Library Management System for Stanford

Business Analysis Professional (CBAP®) Certification

Simplilearn

By-

Yugandhar KB.

Stanford Library

Introduction:

Business analysis core concept model (BACCM):

Core Concept	Description
Need	To build a LMS which would help in organizing the 4 million books, reduce the clerical effort, and increase the productivity
Change	The traditional / manual system to software automated system
Solution	Develop a system that could organize, manage and handle more that 4 million books
Value	Helps students to improve their engagement with the library Helps in handling the books, magazine inventory System would help to maintain 4 million books Reduce clerical effort and increase productivity A LMS would help in cost reduction over current practice Management could get a report on daily basis for better performance
Context	Through this New LMS students can access library and can self-manage the inventory This new LMS gives the management a new and faster way of handling request

Requirement classification schema (RCS):

1. Business requirements:

- The new LMS should help the library staff to manage the library with ease and stress free.
- The new LMS needs to be users friendly
- The new LMS should provide inventory management
- The new LMS should help the library team to handle the fine collections.
- Cost reduction to management through clerical effort reduction
- The system should provide various books, Magazines, Research papers and journals.

2. Stakeholder requirement:

- The LMS would save considerable amount of time for the library management.
- Students can return/renewal their books anytime
- Inventory manager can easily maintain more than 4 million books inventory easily
- Management would generate reports for better performance
- The overall library operating cost would go down
- There would be an up-to-date records available for books, research papers, magazines and other materials available at the library

3. Solution requirement:

Functional Requirements:

- Every book should have RFID and scanned before issuing so that the
- System could track the book with scanning with RFID at the exit.
- The system should be user friendly and should be accessible to the students and the library staff.

- All students can check the availability of the book, if not they can request or wait in queue for the book
- Students/Library staff should be able to easily search the books upon category/alphabets.
- An RFID Drop box should be available for the student so that they can drop off books anytime.

Non-Functional Requirements:

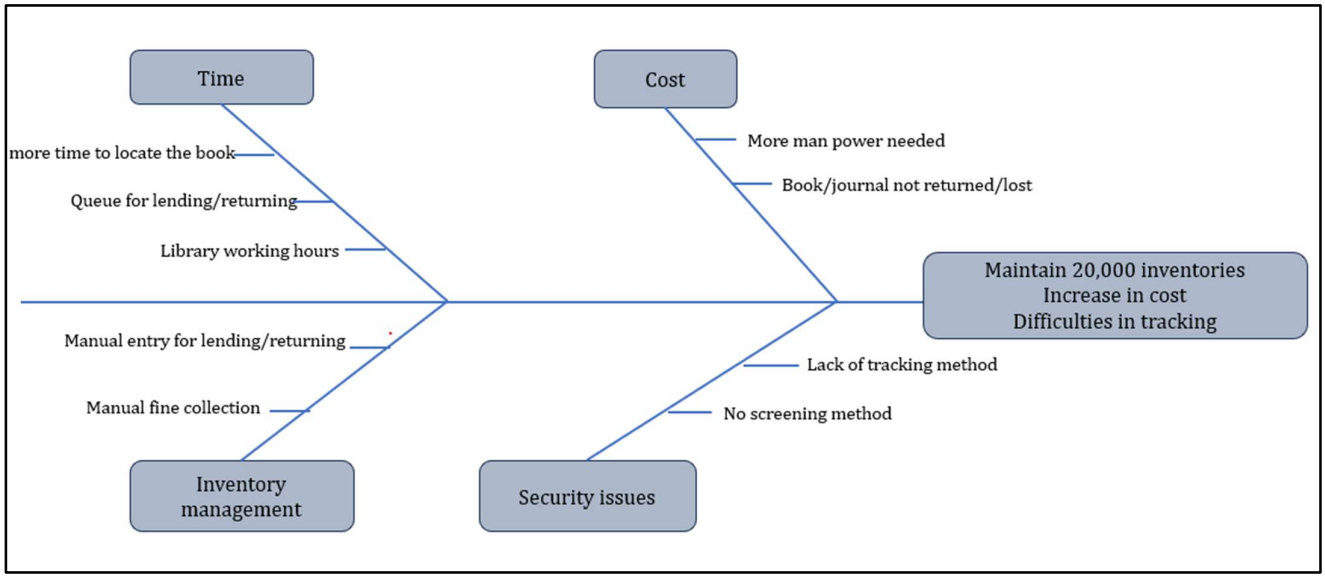
- The System should be self-explanatory and should be very easy to use.
- Train all the Library Staff on the new system
- This library management system is required to support a volume of more than 20,000 students
- The screens should be self-explanatory and very user friendly
- System should be highly secure, scalable, and reliable

Transition Requirements:

- The user should be trained, and IT helpdesk should be available solve user's issues
- System should be secured and protected.
- LMS should be available in all kind of mobile devices

Root Cause Analysis (RCA):

The issues/Problem with the old system is presented by a fish bone diagram below to deeply understand why we needed a new system in place.



Task 1: Identifying Stakeholders:

RACI-Matrix

Responsible: Stakeholder who will be performing the work on the task

Accountable: Stakeholder who is ultimately held accountable for successful completion of the task and is the decision maker. Only one stakeholder receives this assignment

Consulted: Stakeholder or stakeholder group who will be asked to provide an opinion or information about the task. This assignment is often provided to the subject matter experts (SMEs)

Informed: Stakeholder or stakeholder group that is kept up to date on the task and notified of its outcome

Stakeholders	Responsible	Accountable	Consulted	Informed
Supplier	**R**			
Tester	**R**			
Operational support (IT)			**C**	
Implementation SME			**C**	
Project Manager		**A**		
Library Manager	**R**			
Students				**I**
Library staff	**R**			
Inventory manager	**R**			
Business Analyst	**R**			

Task 2: Identify the problem statement in this system

- More time is wasted manual library system.
- More number of staffs required to manage the library is high.
- Manual fine calculation is time-consuming process
- Difficulty in manage 4 million books
- Students could return the books only in the library working hours.
- No reports could be generated due to the manual system.

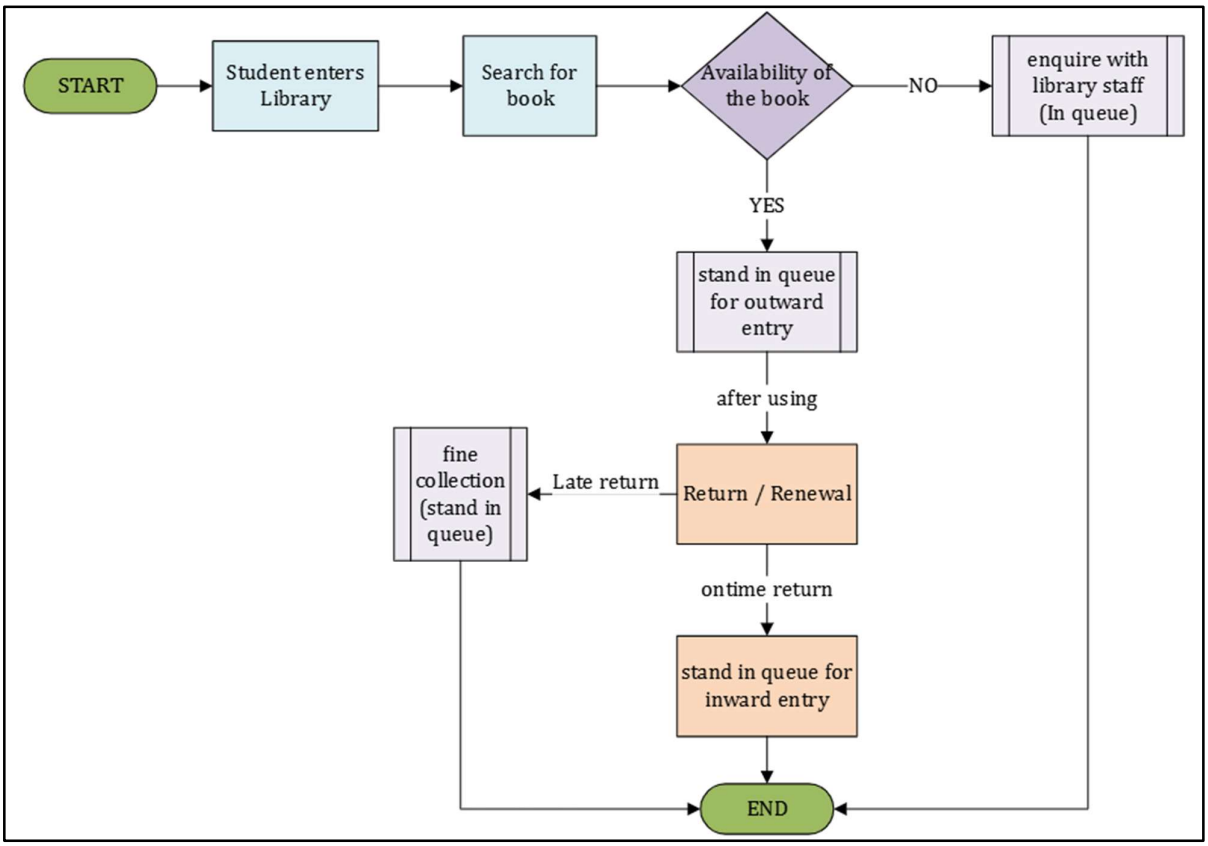
Problem Solution:
Using the library management software one can find books with a click, lend/renewal books. New LMS manages all the data efficiently and gives immediate and accurate information regarding book, magazine, or research paper, therefore saving a lot of time and efforts.

Task 3: Identify advantages of the new Library Management System

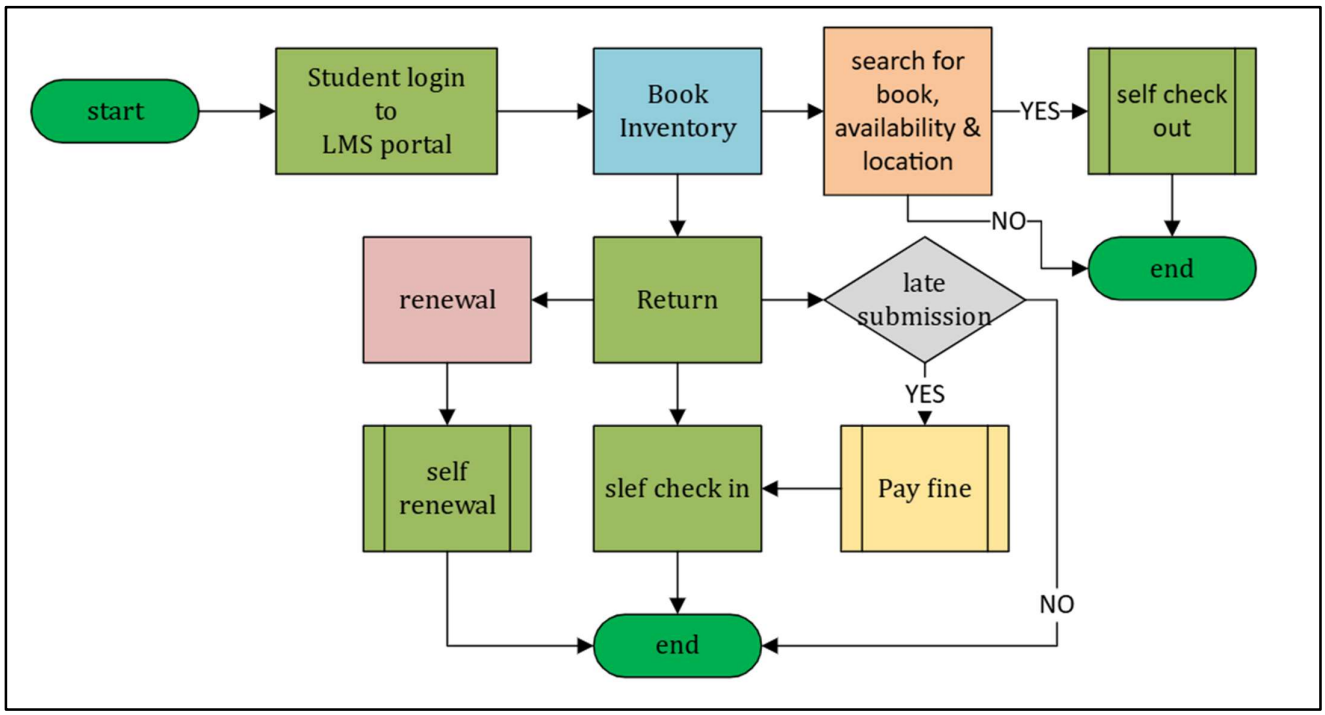
- Reduce clerical effort and increase productivity
- Lending, returning and renewal of books / journal made easy
- Cost reduction for the university management
- Available updated records at any point of time
- Improve student engagement with library

Task 4: Create as-is and future process map

As-is Process map

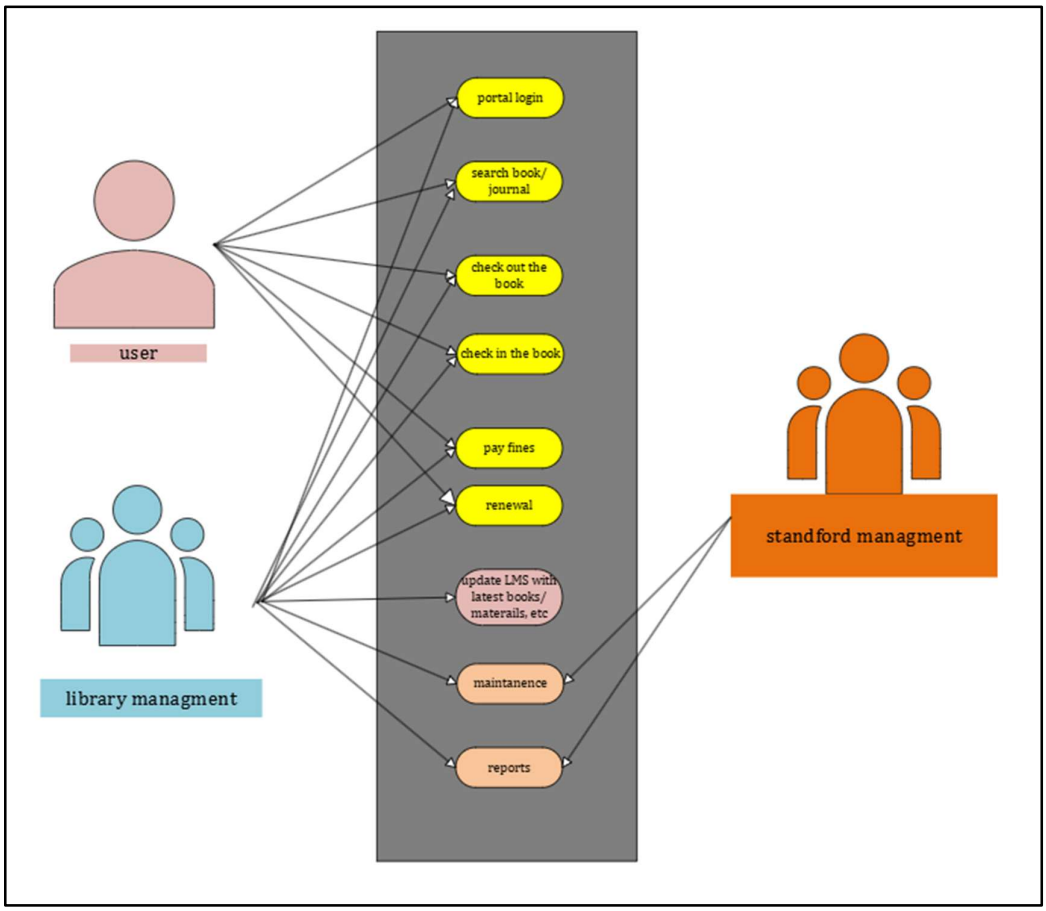


Future Process Map



Task 5: find out the scope of the Library Management System

Use case Diagram (UML)



Task 6: Write down the main features that need to be developed

- A LMS with records of different categories of material available in the library like books, magazines, research papers, journals, and newspapers.
- Classify books subject wise.
- Different issuing periods for books, magazines, research papers, journals, and newspapers.
- RFID tag on each reading material to record and store in the database.
- Author, book name, publisher name, book edition, date and year of publication, cost, and date of purchase to be recorded for each reading material.
- Student ID and RFID tag to be linked to issue books.
- Record the issue date and return date of the book.
- An automatic calculation of fines in case of delayed return of books.
- Search of books with their criteria
- User being able to check for date of return in the LMS website or app.
- E-Mail reminder 3days before the return date.
- Access to E-Resources.
- Install RFID based anti-theft system.
- Install drop box to return book with RFID Tag.
- Timely automated reports to the management.

Task 7: Write the in-scope and out-of-scope items for this software

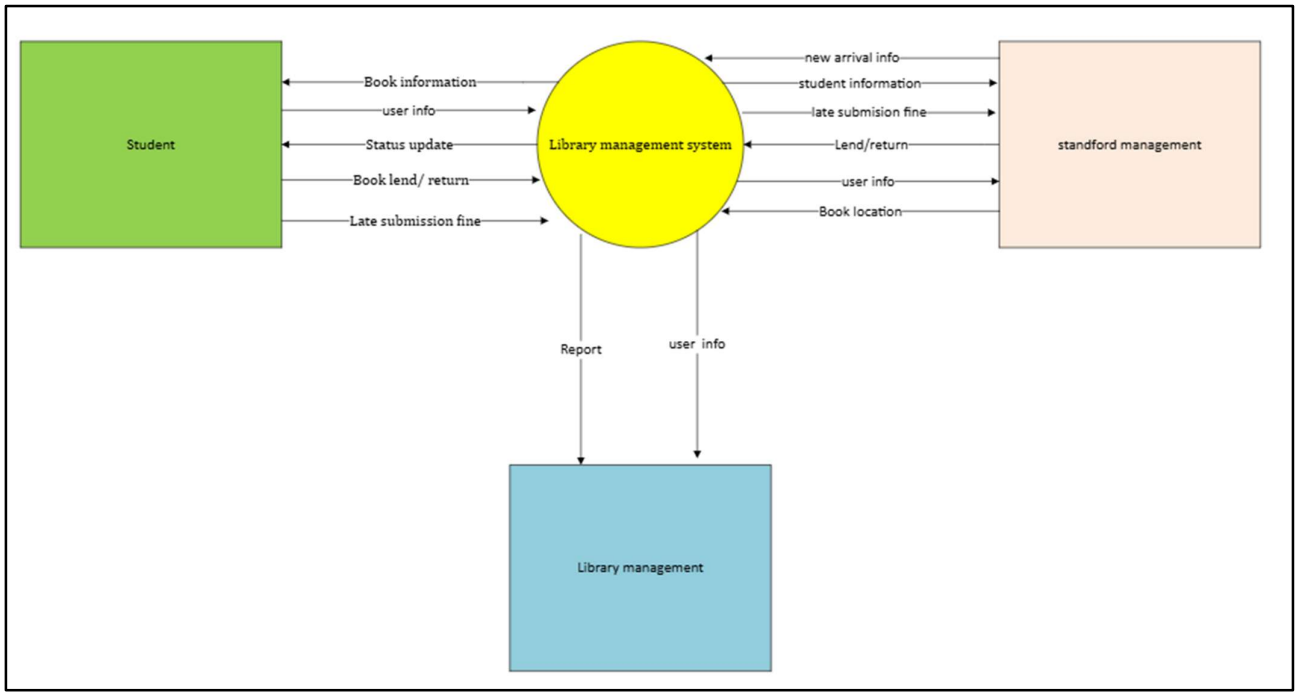
In-Scope

- Managing and Categorizing books and journals in the system
- Issue the books in the system
- Fine Calculation in the system
- RFID based Tracking of books via the LMS
- Access to LMS for Library Staff via mobile and Web.
- Access to free journals for student via mobile and web
- Better Management Report covering aspects such as – Total fine collected, Count of books available, ageing of each of the books, most and least rented books, lost or damaged books, availability of number of books at any given point of time.

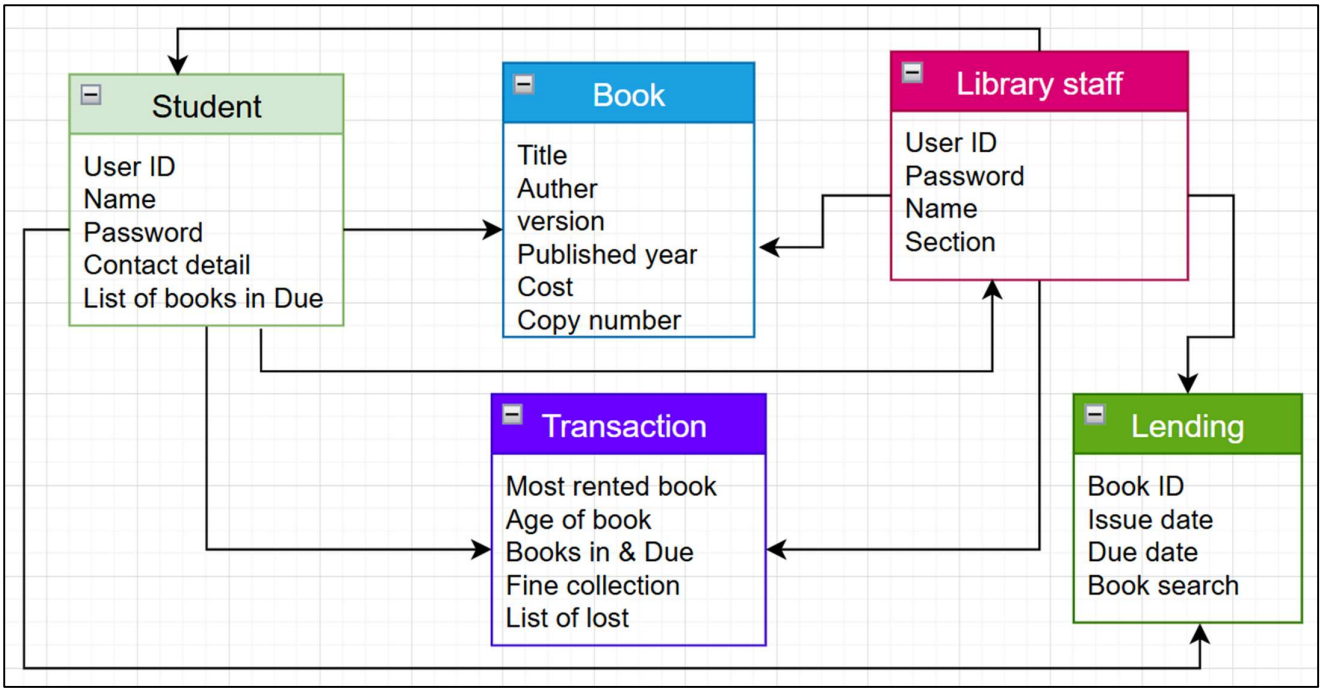
Out-of-Scope

- Issue the book online
- Re-issue the book online
- Pay the fine online
- Memberships
- Return the book via mail/postal service
- Lending Newspaper

Task 8: Draw a data flow diagram for the system



Task 9: Draw an ER diagram of the system



Task 10: Write out the Business Requirements, both Functional and Nonfunctional Requirements

FUNCTIONAL REQUIREMENT

- Records of different categories of material available.
- Classify books subject wise.
- Set issuing period for each type of material.
- Tangible resources fixed with RFID tag containing all data about the resource.
- Facility to link student ID and RFID tag to issue.
- Automatic calculation & update of return date and fine.
- Find books with their criteria.
- Automated user reminder.
- Anti-theft system using RFID technology.
- Drop box station.
- Automated statistics.

NON - FUNCTIONAL REQUIREMENT

Environments:

- Create and maintain program in JAVA.

System Requirement:

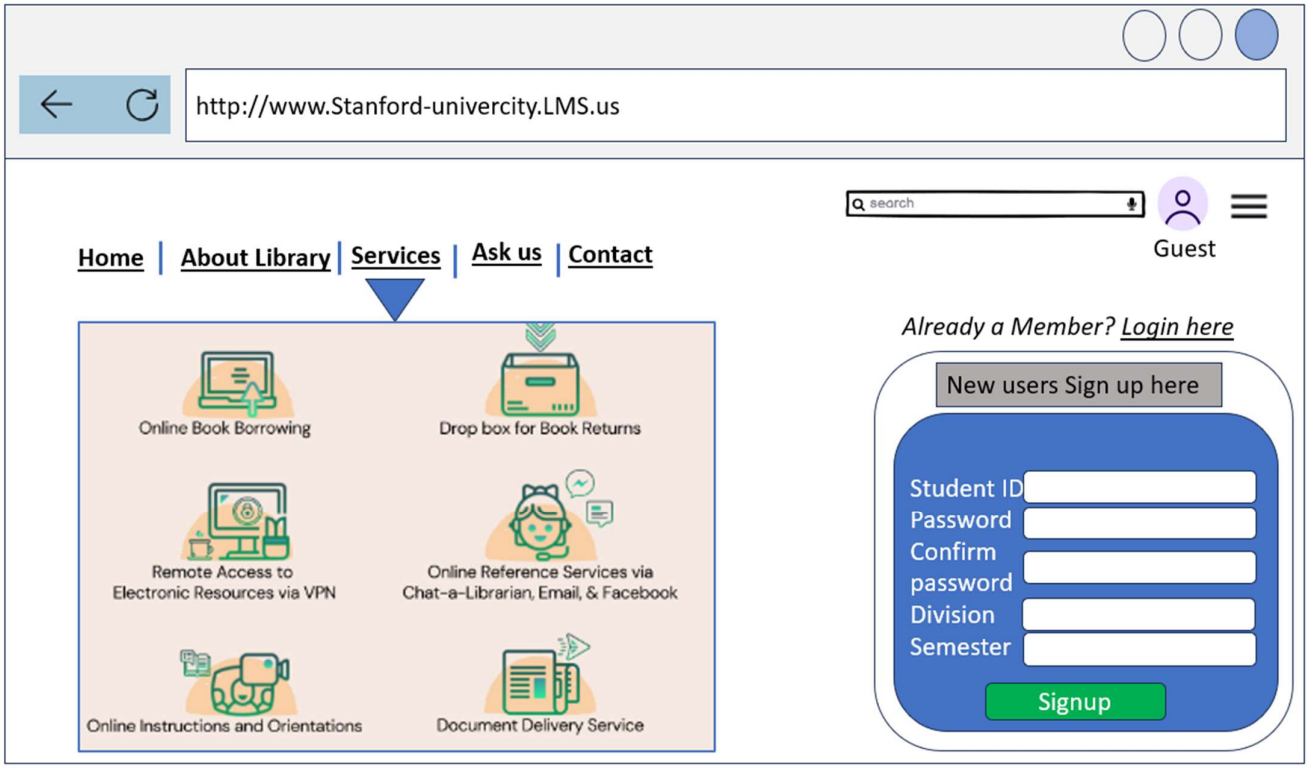
- LMS can be used on any Windows and MacOS run computers.
- Users will need an active internet connection.
- It will be RFID ready
- Auto scheduled tasks like emails and database maintenance
- Data should be stored in cloud.
- Highly secure, scalable, and reliable

Usability:

- Self-explanatory and very user-friendly screen.

Task 11: Draw wireframes or mock screens for any 2 of the features namely book record creation and any other feature as deemed fit by the student

Mock screen-LMS portal-home page



Mock screen- LMS portal- student login