involved in the design of library management software systems, which means that they should be aware of the requirements of not only users but also other librarians. In this respect, the free E-Granthalaya package stands out; it was designed in partnership with library specialists and suited to the needs of Indian libraries; yet, it has proven to be the least successful up to this point.

Conclusion

The six learning management systems (LMS) that were mentioned before served as the foundation for this study. The findings of the study make it abundantly clear that the majority of the difficulties that are encountered in library administration may be resolved by using the LMS systems that are now in place. The previous data indicate that Liberty, Virtua, and Ls-Premia are the three software packages that hold the top three positions in the rankings. The web is used in an efficient manner by these applications. The employees of the library will be grateful for the innovative technical aid that this application provides, as well as the ease with which it may be used. It is essential for all libraries to have library management systems (LMS) that are completely interoperable, provide cutting-edge technical capabilities, and are backed by solid customer service in order to ease and expedite the day-to-day operations of libraries. According to the findings of this study, Liberty, which was developed by Softlink International in Australia, was able to fulfill all of the requirements that modern libraries might possibly have. Freedom as a Software as a Service (SaaS) application is an excellent choice for libraries and other institutions who do not have a significant amount of funds, in-house information technology experience, or time to dedicate to the administration and maintenance of their systems. When you use the hosting solutions provided by Softlink, you won't have to be concerned about any of that.

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