Department of Information Technology
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UNIVERSITY OF MUMBAI
Academic Year 2019-2020

A Project Report on

Novel Framework Smart Library

Submitted in partial fulfillment of the degree of
Bachelor of Engineering(Sem-7)
in
INFORMATION TECHNOLOGY
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1.Project Conception and Initiation

1.1 Abstract

- The basic idea behind the project is to develop a library in which there is no queue for books.To reduce the work of librarian and also want to reduce or save the time of both librarian as well as student also.In our project there is reccomendation system which you don't see in traditional libraries. You can search book by author name,publication,chapter so it will recommend you the best book for that particular subject you will also find the book as a level wise like beginner,intermediate and advance. You will send the book request to admin in the case you are at home and you want a book which is important for exam and thier is only 10 books so you can send a request to librarian he will register a book by your name and it will also calculate the fine.

1.2 Objectives

- Online book issue.
- A search column to search availability of books.
- Borrowing and returning function.
- Scan ID number of members using QR code scanner.
- Using QR scanner to borrowing books.
- Scan QR code of member using QR scanner.
- Member record menegement.
- Studewnt login page where student can find books issued by him/her and date of return.
- Scan report using date from and date to.

1.3 Literature Review

- Development of an Intelligent Web Interface to Online Library Catalog Databases.

- Authors: Danny C. C. Poo| Christopher S.G. KHOO | Glenn HONG

- Publication :2018 International Conference on Inventive Research in Computing Application(ICIRCA)

- Advantage: To help users search library catalog's on the Internet more effectively.

1.3 Literature Review

- Library in Everyone's Pocket With reference to Bundelkhand University App

- Author: Mohit Gupta | Sridevi Jetty

- Publication : 2018 International Conference on Information and Communication technology.

- Advantage:There is a rapid increase in the number of users who uses internet on mobile App and web apps.

1.3 Literature Review

- National University Library System: A Mobile and Web Application Framework for National University Learning Resource Center.
- Authors: Joyce A. Balinquit| Jeremiah T. Malicdem

- Publication : 2017 10th international congress on web and mobile processing ,BioMedical Engineering and informaytics(CWMP-BMEI 2017)

- Advantage: The proposed NU Library System will integrate the library process such as circulation, inventory, acquisition, and cataloging into a one web application. The mobile app will help the users to uncover books for a particular topic, borrow books and receive notification regarding due date or penalty..

1.3 Literature Review

- A Desktop Application of QR Code for Data Security and Authentication.

- Authors: Partiksha Mittra | Nitin Rakesh

- Publication : 2016 IEEE International Conference on Advance in Computer applications (ICACA)

- Advantage: It reduced the memory storage by redirecting to a webpage through the transmission and online acceptance of data.

1.3 Literature Review

- Neurorehabilitation Control Application: Development Using Ionic Framework**.**

- Authors : Lyudmila V. Babich, Dmitriy A. Svalov, Aleksey L. Smirnov and Mikhail V. Babich .

- Publication **:** 26th Telecommunications forum TELFOR 2018 .

- Publisher : IEEE.

- Advantage: It reduce the financial costs of application development and make application compatible with 98% of mobile devices users.

1.4 Problem Definition

- Educational institute have library which traditionally reply on pen paper method to manually get data analyse and generate records of the student.
- Some institutes may use computer to done work which take less time as compared to manual.
- There is no smart library for students each institute may consider different parameters. If you don't have library card , you cant get book. First , you make library card and then issue the book form library. Then you will fill the details given by librarian and librarian also fill the book details for their record get to know on which date which book is given to whom.

1.5 Scope

- It helps to reduce manual tasks in libraries.
- Student can search the available book online.
- Students will have facilities like requesting for a book extending deadline for return.
- If any other person wants to use they will use by paying the monthly or yearly fee.
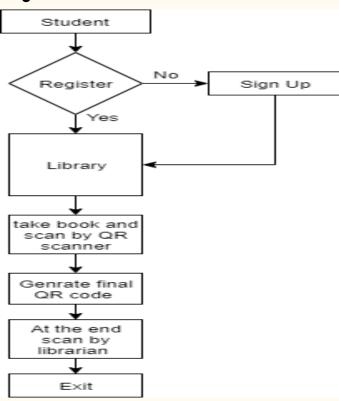
1.6 Technology stack

- **For Web Application Front-end :**
- HTML, CSS, Javascript, Bootstrap

- **For Web Application Back-end :**
- PHP SERVER(WAMP/XAMPP/LAMP),MySQL

- **For Mobile Application front-end :**
- IONIC-4 IONIC-CLI (IONIC 4 and angular7 using typescript)

- **For Mobile Application back-end :**
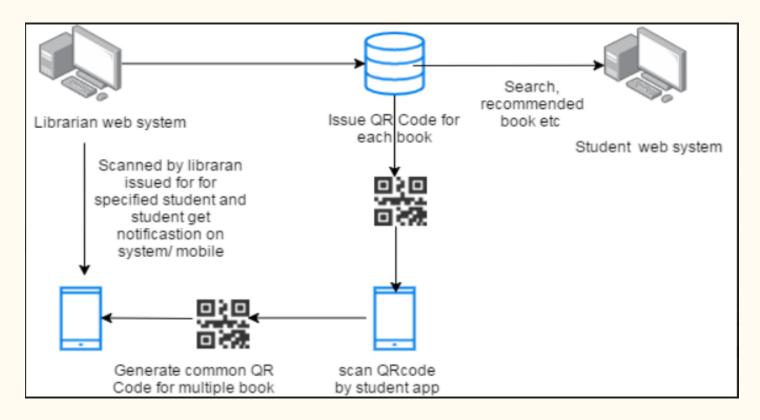- MySQL, PHP

1.7 Benefits for environment & Society

- Any education institute can make use of it for providing information about author,content of the available books.
- It can be used in offices and modification can be easily done according to requirements.
- Due to this massive changes come in library in terms of queue and time it is beneficial for both student as well as librarian.
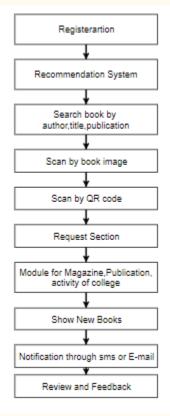
2. Project Design

2.1 Proposed System

- **Design**

Librarian web system

Issue QR Code for each book

Search, recommended book etc

Student web system

Scanned by libraran issued for for specified student and student get notificastion on system/ mobile

Generate common QR Code for multiple book

scan QRcode by student app

2.2 Design(Flow Of Modules)

2.3 Sequance Diagram

Search Section...

Java	Dropdown
Core java volume-1 Fundamentals	
Effective Java	
Java Concurrency in Practice	

2.4 Activity diagram

2.5 Class Diagram

Library
- -location
- -librarian id

Librarian
- -name
- -librarian id

- +issueStatus()
- +searchBook()
- +verifyMember()
- +issueBook()
- +payment()

Books Database
- -bookTitle
- -bookAuthor
- -bookId

- +update()

Patron
- -details
- -patronId

- +search()
- +request()
- +payFine()

Patron Record
- -patronId
- -type
- -dateOfMembership
- -noBooksIssued
- -maxBookLimit
- -name
- -address
- -phoneNo
- -finesOwed

- +retrieveMember()
- +increaseBooksIssued()
- +decreaseBookIssued()
- +payFine()

Vendor
- -bookDetails

- +search()
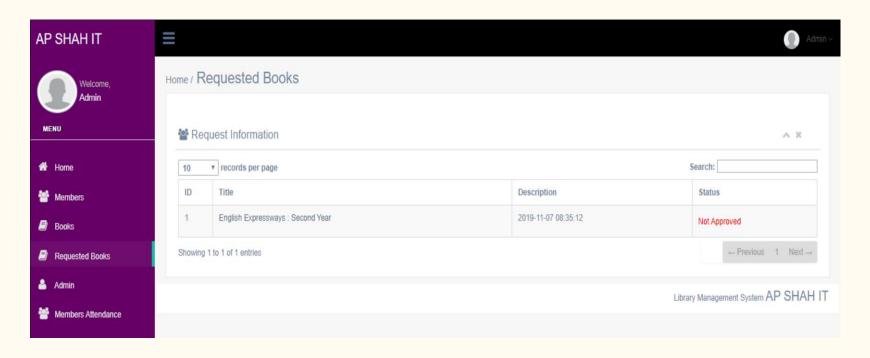- +supplyBooks()
- +paymentDetails()

2.6 Module-1(Recommendation System)

- A recommendation system broadly recommends books to students best suited to their department and Domain.

- When a recommender is well implemented, it can greatly reduce the information overload and guide the student towards the information or book he or she is looking for. A good recommender can make the user feel empowered to make the right decisions in a short amount of time.

- Such a user experience is good for profit and student retention.

Module-2(Request for a book)

- It help students in the way of if he or she wants a new book then he or she can request for a book to librarian in request module.

- If there is 10 book only and you want a book you can send request to librarian he or she will registering book by your name.

- This module is very helpful in respect to students as well as for college,University and office people.
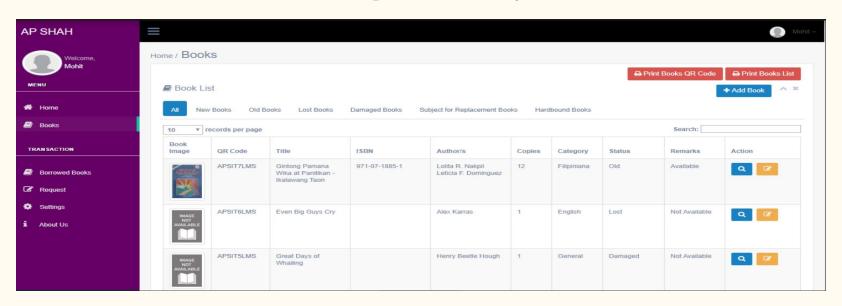
Module-2(continued)

Module-3(Notification)

- This module help students to remind them when they have to return the books.

- They can also get a message if they haven't return a book to the library on date and also get a message of fine for the late return.
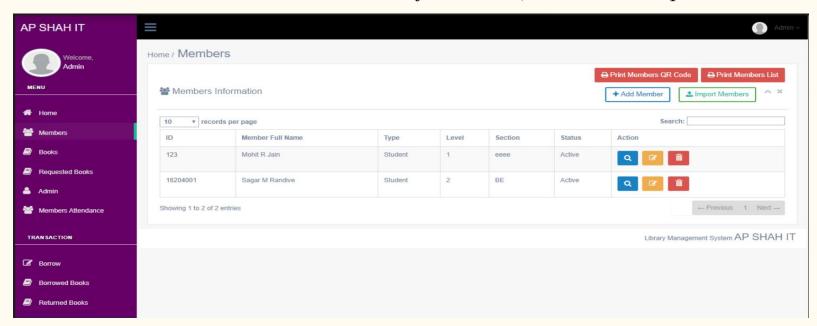
Module-4(Books)

- In this student can see the availability of books.
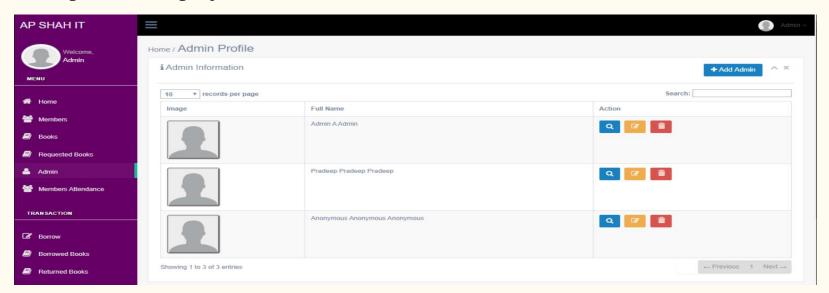- Also see the amount of books of a particular subject.

Module-5(Members)

- In this module admin can see how many students/members are present.

Module-6(Admin Profile)

● In this module if you want you can add admin.
● The part of this project is admin who can handle all this stuff.

2.7 References

- Development of an Intelligent Web Interface to Online Library Catalog Databases.

- Library in Everyone's Pocket With reference to Bundelkhand University App.

- National University Library System: A Mobile and Web Application Framework for National University Learning Resource Center.

- A Desktop Application of QR Code for Data Security and Authentication.

- Neurorehabilitation Control Application: Development Using Ionic Framework

3.Future Scope

Future Scope

- It will help student to find the good book for their better understanding.

- It will help to education industry to save their manual work.

- Where all the other way to save time and manual work are costly it is comparatively cheaper.

Thank You