

LIBRARY MANAGEMENT SYSTEM USING PYTHON ON WEB DESIGN**Rosey Sharon**

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ABSTRACT-

A college library management is a project that manages and stores books information electronically according to students' needs. The system helps both students and library managers to keep a constant track of all the books available in the library. It allows both the admin and the student to search for the desired book. It becomes necessary for colleges to keep a continuous check on the books issued and returned and even calculate fine. This task if carried out manually will be tedious and includes chances of mistakes. These errors are avoided by allowing the system to keep track of information such as issue date, last date to return the book and even fine information and thus there is no need to keep manual track of this information which thereby avoids chances of mistakes. Thus this system reduces manual work to a great extent allowing smooth flow of library activities by removing chances of errors in the detail.

INTRODUCTION

An integrated library system (ILS), also known as a library management system (LMS), [1][2] is an enterprise resource planning system for a library, used to track items owned, orders made, bills paid, and patrons who have borrowed.

An ILS usually consists of a relational database, software to interact with that database, and two graphical user interfaces (one for patrons, one for staff). Most ISLes separate software functions into discrete programs called modules, each of them integrated with a unified interface. Examples of modules might include:

- acquisitions (ordering, receiving, and invoicing materials)
- cataloging (classifying and indexing materials)
- circulation (lending materials to patrons and receiving them back)
- serials (tracking magazine, journals, and newspaper holdings)
- online public access catalog or OPAC (public user interface)

Prior to computerization, library tasks were performed manually and independently from one another. Selectors ordered materials with ordering slips, cataloguers manually cataloged sources and indexed them with the card catalog system (in which all bibliographic data was kept on a single index card), fines were collected by local bailiffs, and users signed books out manually, indicating their name on clue cards which were then kept at the circulation desk. Early mechanization came in 1936, when the University of Texas began using a punch card system to manage library circulation.^[3] While the punch card system allowed for more efficient tracking of loans, library services were far from being integrated, and no other library task was affected by

The purpose of a library management system is to operate a library with efficiency and at reduced costs.

system being entirely automated streamlines all the tasks involved in operations of the library. The activities of book purchasing, cataloging, indexing, circulation recording and stock checking are done by the software. Such software eliminates the need for repetitive manual work and minimizes the chances of errors.

The library management system software helps in reducing operational costs. Managing a library manually is labor intensive and an immense amount of paperwork is involved. An automated system reduces the need for manpower and stationery. This leads to lower operational costs.

The system saves time for both the user and the librarian. With just a click the user can search for the books available in the library. The librarian can answer queries with ease regarding the availability of books. Adding, removing or editing the database is a simple process. Adding new members or canceling existing memberships can be done with ease.

Stock checking and verification of books in the library can be done within a few hours. The automated system saves a considerable amount of time as opposed to the manual system.

The library management system software makes the library a smart one by organizing the books systematically by author, title and subject. This enables users to search for books quickly and effortlessly.

Students need access to authentic information. An advanced organized library is an integral part of any educational institution. In this digital age a web based library management system would be ideal for students who can access the library's database on their smartphones.

I. RELATED WORK

RF LIB-Man - Integrated Library Management Software

LIB-MAN® is a highly integrated, user-friendly, and compatible **library automation system** for complete computerization of all the in-house operations of any size or type of library. The

library management software is intuitive, efficient, and compliant. Lib-Man is embedded with multilingual fonts, Barcode & QR Code fonts. The integrated library software developed in consultation with prolific senior library professionals is currently being used by as many as 500 libraries. The client-server version of Lib-Man is embedded with free Devanagari Fonts. It supports all the latest technologies which include cloud hosting, mobile app, tablets, SMS, email, UHF RFID, secured payment gateway, etc.

Lib-Man has an optional UHF RFID integration for the absolute library automation. It also supports the smartphone or mobile app for book search – MOPAC.

Acquisition & Cataloging

“**Acquisition**” refers to the process of choosing & buying books, journals, and other materials including the digital materials for creating a good resource for libraries. The librarians send the requirements of materials to multiple vendors and choose the best pricing available before the final order. The library acquisition process when done manually not just utilizes resources but also an enormous amount of time.

MasterSoft library automation software with the acquisition module simplifies the entire process by streamlining it into the following steps-

- **Processing the book request**
- **Getting quotes from vendors**
- **Filtering the best options**
- **Ordering the books**
- **Purchasing the final order**
- **Generating transaction-related reports**

What Is Serial Control In The Library?

Serial control is one of the most important yet the most complicated functions of the library. For ensuring a smooth serial control in libraries, the librarian and supporting school staff need to manage various stages such as receiving quotes from library vendors, choosing titles, placing new orders, processing invoice, renewals, handling the check-in procedure, etc. which creates hassles when managed manually.

With the MasterSoft automated serial control system in library - **schools, colleges, and universities** can streamline the following functions-

- Generating indexing database
- Handling e-databases, e-journals, subscriptions & their renewal
- Subscription cancellation
- Manage article & journal requests from **OPAC** directly

- Department/section/unit-wise budget generation
- Multi-location budget control activities
- Schedule automated reminders
- Processing the invoiceLibrary Circulation Management System Software

For any **library automation software** to work properly and in sync with the needs of the user, it is vital to have a circulation control provision. MasterSoft **library software** is designed & developed keeping in mind the same.

Right from creating borrower types to maintaining information about the borrowers, tracking their issue, return, dues, fines, and the entire borrowing history, MasterSoft's circulation control enables the librarians to access & analyze the information at just a click of a button. To be precise, it helps the librarians to manage the following records:

- B.T. Records Maintenance
- Document Circulation - Issue, Return & Renewals
- Reference Book Issue Return
- Reservation/Claims
- Overdue/Recall Notices
- Holidays
- Book Binding
- Library clearance
- Notices and Reminder
- Book Bank
- Fine Management
- Student Searching

Benefits Of MasterSoft MIS Reports For The Library

The MasterSoft library management system with [MIS report](#) feature can help institutions to reap the following benefits without any hassle.

Operational Performance

With the help of accounting reports, the librarians can keep a tab on operational performance & the amount of money being spent in the library.

Inventory Management

To manage the books & other material inventory in the library effectively, the available stock-related reports can be generated with the MIS report software.

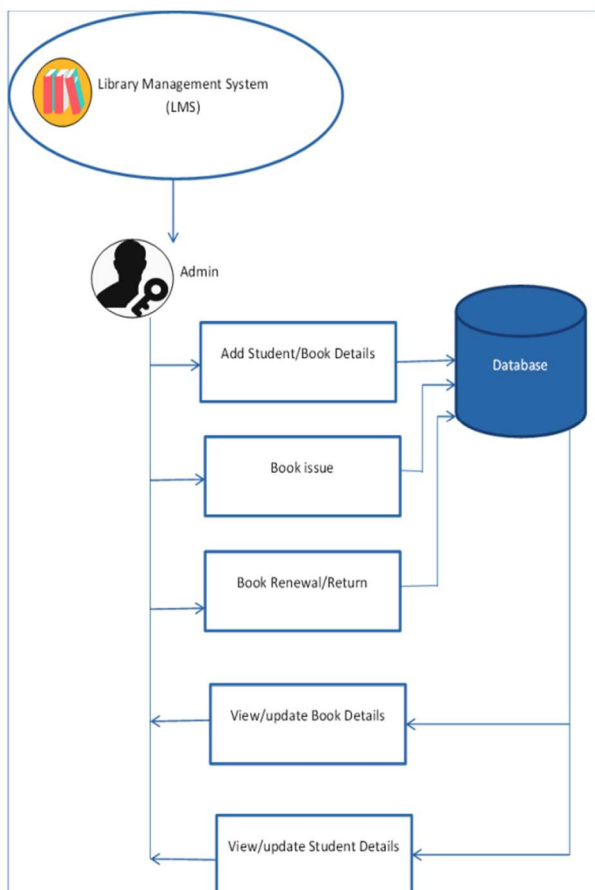
Financial Status

Educators can scrutinize the MIS reports related to library funds and determine whether the budget is sufficient or needs to be revised for maintaining a smooth workflow in the library.

Reports In Multiple Formats

The MIS reports can be generated in various formats such as PDFs, graphical representation, pie-charts, etc as per the convenience of the end-user.

II. METHODOLOGY



Depicted the block diagram of the proposed Library Management system (LMS). The LMS contains an Admin module where it demonstrates the activities of the admin. Admin is considered as the authorized person to access the LMS system. He/she can access the LMS system through their user id and password. At the time of login, the system is loaded and opens the Homepage where he/she has to enter the Id and password

An important aspect of modeling is its role as a communication tool in determining requirements. For users what they require, and is the current system satisfying their requirements. As we go through the project, we find out three types of users in this project. They are student, teacher & library supervisor. We visit them at different times to collect their

requirements. Though all of the requirements are not the same, we tried out to make an interface among their requirements. The project life cycle includes various development phases that occur in the life of the project starting right from the inception of the project and its final development at the client's end. The three development phases in a project life cycle are project initiation, project execution, project deployment.

(a) Project initiation

The project initiation phase is the first phase of the life cycle. This phase involves creating a complete plan for the project, specifying various activities that will be performed and assigning responsibilities to team members on the basis of their skill set.

(b) Project execution

After the project plan is made and the responsibilities assigned, the actual development of the project starts. The phase in which the actual development of the project takes place is known as the project execution phase. This is the most crucial phase of any project and is subdivided into the following phases i.e. System analysis (Initial study, Information gathering, Feasibility study), System design (Design standard, High level design & design tools, Database design, Logical design), System implementation (Integration & testing, Post implementation).

(c) Project development

After the project execution phase, the final phase of a project life cycle is the project development phase. This phase deployed at the client side. This phase also involves providing customer support to the client for some specified period of time. When a project is built it may possibly remain error less or more, because several types of modification can take place several times. So for the very first time when we ran the database web site we found few problems in tools options. We fixed this problem including some minor problems immediately, and afterwards the application runs properly

(d) Feasibility

study Feasibility study is the preliminary investigation into the system to evaluate the possibility of a computer system and estimate costs and benefits where quality and time also involve. This is the most effective method of solution. Feasibility and risk analysis are related in many ways. If project risk is great, the feasibility of producing quality software is reduced.

III. IMPLEMENTATION

Implementation is one of the most important tasks in a project. It is the phase in which one has to be cautious because all the efforts undertaken during the project will be very interactive. Implementation is the most crucial stage in achieving a successful system and giving the users confidence that the new system is workable and effective. Each program is tested individually at the time of development using the sample data and has verified that these programs link together in the way specified in the program specification. The computer system and its environment are tested to the satisfaction of the user. The implementation phase is less creative than system design. It is primarily concerned with user training, and file conversion. The system may be requiring extensive user training. The initial parameters of the system should be modified because of programming. A simple operating procedure is provided so that the user

can understand the different functions clearly and quickly. The different reports can be obtained either on the inkjet or dot matrix printer, which is available at the disposal of the user. The proposed system is very easy to implement. In general implementation is used to mean the process of converting a new or revised system design into an operational one. This report focuses on the design and implementation of the library management system. It deals with the complete processes on building and implementing it. It focuses on the technical aspects of the system starting with identifying the necessary components and building the relevant relationship between or among them as needed for the smooth and efficient operation of the system.

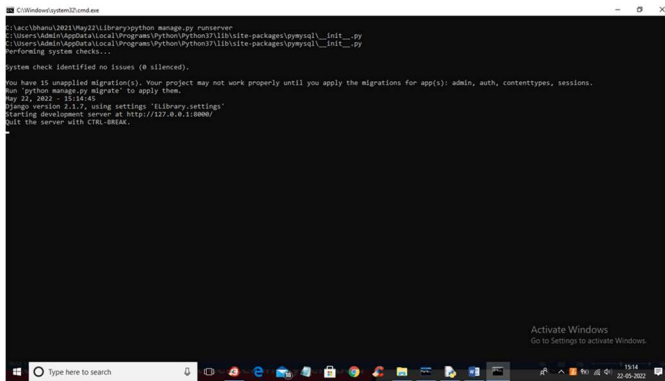
The process starts with the entities involved in the system, proceeding towards the ER Diagram in order to identify the meaningful relationship between the entities. Next is the table design which fulfills the normalization principle of relational database systems and finally the physical tables are created with the necessary and relevant data in them. The system can keep track of the members joining and leaving the library, borrowing and returning the books. Checking the availability of the books using different attributes as parameters. Finally checking of the overdue books and fines payable is another feature of the system.

IV. RESULTS

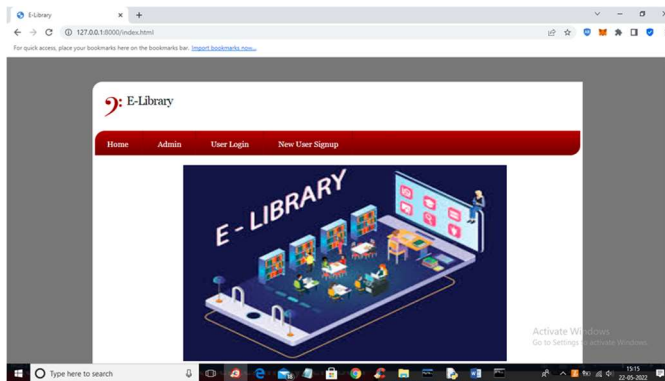
This library management system has been computed successfully and was also tested successfully by taking “test cases”. It is user friendly, and has required options, which can be utilized by the user to perform the desired operations. The software is developed using HTML & PHP as front end and MySQL as back end in the Windows environment. The goals that are achieved by the software are: Optimum utilization of resources, efficient management of records, simplification of the operations, less processing time and getting required information, user friendly, and portable and flexible for further enhancement.

1. Once he/she login to the system, then they can access/modify the data in it. The Admin can add students/Book details, issue the book, return the book, view/update the book, and view/update the student details.
2. In LMS, while adding the student's details we enroll the register number, name, date of birth, blood group, email id, mobile number, and gender, etc.. Similarly to add a new book we enroll the book id, author name, copies, prices etc..
3. Those adding data can be viewed/updated/deleted through Admin. The Admin can view and search any book through search option in LMS is illustrated
4. We implemented the library management system in .Net for the front end and SQL for the back end. In the existing system, the users can illegally change the date of the entry because the entry will be in a notebook which can be overwritten. These disadvantages are surmounted by the LMS system. This system will support the librarians to work very fast and efficiently. All the details will be updated on the LMS. So they can verify every book's details in it. The clumsiness of the existing system is removed for the librarians. LMS provided a user-friendly environment for them. Thus the system enhances the library management to the next level. Thereby it creates fast progress in the library which makes a lot of patron's entries into the

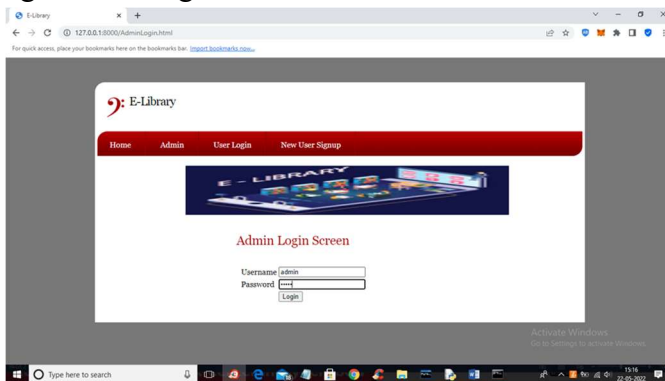
libraries. The missing of the book can also be detected by verifying the database, the librarian has to check and maintain the database properly.



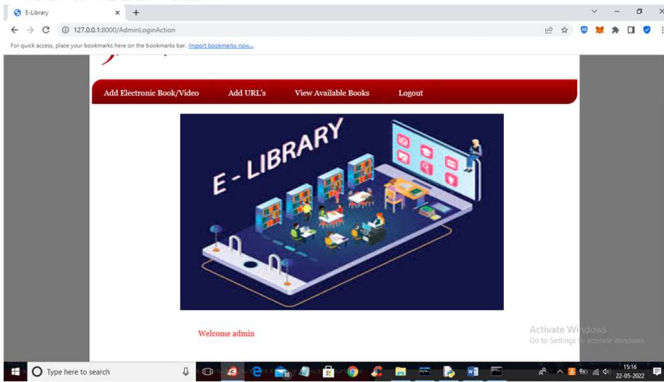
In above screen python DJANGO server started and now open browser and enter URL as `http://127.0.0.1:8000/index.html` and press enter key to get below screen



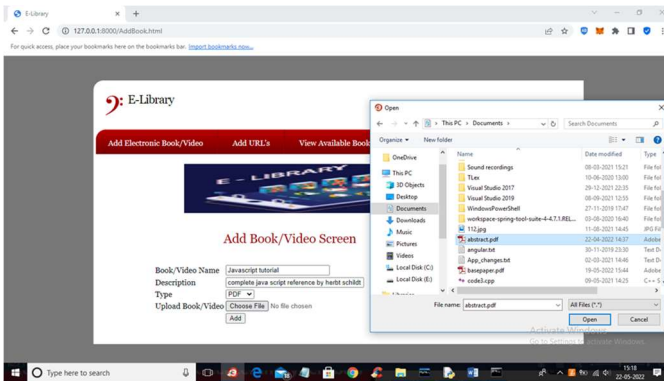
In above screen click on 'Admin' link to get below login screen



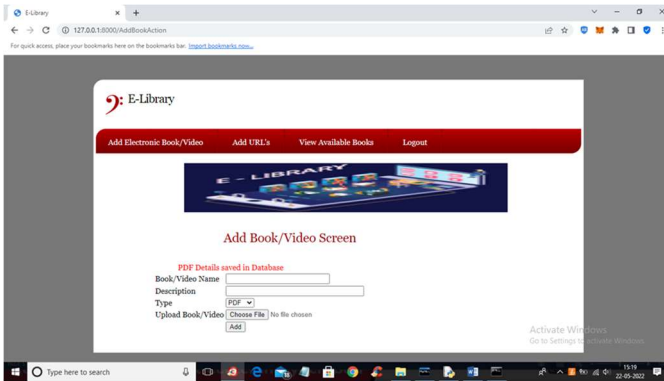
In above screen admin is login and then click on button to get below screen



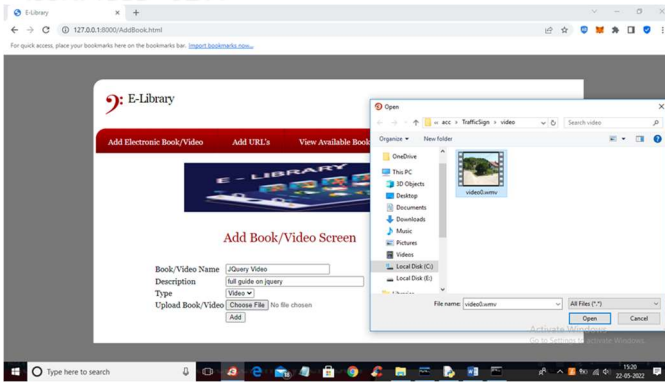
In above screen admin can click on 'Add Electronics Book/Video' link to add book or video



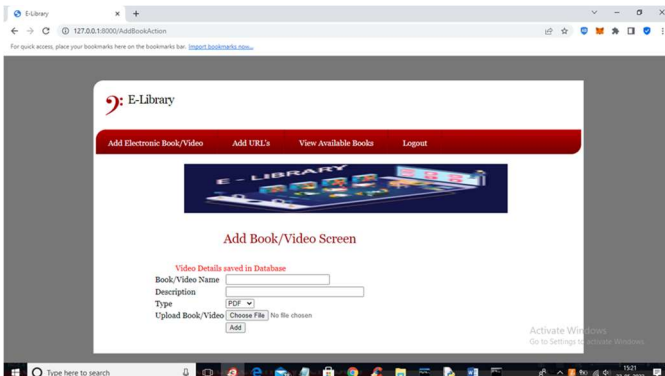
In the above screen admin is uploading a PDF file and then clicking on 'Open' and 'Add' button to add book to database and similarly admin can upload video also.



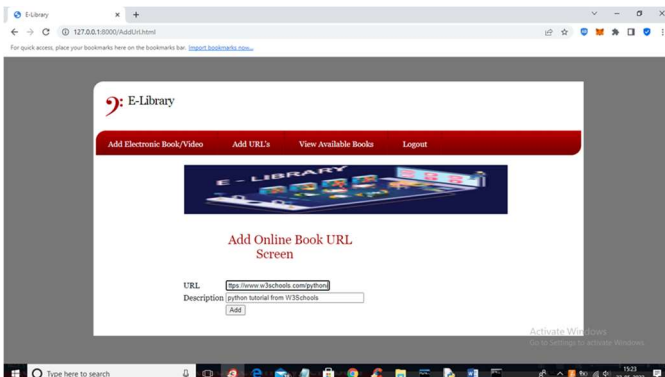
In above screen PDF details added to database and similarly you can add other books also



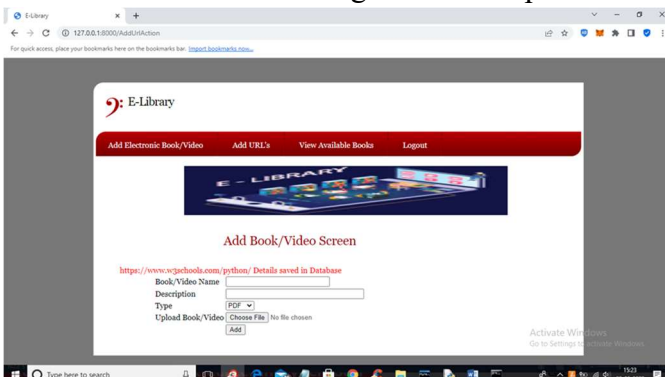
In above screen admin is uploading video tutorial and click button to add details



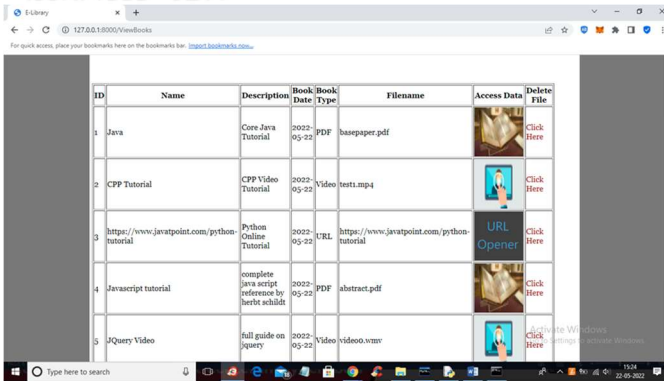
In above screen video details saved in database and now click on 'Add URL's' link to add URL for tutorials



In above screen admin is adding URL tutorial and click button to get below output

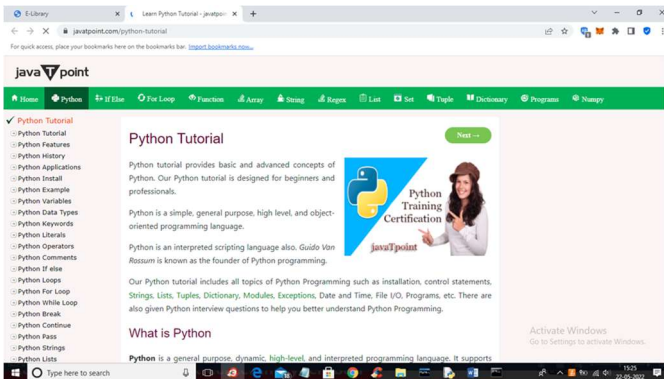


In above screen tutorial is added and now click on 'View Available Books' link to view below output

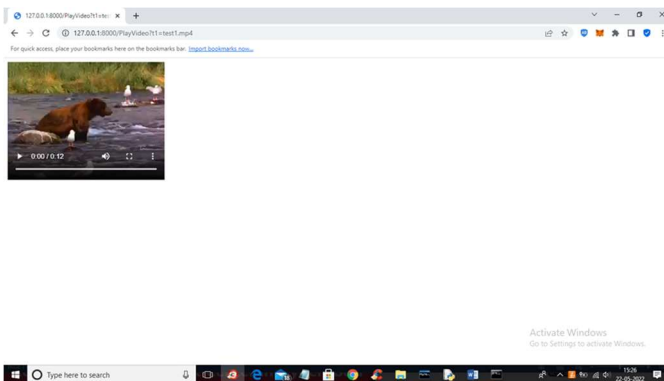


ID	Name	Description	Book Date	Book Type	Filename	Access Data	Delete File
1	Java	One Java Tutorial	2022-05-22	PDF	basepaper.pdf		Click Here
2	CPP Tutorial	CPP Video Tutorial	2022-05-22	Video	test1.mp4		Click Here
3	https://www.javatpoint.com/python-tutorial	Python Online Tutorial	2022-05-22	URL	https://www.javatpoint.com/python-tutorial		Click Here
4	JavaScript tutorial	complete javascript reference by heribit schubert	2022-05-22	PDF	abstract.pdf		Click Here
5	JQuery Video	Full guide on jquery	2022-05-22	Video	video.wmv		Click Here

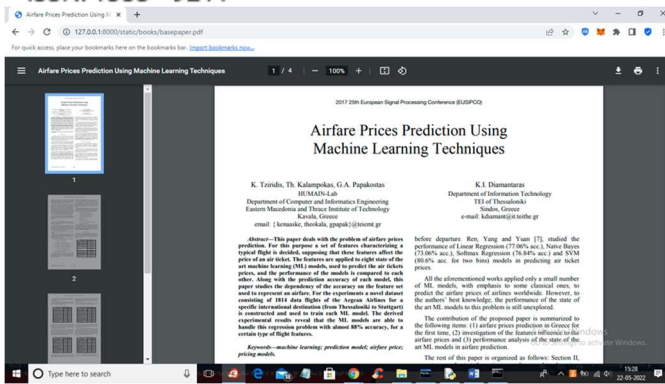
In the above screen admin can view all book details and then click on the desired image to view its tutorial or Click Here to delete that tutorial. So admin can add and delete tutorial



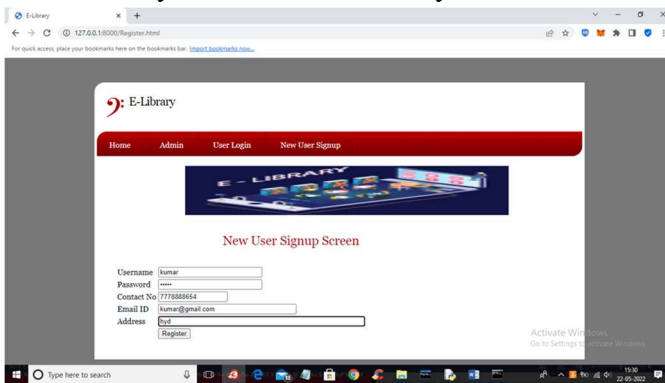
In above screen tutorial URL is open and in below screen we can see VIDEO



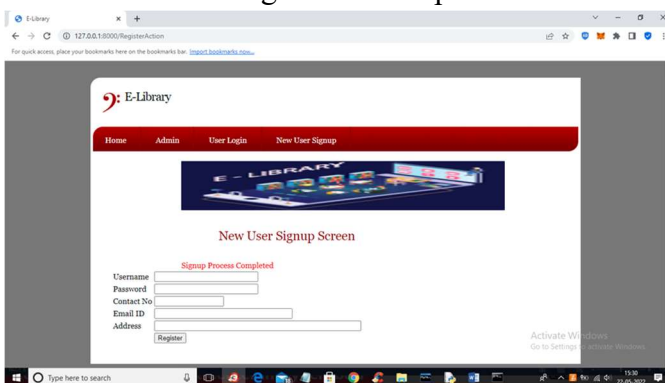
In below screen we can open PDF tutorial



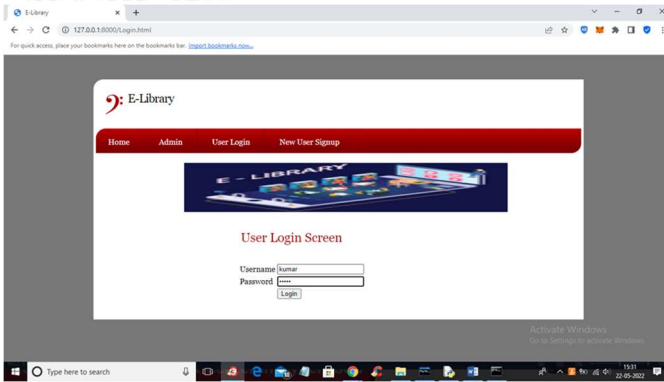
In the above screen PDF tutorial is open and similarly admin can delete any tutorial and now logout and sign up students.



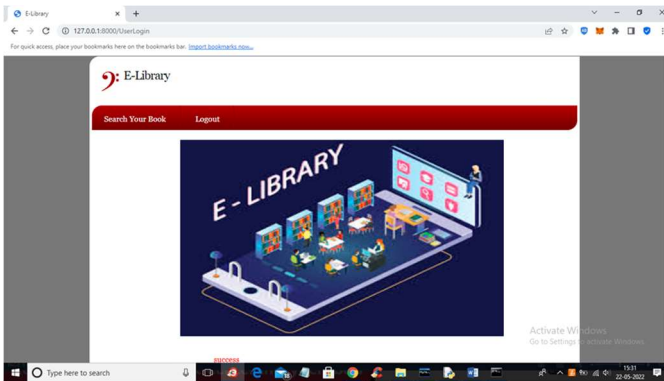
In above screen student is signing up and then click button to get below output



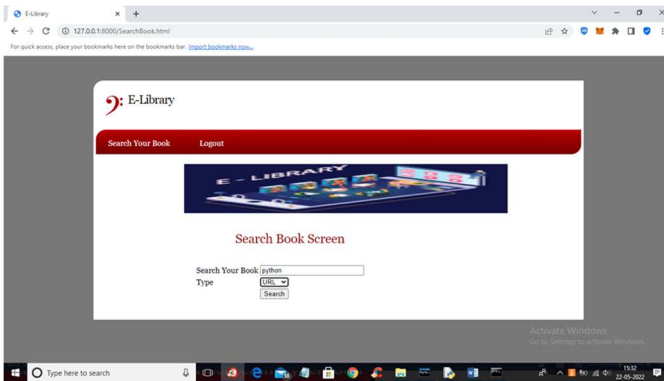
In above screen signup process completed and now click on 'User Login' link to get below screen



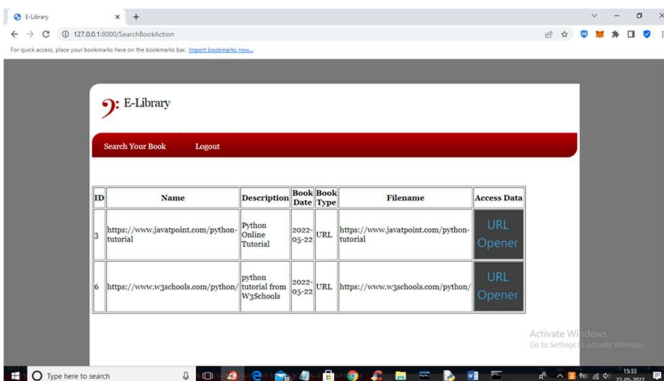
In above screen user is login and after login will get below screen



In above screen click on 'Search Your Book' link to get below screen

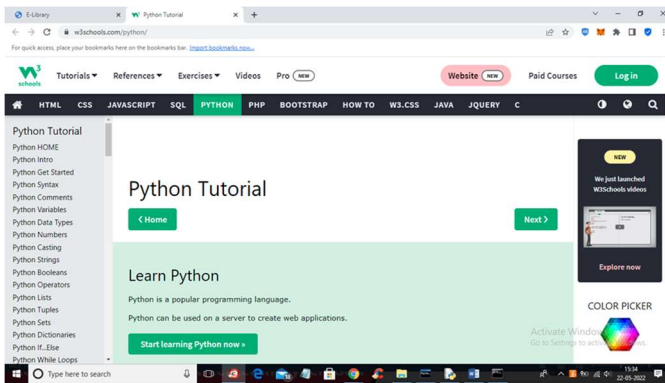


In above screen user is searching python tutorial with URL and get below output

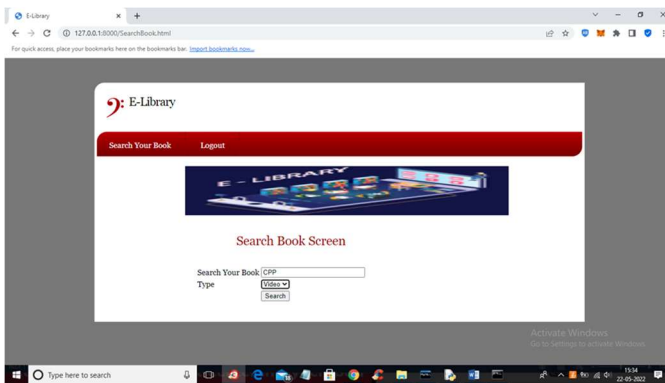


In above screen user will get all URLs

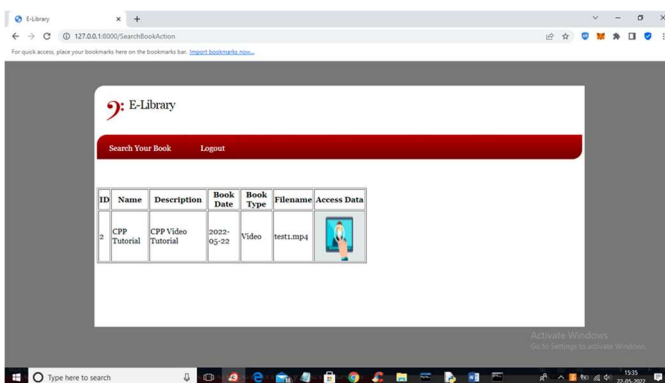
for python tutorial and can click on 'URL Opener' link to visit that URL



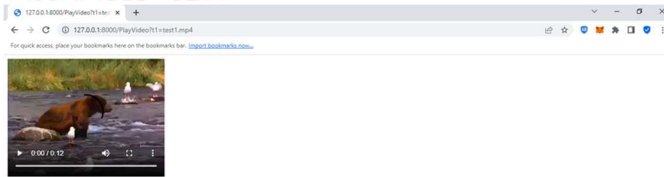
In above screen user can open and read tutorial from URL and in below screen I am searching another query



In above screen I am searching CPP video based tutorial and click button to get below output



In above screen user can click on 'PLAY ICON'" to play tutorial



In above screen tutorial is playing and similarly you can add and search any tutorial

V. CONCLUSION

The hindrance and issues of the traditional library are identified and promote easy access for the libraries. In the Library Management system, the librarian can add/update/remove the student and book details into the database. The students have a Unique ID for accessing any book from the library. Through the ID, the librarian can Journal of Xi'an University of Architecture & Technology Volume XII, Issue XI, 2020 ISSN No : 1006-7930 Page No: 751 check the user details, fine payment, and book details. The LMS reduces labor work and makes the system efficient. In future work, we planned to enhance the LMS by integrating the LMS with Local area Network (LAN) which increases the efficiency of the system.

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