

# A BAR CODE BASED LIBRARY CONTROL AUTHENTICATION

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**Abstract** - At the moment, the amount of Library system approach made in most of the colleges and universities remains with the manual Operations. For the matter of Standard manual operation is long & inconvenience, this paper proposes a bar code based library Control Authentication with intended and enforced support of net service & Desktop application. In this system, the three-layer architectural design is utilized, applying model building language that UML carries on analysis and style, exploitation MySQL technology to create backend information i.e. Database maintenance. In order to get the information of Particular book- the barcode reader is implemented in this system. Finally to boost the operative potency of the system, we tend to use the stored procedures and trigger the technology to optimize the database performance and manage the members, Book Transactions in daily basis etc. By actual look, we tend to correct the system bug and improve the system performance along with the GU interface.

**Key Words:** Library Control Authentication (LCA), Unified Model Language (UML), Domain Name Server (DNS), Graphical User Interface (GUI), Structured Query Language (SQL).

## 1. INTRODUCTION

Library is the source of Knowledge and wisdom. With the increase of technology gradually the Education Departments and new research scholars, millions of books are getting added to the libraries. Sorting it manually, searching the required books, Placing in the particular shelves is highly difficult and results in incorrect order. The image of library automation comes into existence. Considering one of the example of UNESCO, developed integrated system called the Computerized Documentation service/ integrated set of Information system which has been developed widely within IBM Mainframe to use in the library.

Library Control Authentication is an integrated system that allows a librarian or admin to maintain the record of the book transaction. Adding the New Arrival Books, removing the outdated books and searching the required books in database with some queries etc. Also the librarian duty is to look over the E-journals and old question papers along with the book transactions.

## 2. RELATED SURVEY

The paper "Online Library Management System" is developed in java that primarily focuses on basic

operations in a very library like adding new member, new books, and change new data, looking out books and members and facility to borrow and come back books. The Library System can also be a desktop application written for x86/x64 operating system, designed to help user to maintain & organize library. This package is straight forward to use for each beginners and advanced users [8].

As there is increase in technology, Library need to be ready for change by implementing those new technologies in order to maintain the friendly relation with the members and make the work more easier and effective for all the modules of LMS[7].

As the Study goes on LMS - The Administrator is maintaining the data manually in a Ledger Book and he/she will take more processing time to search the Availability of Book and tell to member. There is no proper maintenance of book based on department. This are the common issues found while the study was done to propose this paper [6].

The speedy implementation of knowledge using technology in all the areas of life, as well as libraries, has led considerations regarding however information technology transforms the character and quality of labor. What's the impact of knowledge technology on workers? Library, workplace industrial automation analysis has shown that the impact of technology depends on however and why it's used, instead of on the technology itself [5].

## 3. EXISTING SYSTEM

System Analysis may be an elaborate study of the various operations performed by a system and their relationships at intervals and out of doors of the system. Here the key question is- what all issues exist in the present system what should be done to unravel the problem Analysis begins once a user or manager begins a study of the program exploitation existing system. In existing system all the dealings of books are done manually, therefore taking longer time for a transaction like borrowing a book or returning a book and conjointly for looking out of members and books.

Another major disadvantage is that to getting ready the list of books borrowed and also the on the market books in the library can take longer, presently it's doing as a 1 day method for corroboratory all records. Therefore once conducting the practicability study we tend

to set to make the manual Library management system to be computerized.

#### 4. PROPOSED SYSTEM

In our Automated LCA System, Admin can add new student, new arrival books, remove the outdated books, Search the books and availability of Books, CRUD operations can be for the information. The main advantage of this system is

- Friendly user experience of GUI.
- Quick Database Connection and access
- User friendly Environment for all the Operations.

#### 5. WORKING OF THE SYSTEM

##### 5.1 Use-Case Diagram

A use case diagram at its simplest could be an illustration of a user's interaction with the LCA system that shows the affiliation between the user and also the totally different use cases during which the user is concerned. A use case diagram will determine forms of users of a system and also the different use cases and can usually be in the midst of alternative forms of diagrams yet. It's a graphical depiction of the interactions among the weather of the system.

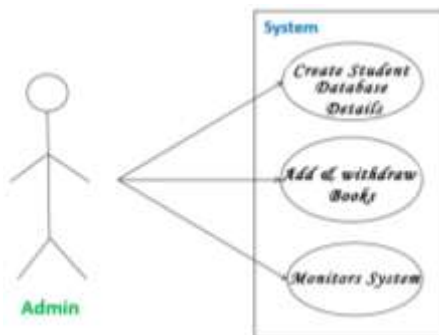


Fig 5.1: Use-Case Diagram for Admin Module

##### 5.2 Sequence Diagram

A sequence diagram shows object interactions organized in time sequence. It depicts the objects and categories concerned within the situation & therefore the sequence of messages changed between the objects required to hold out the practicality of the situation. Sequence diagrams square measure usually related to use case realizations within the logical read of the system below development.

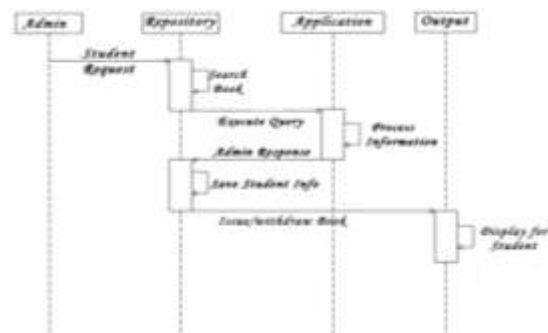


Fig: 5.2: Sequence Diagram of the System

##### 5.3 Admin Module

Admin can perform different Operations. The discussion is as follows-

###### Dashboard

Admin can view the Total number of Books available, Student details, Books Count issued on that day, Total Books Issued. The GUI is as shown in fig 6.1.

###### Book Search

Admin can search the book required for student based on the author name or based on the barcode assigned to the book. The GUI is as shown in fig 6.2.

###### Add Category

Admin can add the category we can call it as department or domain. So that the books can be added based on the category. The GUI is as shown in fig 6.3.

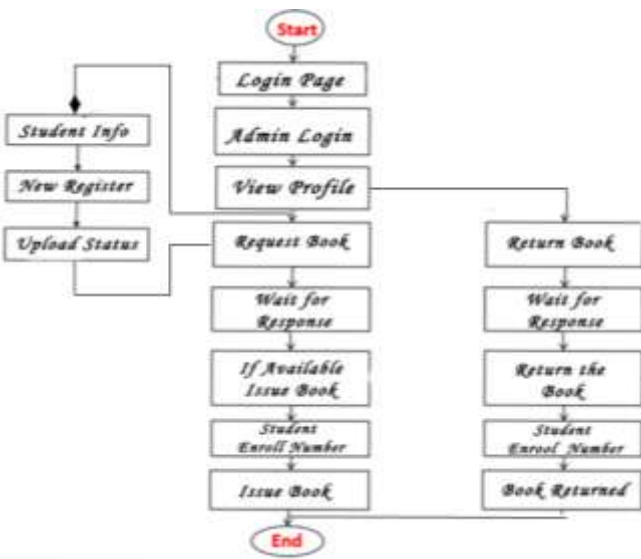
###### ISSUE Dashboard

Admin or Librarian can issue the required book for student by scanning the bar code of the book and scanning the student I'd Card. While Returning the Book, Admin can scan the barcode and take the book back based on due date. The GUI is as shown fig 6.4.

###### Student Search

Admin can search for the Student. If the details or not there in the Database then admin can add the new student. The GUI is as Shown in fig 6.5.

**Flow Chart**



**Fig 5.3: Flow Chart of the Proposed System**

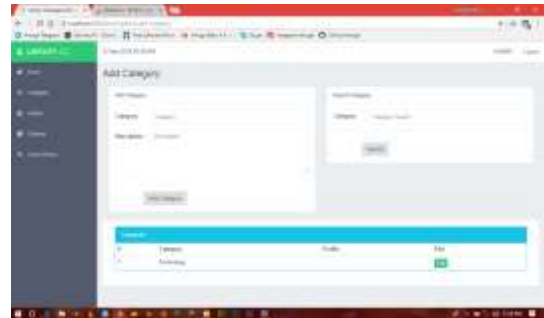
The Above flow chart represents the work flow of the system, which depicts a series of actions or events that defines a job or how work should be done. It can be depicted as a sequence of operations, or one or more simple or complex mechanisms. Additionally, in low-level or higher-level perspective, progress is also considered as a view or illustration of real work. Overall working of Issuing the book and book return event has been abstracted to data flow diagram which helps in the implementation of the system.

**6. RELATED RESULTS**

The below shared screenshots will demonstrate the different modules of LCA. This will be hosted online and can be accessed by IP address or with the help of DNS. This GUI will help the admin or Librarian to perform the operations very easily.



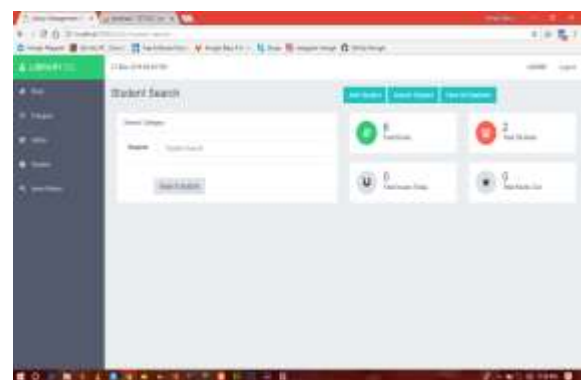
**Fig 6.2: LCA Admin Book Search GUI**



**Fig 6.3: LCA Admin Category Dashboard**



**Fig 6.4: LCA Admin Book Issue GUI**



**Fig 6.5: LCA Admin Student Details Search Dash Board**



**Fig 6.1: LCA Admin Dashboard**

**7. CONCLUSION**

The Library Control Authentication is the most important aspects of the system. It facilitates the administrator or a librarian to make his work easier. The admin as to enhance his skills in new technology to use this system. The system enables the admin to issue or withdraw the book, can generate the bar code for the books available

in library and can bring into order by assigning a rack number based on the department. This project helps in getting the positive impact for the library Automation Environment. This can also be used as Desktop application as we install in standalone systems and also as Web Application by hosting it with the help of DNS.

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