

Android Based Management System for Library

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Abstract— Library management system is a project which aims in developing a computerized system to maintain all the daily work of library .This project has many features which are generally not available in normal library management systems like facility of user login and a facility of teachers log-in .It also has a facility of admin log-in through which the admin can monitor the whole system .It also has facility of an online notice board where teachers and student can put up information about workshops or seminars being held in our colleges or nearby colleges and librarian after proper verification from the concerned institution organizing the seminar can add it to the notice board . It has also a facility where student after log-in their accounts can see list of books issued and its issue date and return date and also the students can request the librarian to add new books by filling the book request form. The librarian after log-in into his account i.e. admin account can generate various reports such as student individual issue report, teacher individual issue report, over all issue report and books availability report.

Overall, this project is developed to help the students as well as staffs of institute to maintain the library in organised manner and also reduce the human efforts.

Keywords— Android Operating System, SQLite data base, Library Access Application, Login Page.

I. INTRODUCTION

Library Management System is an application which refers to library systems which are generally small or medium in size. It is used by librarian to manage the library using a computerized system where he/she can record various transactions like issue of books, return of books, addition of new books, addition of new students etc [1].

Books and student maintenance modules are also included in this system which would keep track of the students using the library and also a detailed description about the books a library contains. With this computerized system there will be no loss of book record or member record which generally happens when a non-computerized system is used. In addition, report module is also included in Library Management System [2]. If user's position is admin, the user is able to generate different kinds of reports like lists of students registered, list of books, issue and return reports. All these modules are able to help librarian to manage the library with more convenience and in a more efficient way as compared to library systems which are not computerized.

II. PROPOSED SYSTEM

Library Management System is an application which refers to library systems which are generally small or medium in size. It is used by librarian to manage the library using a computerized system where he/she can record various

transactions like issue of books, return of books, addition of new books, addition of new students etc.

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In addition, report module is also included in Library Management System. If user's position is admin, the user is able to generate different kinds of reports like lists of students registered, list of books, issue and return reports. All these modules are able to help librarian to manage the library with more convenience and in a more efficient way as compared to library systems which are not computerized

III. EXISTING VS PROPOSED SYSTEM

- Existing system does not have any facility of teacher's login or student login whereas proposed system will have a facility of student log-in as well as teacher's login.
- Existing system does not have a facility of online reservation of books whereas proposed system has a facility of online reservation of books.
- Existing system does not have any facility of online notice board where description of workshops

happening in our college as well as nearby colleges is being provided.

- Existing system does not has any option of lectures notes uploaded by teachers whereas proposed system will have this facility.
- Existing system does not have any facility to generate student reports as well book issue reports whereas proposed system provides librarian with a tool to generate reports [7].
- Existing system does not has any facility for book request and suggestions where as in proposed system after logging in to their accounts student can request books as well as provide suggestions to improve library.

IV. SYSTEM DESIGN

Various Tables to Maintain Information:-

A. Book Table for Keeping Track Of Books

Field	Data type	Default	Key	Extra
Code	INT(11)	Not Null	Primary	Auto increment
Bookname	VARCHAR(255)	Null		
Author	VARCHAR(255)	Null		
Publication	VARCHAR(255)	Null		
Subject	VARCHAR(255)	Null		
No of copies	INT(10)	Null		

Fig. 1 Database for Tracking of Books

B. Student Table for Student Information

Field	Data type	Default	Key	Extra
libid	INT(11)	NOT NULL	Primary key	Auto increment
regno	INT(10)	NULL		
branch	VARCHAR(255)	NULL		
section	VARCHAR(255)	NULL		
semester	VARCHAR(255)	NULL		
section	VARCHAR(2)	NULL		
yearofadm	INT(5)	NULL		

Fig. 2 Database for Student Information

C. TEACHER TABLE TO KEEP TEACHER INFORMATION

Field	Data Type	Default	Key	Extra
Tid	INT(11)	NOT NULL	Primary key	Auto increment
Name	VARCHAR(255)	NULL		
Designation	VARCHAR(255)	NULL		
Branch	VARCHAR(255)	NULL		
Contactno	INT(13)	NULL		
Lectures	LONG BLOB	NULL		

Fig. 3 Database for Teacher's Information

D. Issue Table to Keep Track Of Books Issued

Field	Data Type	Default	Key	Extra
bookid	INT(11)	NOT NULL	Foreign key	References book
stuid	INT(11)	NOT NULL	Foreign key	References Student
issuedate	DATE	NULL		
returndate	DATE	NULL		

Fig. 4 Database for Issued Books

E. Student Login Table

Field	Data type	Default	Key	Extra
logid	INT(11)	NOT NULL	Foreign key	References Student
Username	VARCHAR(255)	NULL		
Password	VARCHAR(255)	NULL		
numbooks	INT(1)	NULL		

Fig. 5 Database for Student Login Table

F. Event Table For Event Information

Field	Data type	Default	Key	Extra
Name	Varchar(255)	NULL		
Date	Date(yyyy/mm/dd)	NULL		
Time	VARCHAR(255)	NULL		
Mname	VARCHAR(255)	NULL		
Contactno.	Int(30)	NULL		
Email	VARCHAR(255)	NULL		
Venue	vchar(255)	NULL		

Fig. 6 Database for Event Information

G. Teacher Login Table

Field	Data Type	Default	Key	Extra
Loginid	INT(11)	NOT NULL	Foreign key	References teacher
Username	VARCHAR(255)	NULL		
Password	VARCHAR(255)	NULL		

Fig. 7 Database for Teacher's Login Table

II. DATA FLOW DIAGRAM

A. Data Flow Diagram for Teacher Login

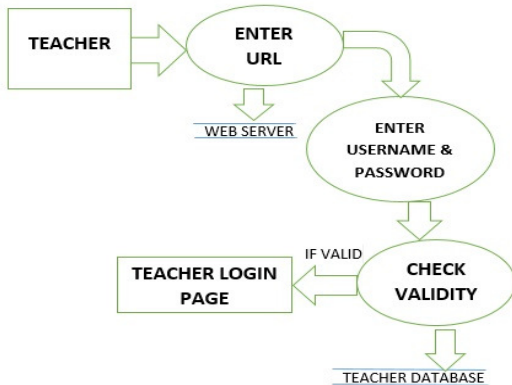


Fig. 8 DFD for Teacher login

After entering to the home page of the website, teacher can choose the TEACHER LOGIN option where they are asked to enter username & password, and if he/she is a valid user then a teacher login page will be displayed.

B. Data Flow Diagram for Student Login

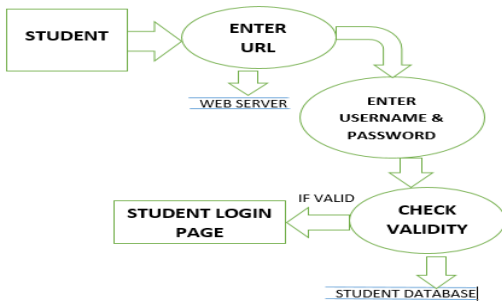


Fig. 9 DFD for Student login

After entering to the home page of the website, student can choose the STUDENT LOGIN option where they are asked to enter username & password, and if he/she is a valid user then a student login page will be displayed.

C. Data Flow Diagram for Book Issue:-

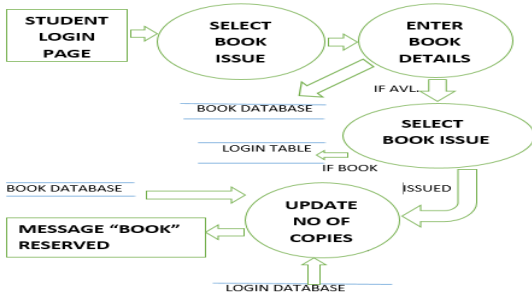


Fig. 10 DFD for Book issue

It is a 2nd level Data Flow Diagram where after entering STUDENT LOGIN page he/she can select a book issue option where after entering the book detail, he/she can select the book issue option and if the maximum no of books issued limit is not crossed then a request will be sent to the librarian who will approve the book issue.

D. Data Flow Diagram for Book Search:-

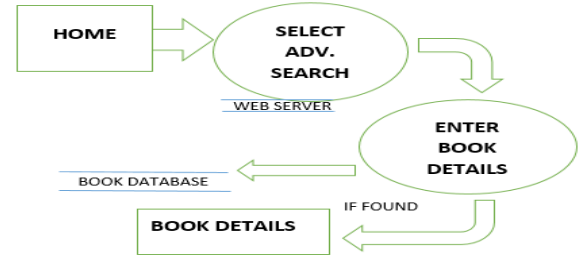


Fig. 11 DFD for Book Search

After the home page login there will be an option of the book search where after entering book detail like author name, publication, book name etc. book details will be displayed.

E. Data Flow Diagram for Account Creation:-

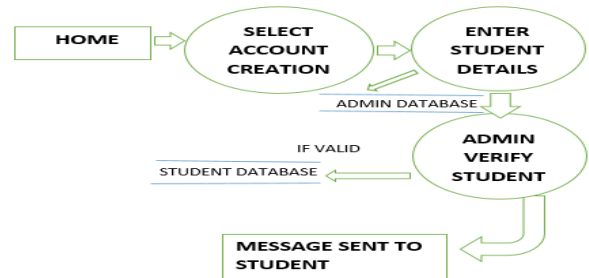


Fig. 5 DFD for Account Creation

After the home page login there will be an option of CREATE AN ACCOUNT where after entering student detail, if all the fields are filled then a request will be sent to the librarian who will approve him as a registered member of the library

V. DATA SYSTEM TESTING

The aim of the system testing process was to determine all defects in our project .The program was subjected to a set of test inputs and various observations were made and based on these observations it will be decided whether the program behaves as expected or not.

Our Project went through two levels of testing

- Unit testing
- Integration testing

F. Unit Testing

Unit testing is undertaken when a module has been created and successfully reviewed .In order to test a single module we need to provide a complete environment i.e. besides the module we would require

- The procedures belonging to other modules that the module under test calls [8].
- Non local data structures that module accesses.
- A procedure to call the functions of the module under test with appropriate parameters.

Test For the admin module:-

- Testing admin login form-This form is used for log in of administrator of the system. In this we enter the username and password if both are correct administration page will open otherwise if any of data is wrong it will get redirected back to the login page and again ask for username and password.
- Student account addition- In this section the admin can verify student details from student academic info and then only add student details to main library database it contains add and delete buttons if user click add button data will be added to student database and if he clicks delete button the student data will be deleted [9].
- Book Addition- Admin can enter details of book and can add the details to the main book table also he can view the books requests.

Test for Student login module

- Test for Student login Form-This form is used for log in of Student .In this we enter the library id, username and password if all these are correct student login page will open otherwise if any of data is wrong it will get redirected back to the login page and again ask for library id, username and password.
- Test for account creation- This form is used for new account creation when student does not fill the form completely it asks again to fill the whole form when he fill the form fully it gets redirected to page which show waiting for conformation message as his data will be only added by administrator after verification.

Test for teacher login module-

- Test for teacher login form- This form is used for login of teacher .In this we enter the username and password if all these are correct teacher login page will open otherwise if any of data is wrong it will get redirected back to the login page and again ask for username and password.

G. Integration Testing

In this type of testing we test various integration of the project module by providing the input .The primary objective is to test the module interfaces in order to ensure

that no errors are occurring when one module invokes the other module.

VI. CONCLUSION

This website provides a computerized version of library management system which will benefit the students as well as the staffs of the institute.

It makes entire process online where students can search books; staffs can generate reports and do book transactions. It also has a facility for student's 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.

VII. FUTURE SCOPE

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 fulfils each users need in the best way possible.

VIII. REFERENCES

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