

A Project Report
on
Digital Library – A Complete Solution

*Submitted in partial fulfillment of the
requirement for the award of the degree of*

Bachelor of Technology In Computer Science And
Engineering



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December,2021



**SCHOOL OF COMPUTING SCIENCE AND ENGINEERING
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CANDIDATE'S DECLARATION

I/We hereby certify that the work which is being presented in the project, entitled “**Digital Library – A Complete Solution**” in partial fulfillment of the requirements for the award of the **BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE & ENGINEERING** submitted in the School of Computing Science and Engineering of Galgotias University, Greater Noida, is an original work carried out during the period of **JULY-2021 to DECEMBER-2021**, under the supervision of **Dr. Vishwadeepak Singh Baghela, Professor, Department of Computer Science and Engineering**, of School of Computing Science and Engineering , Galgotias University, Greater Noida .

The matter presented in the project has not been submitted by me/us for the award of any other degree of this or any other places.

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This is to certify that the above statement made by the candidates is correct to the best of my knowledge.

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CERTIFICATE

The Final Thesis/Project/Dissertation Viva-Voce examination of **TRIBHUBAN MISHRA - 18021011310 , SALAJ SHARMA - 18021011681** has been held on **DECEMBER 17 , 2021** and his/her work is recommended for the award of **BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND TECHNOLOGY.**

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Signature of Project Coordinator

Signature of Dean

Date: December 17, 2021

Place: Greater Noida

ACKNOWLEDGEMENT

The success and final outcome of this project required a lot of guidance and assistance from many people and I am extremely privileged to have got this all along the completion of my project. All that I have done is only due to such supervision and assistance and I would not forget to thank them. I would like to express my gratitude and thanks to Dr. Vishwadeepak Singh Baghela for their kind co-operation and encouragement which help me in completion of this project.

My thanks and appreciations also go to my colleague in developing the project and people who have willingly helped me out with their abilities.

ABSTRACT

The main objective of this project is to provide a complete automated Library by digitizing its each and every functionality.

In the present scenario, users need to go to the library and search for required books and pay amount which is a manual process. As usage of technology is growing developing web application can improve standards and provide services for more customers.

This application will provide two types of services public and private where in public service information is available to every user but private information is inside organization. Starting from the book-keeping, issuing of books, fine generation, advance booking and report generation all will be accomplished under one single project. The project will increase the accuracy by making the whole issuing and returning of books speedier, manageable, less time consuming and more efficient. It will certainly reduce the manual work used in preparing reports and data retrieval. During the past recent years, there has been tremendous development reaming the concept of digital libraries-a knowledge base that can be stored and retrieved through on-line networks.

Digital libraries are the most complex form of information systems that support digital document preservation, distributed database management, hypertext, filtering, information retrieval and selective dissemination of information. Information Technology has changed the modern-day libraries as compared to traditional libraries. Digital libraries are a collection of services, information collection, organizing information items, electronic availability or indirect availability. This paper discusses various opportunities, challenges of development of digital library.

To develop digital library, we will integrate different Technology like Cloud Computing and DevOps. Cloud technology offers many benefits to better suit agile enterprises to spearhead digital transformation and keep their company competitive in the ever-changing business environment. While simultaneously enabling faster times to deploy, DevOps also challenges strong traditions on how organizations communicate and operate. Utilizing the DevOps approach will also alter areas including code management, configuration management, and processes.

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CHAPTER 1

Introduction

1.1 Introduction

The Digital Library System design allows individual organizations to include their own material in the Digital Library System or to take advantage of network-based information and services offered by others. It includes data that may be internal to a given organization and that which crosses organizational boundaries. This document presents a plan to develop such a system on an experimental basis with the cooperation of the research community. Finally, it addresses the application of a Digital Library System to meet a wide variety of user needs.

This volume describes an open architecture for the development of a Digital Library System. The many users of such a system, even those with only limited or even no knowledge of information technology, can benefit enormously from quick and easy access to the information it contains. Its initial users will be drawn from the research community. However, the system is designed to accommodate a broad class of users (researchers and all others) in productive use of the digital library. The productivity gains from having access to a Digital Library System are easily as large as those derived from internal combustion engines and electric motors in the early part of this century. Just as a car on an interstate highway is vastly more effective than one on a rutted dirt road, computer-based information "vehicles" can be made dramatically more effective given the proper operating environment. Computer and communications technology has made it possible for old fashioned, slow retrieval methods to be replaced by virtually instantaneous electronic retrieval. Each user of this technology can anticipate enormous potential benefit, but we lack the natural infrastructure to support this capability on a widespread basis today.

1.2 Formulation of Problem

The digital library project is a broadly based effort to achieve coherent development of our national information resources. The existence of an open architecture for Digital Library Systems will provide the necessary structure for developing rapid access to existing information resources and for creating new information resources; some will be public, some commercial, some organizational and some personal. These will all be pieces of a larger composite library system if they adhere to the open architecture. Just as the highway system required judicious choices within each region and coordination at the boundaries, so will the Digital Library System. It can and should evolve to provide a seamless structure of access to information to encompass, in as far as practicable, the needs of all members of society. By making it easier to use existing information resources, more people will utilize them naturally and hence the size of the user base will grow. The approach outlined here is to allow the user to stipulate simply what he or she wants to have happen and to let the system take the necessary actions. For example, to retrieve and print a specific document, the user would simply cite it by name. The library system would provide the necessary means for locating the information, retrieving it, and subsequently billing the user (the user could identify that he wants to know the cost before printing). An overall architecture is needed to guide our use of such information in the future. The Digital Library System represents one practical path to the development of a coherent information base for the management and retrieval of data. The embodiment of this architecture and its assorted functions, protocols and standards in tangible experimental system will be a major contribution to the information infrastructure of the nation.

1.3 Tools and Technology Used

To develop digital library, we will integrate different Technology like Cloud Computing and Devops. Cloud technology offers many benefits to better suit agile enterprises to spearhead digital transformation and keep their company competitive in the ever-changing business environment. While simultaneously enabling faster times to deploy, DevOps also challenges strong traditions on how organizations communicate and operate. Utilizing the DevOps approach will also alter areas including code management, configuration management, and processes.

Tools Used: -

HTML, CSS, JavaScript, PHP

AWS Cloud, Ansible, Docker, Kubernetes, Jenkins, Terraform

CHAPTER 2

Literature Survey

Digital libraries are complex systems that not only stretch institutional resources and the capabilities but also offer unparalleled opportunities for new and improved user services. The review of the related literature in this context, reveal the challenges and the potentials. The vast amount of literature contains white papers, conference reports, journal articles, research reports and a great deal of experience sharing activities as well as the reports of the experience gained from many individuals and institutionally supported endeavors. Consequently, the collective understanding of what makes digital libraries work well is increasing as the number of digital libraries and the inventory of useful technology tools. Digital libraries of one kind or another are now implemented in academic institutions, public libraries, local and national government agencies, international organizations, national libraries, corporations, publishers and professional associations. They range from specialized collections focusing on one type of subject to complex aggregations of multiple subjects.

The selected literature is conveniently grouped under the following four facets;

1. Growth & development of digital libraries
2. Digital library initiatives
3. Children's digital libraries
4. Emerging trends in digital libraries

The review of papers, articles, research reports and books conning under each group is presented. Though there is enormous literature published, only those materials which are having the focus on the topic of research and related aspects are covered for the review. In India, digital library literature could see the light of the day. Digital libraries are becoming the main repository of mankind's knowledge. This has resulted in the design of user-friendly interfaces to access, understand, and manage digital library content which has become an active and challenging field of study.

In earlier times, the role of a library was easily defined. Its functions could be summed up in three words: Acquisition, Preservation and Access. For centuries this meant getting hold of books, looking after books, and placing books in the hands of the readers. The three principal tasks of acquisition, preservation and access remain fundamentally unaltered but their scope is expanding and methods of fulfilling them are multiplying. The British Library was aiming to carry out its traditional tasks in a world profoundly modified by information technology. Here the authors of the individual chapters have been very successful in communicating a lively feeling of what it was like to be involved, hands-on, in these pioneering projects. The authors detailed descriptions of technical devices and projects, especially their candid accounts of mistaken and blind alleys, will make this book valuable to the experts in other institutions and other countries working in similar fields.

Architectures and Interconnecting

Since the field of digital libraries is young, there still is active investigation regarding architecture, interconnection, and interoperability . Figure 2 shows one, rather high-level, decomposition of a digital library into components. Given the range of legacy systems that are used today as parts of digital libraries, the actual situation often is more complex.

To simplify matters, several interconnection strategies have been explored. At Stanford, a bus approach has been used. Mediation code “wrap” around various collections or resources to make suitable conversions to representations supported by the bus and the other services connected to it.

Agents provide another interconnection mechanism. Many agent-based systems use KQML as the language for transporting knowledge constructs. Yet another approach is the distributed scheme supporting federated search that underlies the Dienst system .

Nevertheless, currently it is not possible to identify the best architecture(s) for digital libraries. We must look to future technological developments and actual deployments to resolve such questions.

Developments

Since the early 1990s, the digital library field has emerged as an important area of research and development. There are hundreds of projects and thousands of reports/publications describing them. One of the active research programs is in the USA, funded by the National Science Foundation. A summary of that Digital Libraries Initiative makes clear the broad scope of work underway. NSF has deliberately selected a diverse set of content areas, genre, media, and user communities in an effort to rapidly develop the field. In the following sections we explore the overall process of such development.

Technology

Work on digital libraries has been facilitated by technical advances in a number of areas. For the first time, storage systems are readily affordable that can handle enormous text collections, very large image collections, and large audio or video collections. Fast processors, supercomputers, cluster-computers, networks of workstations, and other computational aids have provided ample processing capacity to handle user communities operating on a global scale. Increases in

network speeds and bandwidth have made it possible to build distributed systems that perform well and have high reliability. Computationally expensive algorithms have been refined so that useful techniques such as LSI can help with multilingual retrieval and other applications. High-end graphics systems and virtual environments also have evolved to be usable for information visualization as well as interfacing with digital libraries. Representation schemes like PDF and XML have made digital documents easy to produce and share, facilitating information interchange and encouraging further digitization. An example of the effects of technology can be seen with regard to the MARIAN digital library system developed at Virginia Tech. Over the last decade of work, coding has switched from C to C++ to Java. Hardware has switched from mainframes to minis to PCs. Current work to enhance performance includes development of new algorithms to manipulate inverted files on the Virginia Tech PetaPlex system, which has 100 processors and 2.5 terabytes of disk storage capacity. Earlier studies of performance demonstrated that the architecture is scalable, and showed that changing some of the internal communication from TCP to UDP would lead to substantive improvement.

Economic, Social, and Legal Issues

According to the 5S framework, the topmost level deals with “societies”. Though technology has made possible many advances in digital libraries, all such efforts are situated in a social context, as can be seen in Figure 1. Many of the key social issues were identified in an NSF-funded workshop on this topic. An excellent explanation of social issues in constructing and evaluating digital libraries appears in. Underlying work on the Networked Digital Library of Theses and Dissertations is a strong social and educational rationale, to prepare the next generation of scholars for the Information Age. Its aims – of encouraging discussion about intellectual property rights among students and faculty, of building awareness and infrastructure about digital libraries on

campuses, and of developing a new genre for communication among graduate students and researchers – are largely being met.

The impact of economics is remarkable, in that making works available for free leads to hundreds or thousands of downloads per work per year. This contrasts with interlibrary loan or buying copies for roughly \$50, which very rarely led to more than 5 accesses per year. Social and technical issues often relate.

For example, the culture and social atmosphere determines how electronic theses and dissertations will be managed on a particular campus, or across broader boundaries like state or nation. Universities with advanced infrastructure, like Virginia Tech, MIT, and Caltech, have their own services. On the other hand, there are regional/national projects associated with NDLTD in Ohio, Catalunya, Australia, Germany, India, Portugal, and South Africa. Because of this arrangement, a federated search mechanism was implemented though future plans call for use of Open Archives and regular harvesting. Groups that own content or have a tradition of managing it can continue to do so, while at the same time technical approaches can allow comprehensive search across such distributed collections.

Legal issues also become more visible with digital libraries. There often was little concern over copyright issues when preparing a dissertation that would largely go unread, sitting on a shelf in a local library. However, with the potential of thousands of downloads from around the world, authors must be very careful not to include a copyrighted image or other content without permission.

Other economic, social, and legal issues have come to the fore with digital libraries. In many states, like Virginia, a single university library can run a service for the whole state, usually at a rate that benefits from volume purchasing. On the other hand, many such services involve a contract with an

information provider, that often has a complex set of terms and conditions, meaning that libraries now require more legal counsel.

Digital libraries allow new groups to assemble around new collections of interest. In many countries, digital libraries show promise regarding preserving cultural, historic, and linguistic records. In a number of situations, they have the potential of aiding economic development by supporting (distance) education. We explore such cases among those discussed in the next subsection.

This section of the article discuss about the research related to user's experience with digital library. This may be helpful to understand user's opinion, attitude, satisfaction and service experiences with digital library which can be further considered for enhancing user's satisfaction towards the use of digital library.

Ekere et al (2016) study the perception of users towards digital library facilities, resources and services and found that users are highly satisfied with it. Users are highly aware and satisfied about the digital library resources such and WWW, WIFI and search engines compare to online databases, portals, online abstract, video CDs, CD-ROMs, and online indexes and abstract.

Asad Khan (2016) investigated the factors that influence the adoption of Digital Library among research students. The findings revealed that Interface characteristics influence cognitive response which predict student's intention of using digital library. Whereas navigation, individual differences and system characteristics significantly affected the ease of use. Usefulness is directly affected by system characteristics and system quality. Finally, it is found that usefulness have highest effects on digital library usage intention.

Xianjin et al (2015) worked on Flow experience with respect to Mobile Library and try to compares perception of user's with mobile libraries and web digital libraries with respect to flow experience. Where flow experience defined as best experience about an activity that can be done by comparing perceived skills and

perceived challenges. Study reveals that more users experienced flow in using web digital libraries than mobile libraries.

Yuangen and Zeng (2014) worked with customer churn rate and it is the rate of customer discontinuation with digital library service. Study found that customer churn rate of the given library is very high and same with churn hazard in initial three months after customer's registration on the web site of the library.

Xianjin et al (2014) investigated the effects of user's perception towards print and digital resources in terms of usage, usefulness and ease of use. There is a significant effect of the characteristics of user's such as gender, age field and experience on perception of users with respect to usefulness, usage and ease of use.

Yalan et al (2014) examined quality of digital library which define as the quality of information quality of system and overall service quality of digital library. The comparison of user's perceptions towards virtual communities and digital libraries have been done understand the actual nature of e quality perceived by the users. Based on the user's perception study found that digital libraries provide better information, system and service quality than virtual communities.

A review of the literature on digital or virtual library initiatives demonstrates that challenges are not uncommon as organizations build their resource sharing system. It is important to realize that the STIP community is not alone when encountering difficulties, and to take heart that others have overcome initial problems to build the system they envisioned. The following excerpts illustrate a few of those challenges. Debate about the digital library is clouded by emotion and self-interest. Emotion plays its part because the digital library is seen by some as a threat to the book, and a threat to the book is an attack on culture itself. Self-interest enters the fray because in the instability provoked by the digital library there will be winners and losers. 3 Depending on your point of view the

digital library can be the end of libraries as we know them, or the salvation of libraries as we know them. (Collier, 1997) “What I never dreamed of yesterday, I can’t do without today,” U.S. Representative George Brown. Richard Luce (1998) voices three concerns relative to the impact of the digital library on users:

- 1) “supplier-centric” solutions, with each new system requiring its own interface,
- 2) that it is becoming harder for the librarian to integrate information which the library does not manage, and
- 3) finally, Luce cautioned about the statistical usage data which librarians are being asked to provide to publishers and which can be mined from usage data collected by computers. There is a serious potential for misuse of this data. (Luce, Elsevier Science Information. 1998)

A new library economy will need to be developed. It is not enough to say that electronic information is expensive, without making valid comparisons with the alternatives and measuring the relative cost benefits.

These could be intangible.

- Licensing versus ownership, over time
- Payment by usage versus subscription
- Space requirements in the electronic environment
- Equipment and communications
- People, their changing skills and remuneration
- Co-operation with other providers, including the private sector
- Income generation, publishing and charging (Collier, 1997)

The constant care and feeding of information consumers will continue to be challenging. The time gap between novelty or newness of a technology or service and the expectation and even demand of excellence in utilizing that technology and providing that service has grown shorter. Some examples include :

Fermilab has provided on-line public access to Fermilab full-text preprints, conference reports, physics notes and technical memos since 1995. The Library serves approximately 50,000 to 75,000 documents per month. In 1995, several email messages a day from customers were received, primarily requesting access assistance. Now, only a handful of requests for assistance per month are logged -- due primarily to the increased sophistication of the users and improved delivery. One must keep in mind however when discussing the burden placed on a facility when serving the public, that although the reports are publicly accessible, rarely do does a member of the "general public" access Fermilab's technical publications web pages. Customers are primarily scientists, graduate students, engineers and computer professionals. When requests for assistance do come from the general public, 99% of the time the request is very time consuming and ranges from providing assistance with configuring browsers for launching helper applications, to explaining what the applications are and what they do (doing this over the phone is like talking down an inexperienced pilot!), to providing instructions on how to download both documents and applications, to explaining what ps and pdf are, as well as answering a host of technical questions about the content of the documents (which must be handled by the technical staff). Librarians and information professionals at Fermilab, as well as the scientists, graciously provide whatever assistance the end users require, but increased usage by the general public would severely tax resources--far beyond what could be provided, and could seriously damage Fermilab Library's reputation for outstanding customer service. There is a need to understand the needs of the customer and what level of service is required. Users of an e-print

server (like Los Alamos and Fermilab) expect somewhat minimal customer service, users of a library expect much more. The customers of an e-print server are primarily technical professionals and grad students. Libraries serve a very broad population.

The Library website is the primary means of providing information to the desktop. The website, which averages 6,000 hits a week, provides library FAQs; links to sites that support the Laboratory's mission; journal holdings (with links to over 300 that are available electronically); library forms (including interlibrary loan, acquisition, and book renewal forms); and web interfaces to the Library Catalog and the LBNL Report Catalog. The web-based catalogs make it possible to provide links to electronic journals, full-text reports, and reference materials in PDF, PostScript, and HTML formats from the catalog records. The Library's holdings are also available through the California Digital Library's (CDL) MELVYL catalog. In addition to providing holdings records to the MELVYL catalog, Berkeley Lab Library also participates in several licensing agreements through the CDL consortium. Among the agreements are access to databases such as BIOSIS, Current Contents, Computer Index, INSPEC, Magazine Index, Medline Plus, and Newspaper Index via the CDL database system. Many of the records in these databases are linked to the full text of the article. As long as the Library has negotiated a site license with the particular journal publisher, Laboratory employees can access these articles. Laboratory employees display approximately 90,000 records a month on these databases. The Library is also a part of a CDL agreement with Academic Press that provides access to the full-text of all Academic Press titles from 1995 forward. Through the efforts of STIP Goal 2, the library has also been able to provide site-wide access to Science Magazine. This has proven to be very popular. The Library has had many favorable comments recently about our efforts to bring information to the user's desktop and the usage logs show that

the resources are well used. When the Laboratory recently set up a system for employees to create their own personal Intranet pages, the Library website was one of the first modules made available as a resource choice.

CHAPTER 3

System Analysis

In this chapter, we will discuss and analyse about the developing process of Digital Library including software requirement specification (SRS) and comparison between existing and proposed system. The functional and non-functional requirements are included in SRS part to provide complete description and overview of system requirement before the developing process is carried out. Besides that, existing vs proposed provides a view of how the proposed system will be more efficient than the existing one.

3.1 SOFTWARE REQUIREMENT SPECIFICATION

3.1.1 GENERAL DESCRIPTION

PRODUCT DESCRIPTION:

Digital Library is a computerized system which helps user(librarian) to manage the library daily activity in electronic format. It reduces the risk of paper work such as file lost, file damaged and time consuming. It can help user to manage the transaction or record more effectively and time saving.

PROBLEM STATEMENT:

The problem occurred before having computerized system includes:

- File lost when computerized system is not implemented file is always lost because of human environment. Sometime due to some human error there may be a loss of records.
- File damaged when a computerized system is not their file is always lost due to some accident like spilling of water by some member on file accidentally. Besides some natural disaster like floods or fires may also damage the files.

- Difficult to search record When there is no computerized system there is always a difficulty in searching of records if the records are large in number.
- Space consuming After the number of records become large the space for physical storage of file and records also increases if no computerized system is implemented.
- Cost consuming as there is no computerized system the to add each record paper will be needed which will increase the cost for the management of library.

3.1.2 SYSTEM OBJECTIVES

- Improvement in control and performance the system is developed to cope up with the current issues and problems of library. The system can add user, validate user and is also bug free.
- Save cost After computerized system is implemented less human force will be required to maintain the library thus reducing the overall cost.
- Save time Librarian is able to search record by using few clicks of mouse and few search keywords thus saving his valuable time.
- Option of online Notice board Librarian will be able to provide a detailed description of workshops going in the college as well as in nearby colleges.

3.1.3 SYSTEM REQUIREMENTS

3.1.3.1 NON-FUNCTIONAL REQUIREMENTS

- Product Requirements

EFFICIENCY REQUIREMENT

When a Digital Library will be implemented librarian and user will easily access library as searching and book transaction will be very faster.

RELIABILITY REQUIREMENT

The system should accurately perform member registration, member validation, report generation, book transaction and search

USABILITY REQUIREMENT

The system is designed for a user-friendly environment so that student and staff of library can perform the various tasks easily and in an effective way.

IMPLEMENTATION REQUIREMENTS

In implementing whole system, it uses html in front end with php as server-side scripting language which will be used for database connectivity and the backend is the database part is developed using MySQL.

3.1.3.2 FUNCTIONAL REQUIREMENTS

1. NORMAL USER

1.1 USER LOGIN

Description of feature This feature used by the user to login into system. They are required to enter user id and password before they are allowed to enter the system. The user id and password will be verified and if invalid id is their user is allowed to not enter the system.

Functional requirements:

- user id is provided when they register
- The system must only allow user with valid id and password to enter the system
- The system performs authorization process which decides what user level can access to.
- The user must be able to logout after they finished using system.

1.2 REGISTER NEW USER

This feature can be performed by all users to register new user to create account.

- System must be able to verify information
- System must be able to delete information if information is wrong

1.3 REGISTER NEW BOOK

This feature allows to add new books to the library Functional requirements

- System must be able to verify information
- System must be able to enter number of copies into table.
- System must be able to not allow two books having same book id.

1.4 SEARCH BOOK

This feature is found in book maintenance part. we can search book based on book id, book name, publication or by author name.

Functional requirements:

- System must be able to search the database based on select search type.
- System must be able to filter book based on keyword entered.
- System must be able to show the filtered book in table view.
- System should be able to add detailed information about events.
- System should be able to display information on notice board available in the homepage of site

3.1.4 SOFTWARE AND HARDWARE REQUIREMENTS

This section describes the software and hardware requirements of the system

3.1.4.1 SOFTWARE REQUIREMENTS

- Operating system- Windows 7 is used as the operating system as it is stable and supports more features and is more user friendly.
- Database MYSQL-MYSQL is used as database as it easy to maintain and retrieve records by simple queries which are in English language which are easy to understand and easy to write.
- Development tools and Programming language- HTML is used to write the whole code and develop webpages with CSS, java script for styling work and php for sever side scripting.

3.1.4.2 HARDWARE REQUIREMENTS

- Intel core i5 2nd generation is used as a processor because it is fast than other processors an provide reliable and stable and we can run our pc for long time. By using this processor, we can keep on developing our project without any worries.
- Ram 1 GB is used as it will provide fast reading and writing capabilities and will in turn support in processing.

Existing System:

- Early days Libraries are managed manually. It required lot of time to record or to retrieve the details. The employees who have to record the details must perform their job very carefully. Even a small mistake would create a lot of problems. Security of information is very less. Report generations of all the information is very tough task.
- Maintenance of Library catalogue and arrangement of the books to the catalogue is very complex task. In addition to its maintenance of member details, issue dates and return dates etc. manually is a complex task.

- All the operations must be performed in perfect manner for the maintenance of the library without any degradation which may finally result in the failure of the entire system.

Proposed System:

To solve the inconveniences as mentioned in the existing system, an Online Library is proposed. The proposed system contains the following features:

- The students will register them through Online.
- Individually each member will have his account through which he can access the information he needs.
- Book details like authors, number of copies totally maintained by library, present available number of books, reference books, non-reference books etc. all this information can be made handy.
- Regarding the members designation, number of books was issued.
- Issue dates and returns of each member is maintained separately and fine charged if there is any delay in returning the book.
- Administrator can add, update the books.
- Time consuming is low, gives accurate results, reliability can be improved with the help of security.

3.2 SOFTWARE TOOLS USED

The whole Project is divided in two parts the front end and the back end.

3.2.1 Front end

The front end is designed using of HTML, Php, CSS, Java script

HTML- HTML or Hyper Text Markup Language: - It is the main markup language for creating web pages and other information that can be displayed in a web browser. It is written in the form of HTML elements consisting of tags enclosed in angle brackets like<Html>, within the web page content. HTML

tags most commonly come in pairs like `<h1>` and `</h1>`, although some tags represent empty elements and so are unpaired, for example ``.. The first tag in a pair is the start tag, and the second tag is the end tag (they are also called opening tags and closing tags). In between these tags web designers can add text, further tags, comments and other types of text-based content. The purpose of a web browser is to read HTML documents and compose them into visible or audible web pages. The browser does not display the HTML tags, but uses the tags to interpret the content of the page. HTML elements form the building blocks of all websites. HTML allows images and objects to be embedded and can be used to create interactive forms. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. It can embed scripts written in languages such as JavaScript which affect the behaviour of HTML web pages.

CSS- Cascading Style Sheets (CSS) It is a style sheet language used for describing the look and formatting of a document written in a markup language. While most often used to style web pages and interfaces written in HTML and XHTML, the language can be applied to any kind of XML document, including plain XML, SVG and XUL. CSS is a cornerstone specification of the web and almost all web pages use CSS style sheets to describe their presentation. CSS is designed primarily to enable the separation of document content from document presentation, including elements such as the layout, colours, and fonts.

JAVA SCRIPT- JavaScript (JS) is a dynamic computer programming language. It is most commonly used as part of web browsers, whose implementations allow client-side scripts to interact with the user, control the browser, communicate asynchronously, and alter the document content that is displayed. It is also being used in server-side programming, game development and the creation of desktop and mobile applications. JavaScript is a prototype-based

scripting language with dynamic typing and has first-class functions. Its syntax was influenced by C.

PHP- PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. While PHP originally stood for Personal Home Page, it now stands for PHP: Hypertext Pre-processor, a recursive backronym. PHP code is interpreted by a webserver with a PHP processor module, which generates the resulting web page. PHP commands can be embedded directly into an HTML source document rather than calling an external file to process data. It has also evolved to include a command-line interface capability and can be used in standalone graphical applications. PHP is free software released under the PHP License. PHP can be deployed on most web servers and also as a standalone shell on almost every operating system and platform, free of charge.

MySQL: - The SQL phrase stands for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation.

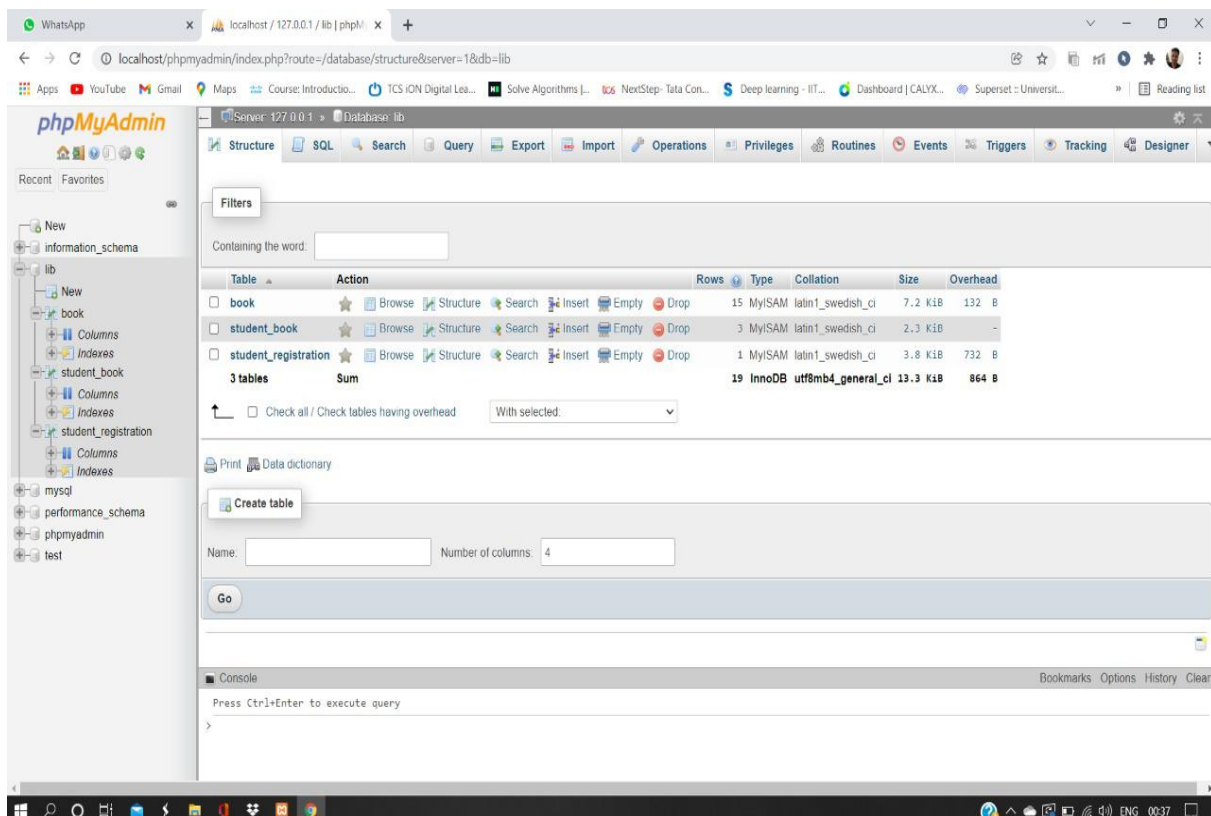
CHAPTER 4

Project Design

4.1 TABLE DESIGN

VARIOUS TABLES TO MAINTAIN INFORMATION

- Library Table from Database



● Admin Table from Database

The screenshot shows the phpMyAdmin interface for the 'student_registration' table. The table structure is as follows:

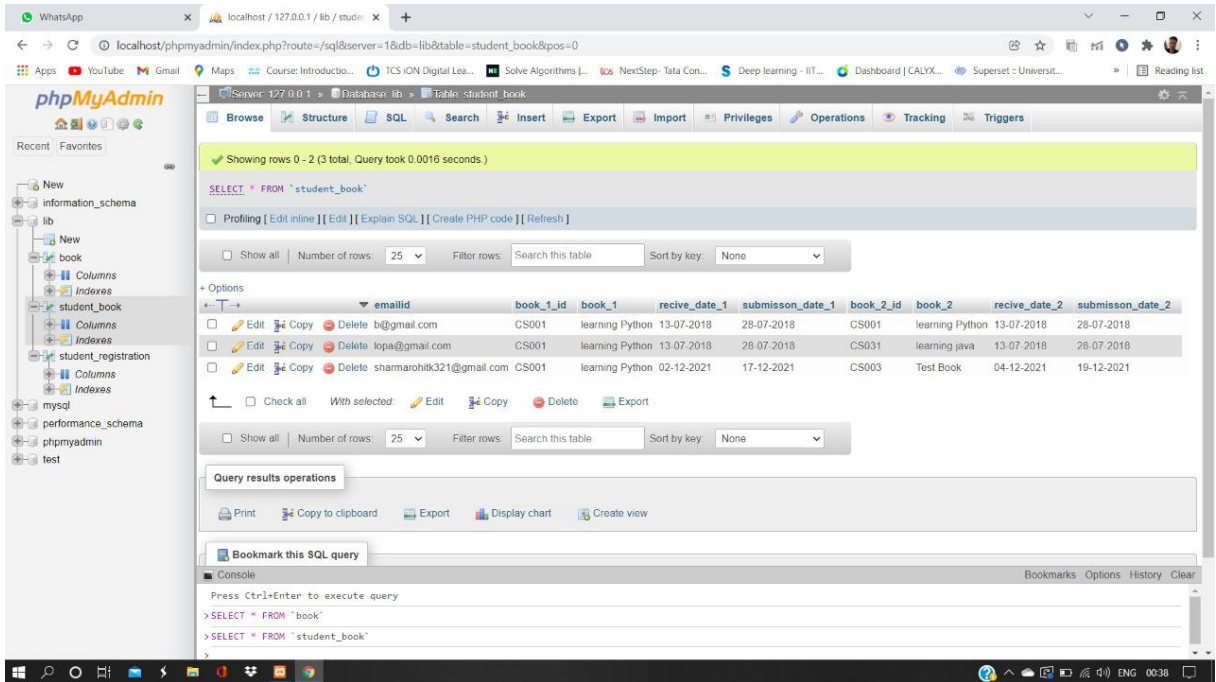
id	roll	type	gender	name	dept	year	emailid	password
11	18SCSE1010451	student	m	Trishuban	cse	1st_year	sharmarohitk321@gmail.com	12345678

● Book Table from Database

The screenshot shows the phpMyAdmin interface for the 'book' table. The table structure is as follows:

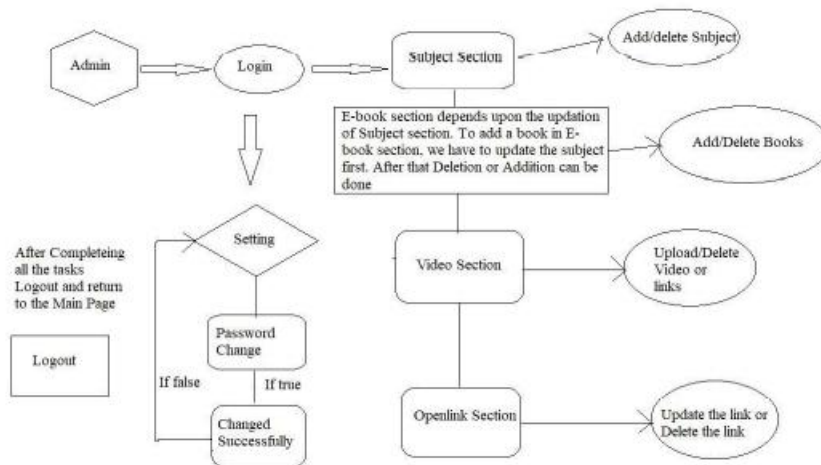
b_id	booksname	authname	copies	avl_cpy	dept	file_name	path
CS001	learning Python	Reema Thereja	12	9	cse	CS001.pdf	ebooks/CS001.pdf
CS002	Test Book	Test Author	12	12	cse	CS002.pdf	ebooks/CS002.pdf
CS003	Test Book	Test Author	12	11	cse	CS003.pdf	ebooks/CS003.pdf
CS031	learning java	Test Author	12	12	cse	CS031.pdf	ebooks/CS031.pdf
CS005	Test Book	Test Author2	12	12	cse	CS005.pdf	ebooks/CS005.pdf
CS006	Test Book	Test Author	12	12	cse	CS006.pdf	ebooks/CS006.pdf
CS008	Test Book	Test Author	10	10	cse	CS008.pdf	ebooks/CS008.pdf
CS010	Test Book	Test Author	10	10	cse	CS010.pdf	ebooks/CS010.pdf
CS011	Test Book	Test Author	1	1	cse	CS011.pdf	ebooks/CS011.pdf
CS012	Test Book	Test Author	1	1	cse	CS012.pdf	ebooks/CS012.pdf
CS013	Test Book	Test Author	12	12	cse	CS013.pdf	ebooks/CS013.pdf
EE001	Test Book	Test Author	12	12	ee	EE001.pdf	ebooks/EE001.pdf
ME001	Test Book	Test Author	12	12	me	ME001.pdf	ebooks/ME001.pdf
TT001	Book One	Test Author	12	12	tt	TT001.pdf	ebooks/TT001.pdf
CS055	Test Book	Test Author	10	10	cse	CS055.pdf	ebooks/CS055.pdf

● Students book issued detail table from Database

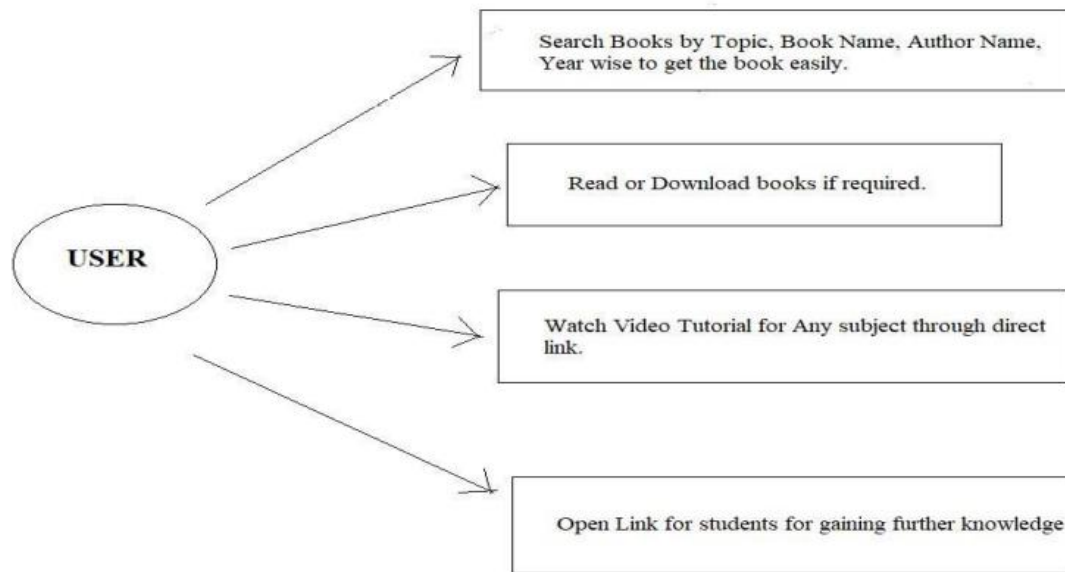


4.2 DATA FLOW DIAGRAMS

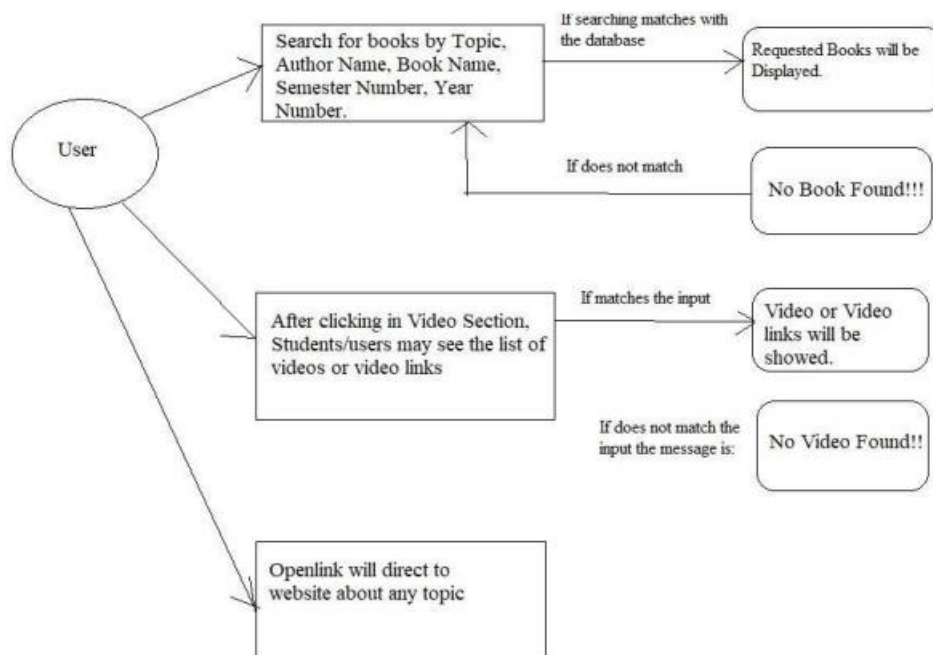
● DATA FLOW DIAGRAM FOR ADMIN LOGIN



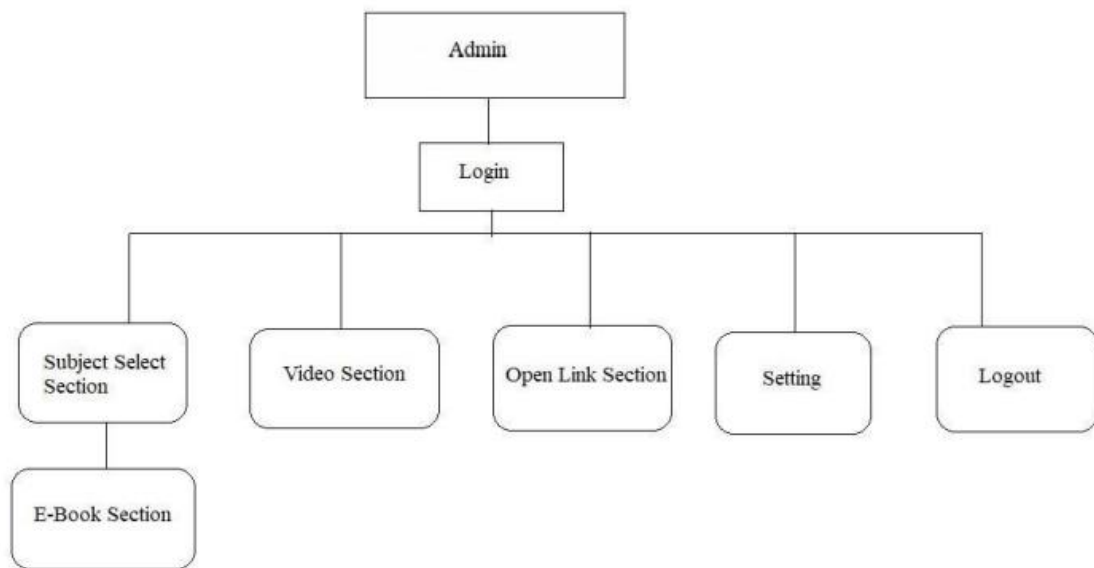
● USE CAESE DIAGRAM FOR USER



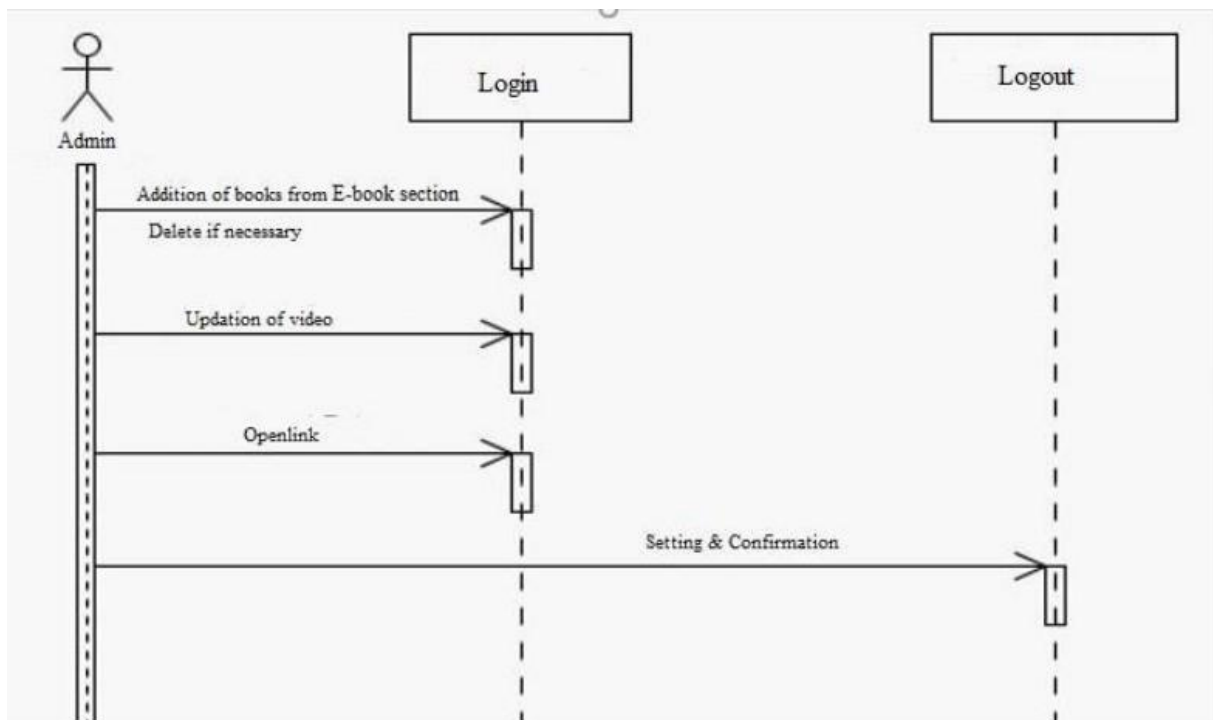
● DATA FLOW DIAGRAM FOR USER



● USER CASE DIAGRAM FOR ADMIN



● SEQUENCE DIAGRAM



CHAPTER 5

Module Description

Digital Library project has the two major Module descriptions :

1. Admin Module
2. Student Module

These modules own login page constrains to handle and manage the library process, Every module which has the separate work process in library maintenance.

1. **Admin Module** : Admin Module which describes the process of work handles by admin in library . Admin which has it own login page which enter the unique username and the password, it helps to maintain the library information as secure. The admin have to control and manage the library management system. Admin module, which define the process of to maintain and control the whole system through control of librarian, he can handle the librarian details. It also define the process of maintain the records of library information. This can denote the details of books. Librarian have his or her own page in application by entering the login page. The librarian can be entered in the management system and make the library transaction make as easy way. He can maintain a book transaction by the process of adding the book, view the issued book, Return book details.

localhost/Library-Management-System/admin.php

Admin Dashboard

Welcome To Digit

ADMIN PANEL

Home Add Book Edit Book Delete Book Logout

ALL BOOKS

Book ID	Book Name	Book Writer	Actual Copy	Available Copy	Department	Ebook Name
CS001	learning Python	Reema Thireja	12	9	cse	CS001.pdf
CS002	Test Book	Test Author	12	12	cse	CS002.pdf
CS003	Test Book	Test Author	12	11	cse	CS003.pdf
CS031	learning java	Test Author	12	12	cse	CS031.pdf
CS005	Test Book	Test Author2	12	12	cse	CS005.pdf
CS006	Test Book	Test Author	12	12	cse	CS006.pdf
CS008	Test Book	Test Author	10	10	cse	CS008.pdf
CS010	Test Book	Test Author	10	10	cse	CS010.pdf
CS011	Test Book	Test Author	1	1	cse	CS011.pdf
CS012	Test Book	Test Author	1	1	cse	CS012.pdf
CS013	Test Book	Test Author	12	12	cse	CS013.pdf
EE001	Test Book	Test Author	12	12	ee	EE001.pdf

localhost/Library-Management-System/add_book.php

Add Book

Welcome To online Librar

Add Books to Database

Home Add Book Edit Book Delete Book Logout

ADD BOOK

BOOK NAME:

AUTHOR NAME:

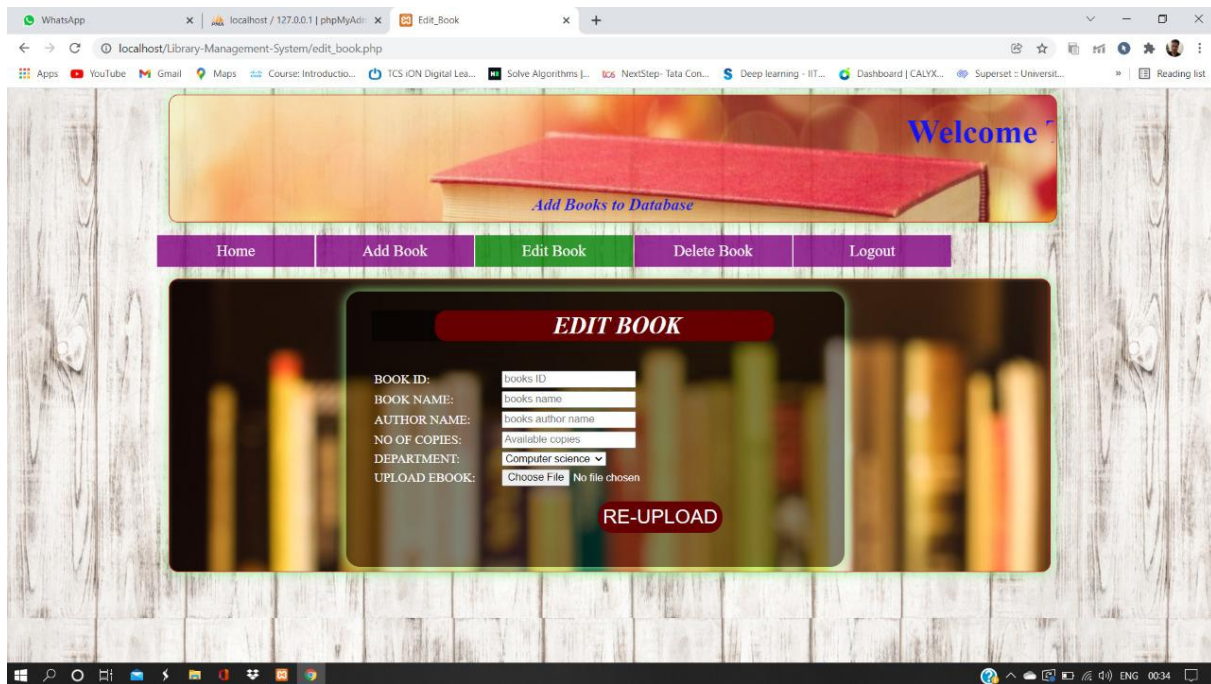
BOOK ID:

NO OF COPIES:

DEPARTMENT:

UPLOAD EBOOK: No file chosen

SUBMIT



A) Students Profile

This module allows only the library administrator not other users; to add, modify and delete student's records from the database. Each student has a unique Student ID number which is auto generated each time a new student is added into the database.

B) Book Maintenance

This module will allow the library administrator to add, modify and delete books from the library database. Library books are categorized into the following codes:

PL - Programming

OS - Operating System

DC - Data Communications

SA - Systems Analysis and Design

OO - Object Oriented

DB - Database System

Again this module is only for Administrator not for other users.

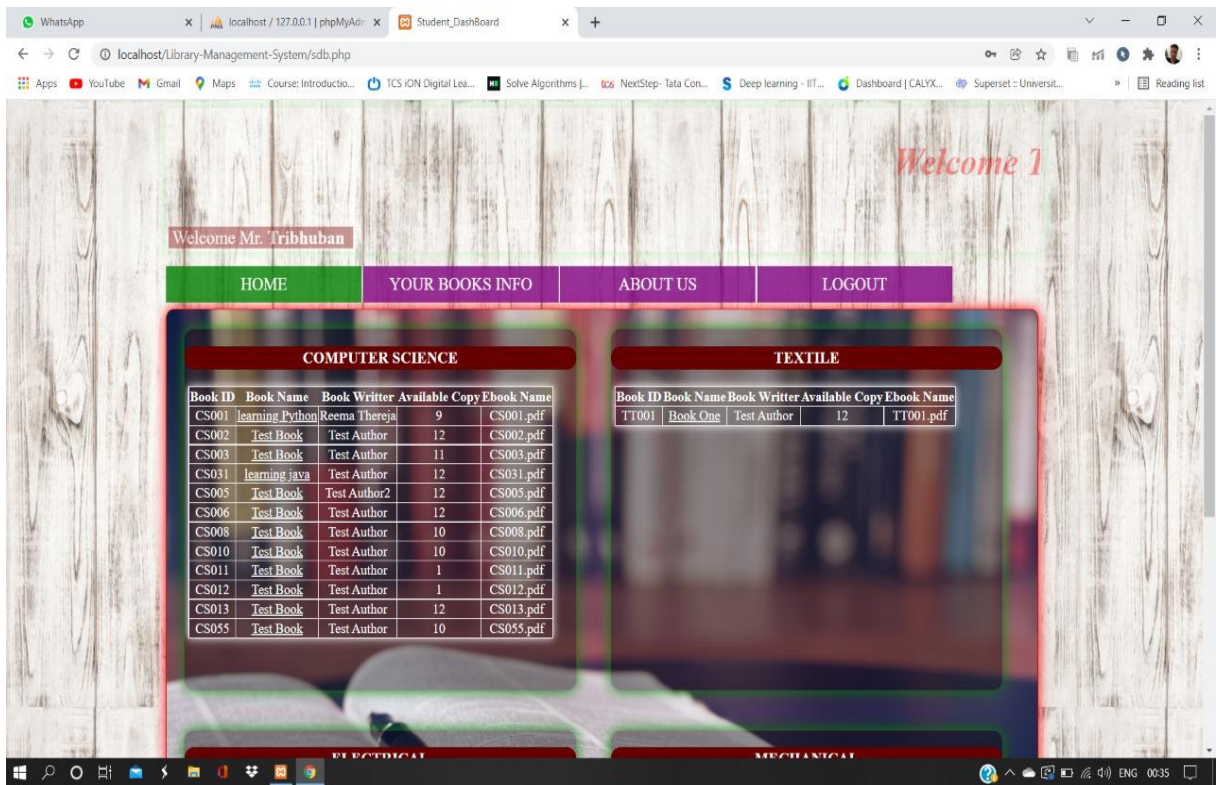
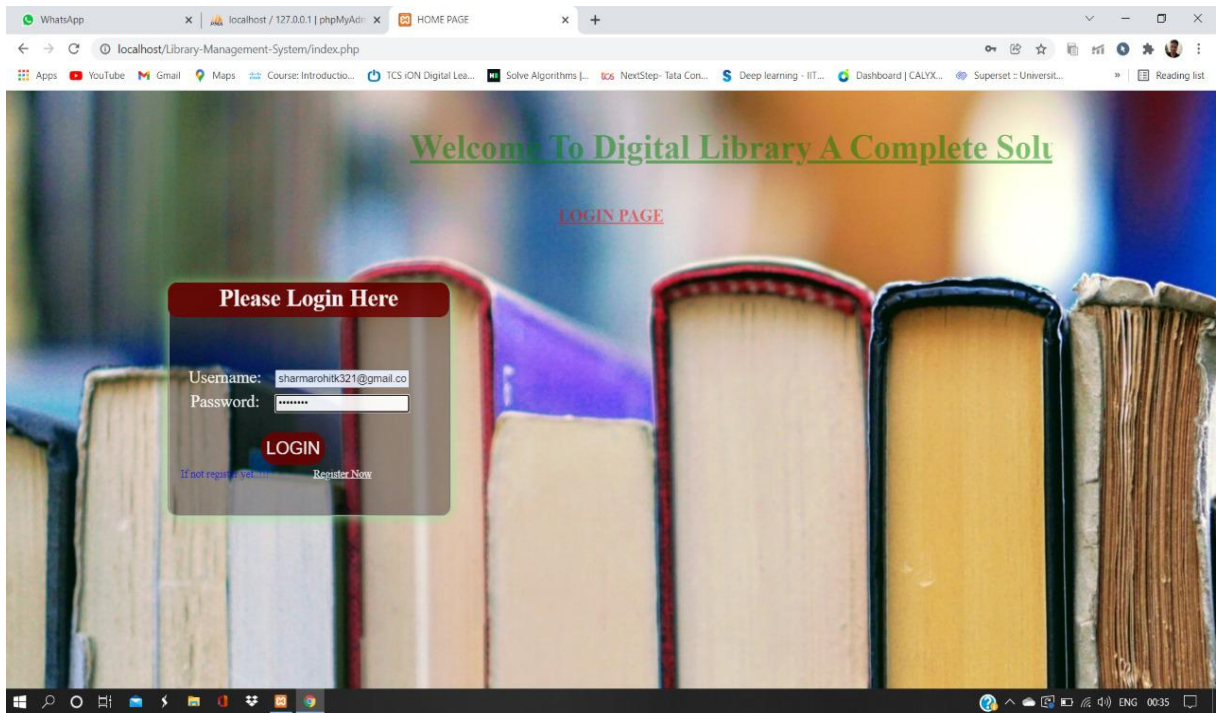
C) Book Issue Module and Return Module

This module allows students to give their books to the librarian for issuing that book from the library. A particular student can borrow a maximum of Three books only at a time. Each book can be borrowed for a maximum of 14 days.

D) Book Return Module

This module allows students to return books in library. This module is accessible by administrator and librarian both. Books, which are returned after 14 days from the borrowed date, are charged 1 Rupee per day. The student must pay for the fines when returning their books. Fines that are not paid, does not allow the student to borrow any more books from the library and the account of the student is locked. The library administrator can only unlock the student account by logging into the system and unlocking the student account.

Student Modules : Student login has enrolled the activity of Student access in library . When the librarian have registered the student ,they can get their own username and the password, by use of this they can entered and view the library information use of the login page. They can view the details of available book, return date and due amount from library.



localhost / 127.0.0.1 | phpMyAdmin x book info

localhost/Library-Management-System/sbooks.php

Welcome To Digital Library A Complete Solution

YOUR BOOKS INFORMATION

HOME YOUR BOOKS INFO ABOUT US LOGOUT

Your Books

BOOK ID	BOOK NAME	RECEIVE DATE	SUBMISSION DATE
CS001	learning Python	02-12-2021	17-12-2021
CS003	Test Book	04-12-2021	19-12-2021

localhost / 127.0.0.1 | phpMyAdmin x About Us

localhost/Library-Management-System/aboutus.php

Welcome

ABOUT US

HOME YOUR ORDER INFO ABOUT US LOGOUT

ABOUT OUR DIGITAL LIBRARY

This project is the prototype of a Digital Library. Librarian has a provision to add book details like ID number, book title, author name, through the web page. In addition to this, librarian or any user has a provision to search for the available books in the library by the book id or book Name. If book details are present in the database, the search details are displayed on the web page. Student can request the librarian for getting the book via this web. Student can easily download this book's E-Book which is PDF file.

ACKNOWLEDGEMENT

We would like to express our special thanks of gratitude to our teacher *Mr. VishwaDeepak Singh Baghela* who gave us the golden opportunity to do this wonderful project on the topic : DIGITAL LIBRARY using PHP, which also helped us in doing a lot of Research and we came to know about so many new things we are really thankful to him.

Group Members

CHAPTER 6

Results

Traditional libraries are limited by storage space. digital libraries have the potential to store much more information, simply because digital information requires very little physical space to contain it. As such, the cost of maintaining a digital library is much lower than that of a traditional library. A traditional library must spend large sums of money paying for staff, book maintenance, rent, and additional books. Digital libraries do away with these fees. Digital library has certain characteristics, which make them different from traditional library. It has expansive and accurate system of searching with large volumes of text, image and audio-video resources. Digital libraries do not need physical space to build collection and it can be accessed from anywhere, any time. The user can get his/ her information on his own computer screen by using the Internet. Actually it is a network of multimedia system, which provides fingertip access.

The following are some of the major advantages of digital libraries.

No physical boundary : The user of a digital library need not to go to the library physically.people from all over the world can gain access to the same information, as long as an Internet connection is available.

Round the clock availability : People can gain access to the information at any time, night or day.

Multiple accesses : The same resources can be used at the same time by a number of users.

Structured approach : Digital libraries provide access to much richer content in a more structured manner, i.e. we can easily move from the catalog to the particular book then to a particular chapter and so on.

Information retrieval : The user is able to use any search term (word, phrase, title, name, subject) to search the entire collection. Digital libraries can provide very user friendly interfaces, giving clickable access to its resources.

Preservation and conservation : Another important issue is preservation - keeping digital information available in perpetuity. In the preservation of digital materials, the real issue is technical obsolescence. Technical obsolescence in the digital age is like the deterioration of paper in the paper age. Libraries in the pre-digital era had to worry about climate control and the de-acidification of books, but the preservation of digital information will mean constantly coming up with new technical solutions.

Space : Whereas traditional libraries are limited by storage space, digital libraries have the potential to store much more information, simply because digital information requires very little physical space to contain them. When a library has no space for extension digitization is the only solution.

Networking : A particular digital library can provide a link to any other resources of other digital libraries very easily; thus a seamlessly integrated resource sharing can be achieved.

Cost: In theory, the cost of maintaining a digital library is lower than that of a traditional library. A traditional library must spend large sums of money paying for staff, book maintenance, rent, and additional books. Although digital libraries do away with these fees, it has since been found that digital libraries can be no less expensive in their own way to operate. Digital libraries can and do incur large costs for the conversion of print materials into digital format, for the technical skills of staff to maintain them, and for the costs of maintaining online access .This process can incur very large costs in hardware and skilled personnel.

The rapid development of the internet in the 1990s and its embrace by the library and information community enabled the concept of the digital libraries (DLs), whose function can be defined as the collection, storage and processing of vast information and knowledge into a systemic project through digitalization and the internet, while providing convenient and highly efficient retrieval and inquiry services. To this effect, at a minimum, the core services expected of a Digital Library System include: a repository service for storing and managing digital objects; a search service to facilitate information discovery; and a user interface through which end users interact with the digital objects. The introduction of the DL has raised library modernization to a new level with over time. Digital libraries promise new societal benefits, starting with the elimination of the time and space constraints of traditional bricks-and-mortar libraries. Unlike libraries that occupy buildings accessible only to those who walk through their doors, digital libraries reside on inter-networked data storage and computing systems that can be accessed by people located anywhere. At their full potential digital libraries will enable any citizen to access a considerable proportion of all human knowledge from any location. From an access vantage the Internet provides a preview of the possibilities.

The role of a Digital Library is essentially to collect, manage, preserve and make accessible digital objects. The following are some of the function of digital library:

- (1) To provide friendly interface to users.
- (2) To avail network facilities.
- (3) To support library functions.
- (4) To enhance advanced search, access and retrieval of information.
- (5) To improve the library operations.

(6) To enable one to perform searches that is not practical manually.

(7) To protect owners of information.

(8) To preserve unique collection through digitization.

All conventional libraries basic functions focus on collection, organization and dissemination of information resources. Traditionally a “library is a place in which books, manuscripts, musical scores, or other literary and artistic materials are kept for use but not for sale”. In effect, it is an institution oriented towards collections and custody, where people may make use of the facilities. Whereas a digital library is an assemblage of digital computing, storage and communications machinery together with the content and software needed to reproduce, emulate and extend the services provided by conventional libraries. In other words, a digital library is a computer-based system for acquiring, storing, organizing, searching and distributing digital materials for end user access. It is not just a collection of material in electronic form; it includes a browser interface and perhaps a virtual space and society. It requires less space and the data can be made available through communication networks to anyone anywhere, while facilitating searches with speed. The digital is not a single entity and as such is linked to the resources of many such collections .

Some of the features pointed out in the definitions of digital library may be listed as follows:

(1) A library that served a defined community or set of communities.

(2) A conglomerate of multiple entities.

(3) Library that incorporate learning and access.

(4) Library that provide fast and efficient access, with multiple access modes.

(5) A library with a collection which are large and persist over time, well organized and managed, contain many formats and contain objects which may be otherwise unobtainable.

Digital libraries will also include digital materials that exist outside the physical and administrative bounds of any one digital library, will serve particular communities or constituencies, as traditional libraries do now, though those communities may be widely dispersed throughout the network, and will require both the skills of librarians and well as those of computer scientists to be viable. Definition of digital library involves three key components, which constitute the theoretical framework underlying digital libraries, namely: people, information resources & technology.

The digital library is not merely equivalent to a digitized collection with information management tools. It is also a series of activities that brings together collections, services and people in support of the full life cycle of creation, dissemination, use and presentation of data, information and knowledge. The rapid development of the internet in the 1990s and its embrace by the library and information community enabled the concept of the digital libraries (DLs), as a branch of library, research on digital libraries flourished in the mid of 1990s with the advent of the Internet coupled with the need to make information open and easily accessible. A branch is a branch and must have certain properties, whether it is physical or virtual. A digital branch is a branch library, delivered digitally, on the Web. It offers much more than a traditional library website in many ways, because a digital branch has real staff, a real building, a real collection, and real community happening on and around it. Library and information centers are providing numerous types of information resources and services. Information content and services are changing with the passage of time. The global network internet has brought forth new dimension to libraries of modern digital world. In order to keep pace with the cyberspace librarians are to

be furnished libraries with latest version of sophisticated technology. In this new library digital networking and communication infrastructure provides a global platform over which the people and organization devise strategies, interact, communicate, collaborate and search for information. This platform includes, a vast array of digitalizable products that is databases, news and information, books, magazines, TV and radio programming, movies, electronic games, musical CDs and software which are delivered over the digital infrastructure anytime, anywhere in the world.

CHAPTER 7

Conclusion & Future Scope

This website provides a computerized version of library management system which will benefit the students as well as the staff of the library. It makes entire process online where student can search books, staff can generate reports and do book transactions. It also has a facility for student login where student can login and can see status of books issued as well request for book or give some suggestions. It has a facility of teacher's login where teachers can add lectures notes and also give necessary suggestion to library and also add info about workshops or events happening in our college or nearby college in the online notice board.

There is a future scope of this facility that many more features such as online lectures video tutorials can be added by teachers as well as online assignments submission facility , a feature Of group chat where students can discuss various issues of engineering can be added to this project thus making it more interactive more user friendly and project which fulfills each users need in the best way possible. Information technology has changed the world and has become one important tool for retrieving information a new days. Library collections are not only limited to printed documents but also electronic resources increases by their use and therefore it is important to develop digital library. People realized the importance of digital libraries no matter what their feelings towards them were before. Innovative information knowledge collection, storage, process, transfer methodologies made possible by digital libraries will promote scientific research and development, facilitate distant-learning environment, and bring significant influence on the national economy.

Digital libraries are not going to replace the physical existence of document completely but no doubt to meet the present demand, to satisfy the non local

user digitization must be introduced so that at least libraries becomes of hybrid nature. The initial cost of digitization is high but experiment shows that once digitization is introduced then the cost to manage this collection will be cheaper than that of any traditional library. Day by day the cost of digitization is decreasing, the online publication is increasing, the needs of user are shifting towards a different environment so it's needless to say that after one or two years my library or your library will go to be digitized so it's the pick time to all informational and library professional that they geared themselves to take the challenge. digital library field is still quite new, it seems strange to be talking already about enhancing digital libraries. However, in this fast-moving environment, the initial digital libraries resulting from digitization projects, or even virtual collections, are being enhanced as user expectations and technology capabilities allow. Libraries and digital libraries are, we could say, worlds apart; the former exist in the physical world, the latter in the digital one. Although there are strong tights between both type of system, this distinction remains pretty accurate. With the evolution of web technologies we have noticed a move towards building “digital” museums. What many museums do, at the moment, is building their existence on the Internet. we can imagine aforementioned virtual tours to come to existence. Virtual tours allow users to browse not only through the metadata but also through virtual exhibitions. Digital libraries promise new societal benefits, especially for e-learning in digital or mobile times, starting with the elimination of the time and space constraints of traditional bricks-and-mortar libraries. The library and information professionals are required to acquire such knowledge and skills as the library is one of the highly IT influenced service profession. This paper gives an overview of current trends in digital library research consists of digital library characteristic, advantage, disadvantages and function. This paper also highlights on the impact of information technology on the traditional library. All conventional libraries basic functions focus on collection, organization and dissemination of information

resources. Traditionally a “library is a place in which books, manuscripts, musical scores, or other literary and artistic materials are kept for use but not for sale”. In effect, it is an institution oriented towards collections and custody, where people may make use of the facilities. Whereas a digital library is an assemblage of digital computing, storage and communications machinery together with the content and software needed to reproduce, emulate and extend the services provided by conventional libraries. In other words, a digital library is a computer-based system for acquiring, storing, organizing, searching and distributing digital materials for end user access. It is not just a collection of material in electronic form; it includes a browser interface and perhaps a virtual space and society. It requires less space and the data can be made available through communication networks to anyone anywhere, while facilitating searches with speed.

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