ABC Library

STAKEHOLDERS

ACTOR	What he can do on the Software Created
Student	- Student can select the book on software and later he can collect hat book from the checkout counter from the library staff. - Using the software student can see the return date of the book. - Student will get reminder email 3 days prior to the return date of book. - Students can access free e-books and e-journals through the software. - With the help of the RFID, student will able to return the book anytime in the book return drop box
Library Staff	- Library staff will able to see the book ordered by the student using the RFID reader and then can deliver that book at the checkout desk. - Library staff will be able to search the book as per the different by different search criteria.
Management	- Management will receive the various report mentioned below Book are most rented Issued and unissued material in the library Lost book information Total number of items in the library - Management will able to calculate the late submission fine as per that day, week & month. - Management will able to track the age of books and also the up gradation (latest version) in the book.

PROBLEM DEFINITION AND SOLUTION

Problems:

- Current library system was build up for a limited number of people but now it has grown up very drastically so library staff is facing many problems in day to day operations. It also becoming very difficult to keeping the record of 4 million books.
- Library has 4 million books and it's very difficult to record on the manual system.
- High number of manpower is needed for the running manual system.
- Current system is very much time consuming.
- In manual system library staffs are facing difficulties to calculate the late return fine.
- Students are only able to return the book the library working hours.
- Management is not able to make an report due high number of book values depends on manual system.

Solution:

- We will create LMS software. By using that software student and library staff can search the book within a click.
- Will create a system which will manage the data in efficient manner. It will also give the accurate and immediate information about the book.
- With the help of LMS will manage the items as per the different criteria.
- Proposed system will calculate the late return fine by itself.
- Using the LMS management will manage the library with less staff.
- LMS will create the different records and it will send it to the management.
- Using RFID drop box students will able to return the book in off hours.

Advantages of LMS

Advantages of Library Management System:

- LMS will reduce the workload of the employee and it will result into the productivity of library staff.
- LMS will reduce the library operational cost.
- Using this software student and will be able find the book very easily as per different categories.
- LMS will build a different report and it will help management to the further decision making and for the delivering better business values and customer service.

EXISTING SYSTEM

- Current system is operating the library with manual system i.e. pane and paper system.
- In existing system staffs are recording the book issue and return entries on paper register.
- In this system also management is charging the late return fee but manual fine calculation are becoming very hectic for the staff.
- In current system, students have some limitations on the returning the book.

PROPOSED SYSTEM

- User friendly interface
- System will have web and mobile interface
- Different item categories
- Book will have RFID tag
- Automatic fine calculation
- Option to search book by categories
- Book return due date reminder email
- Free access of e-book and e-journal
- Anti-theft detection
- Book drop box station (24 hours access)
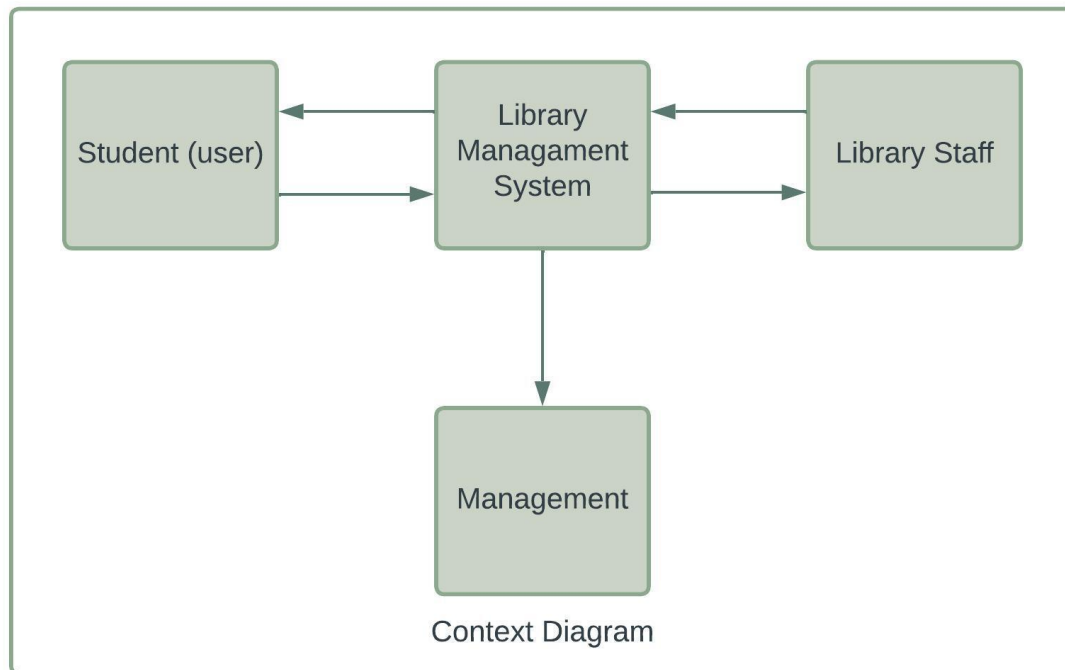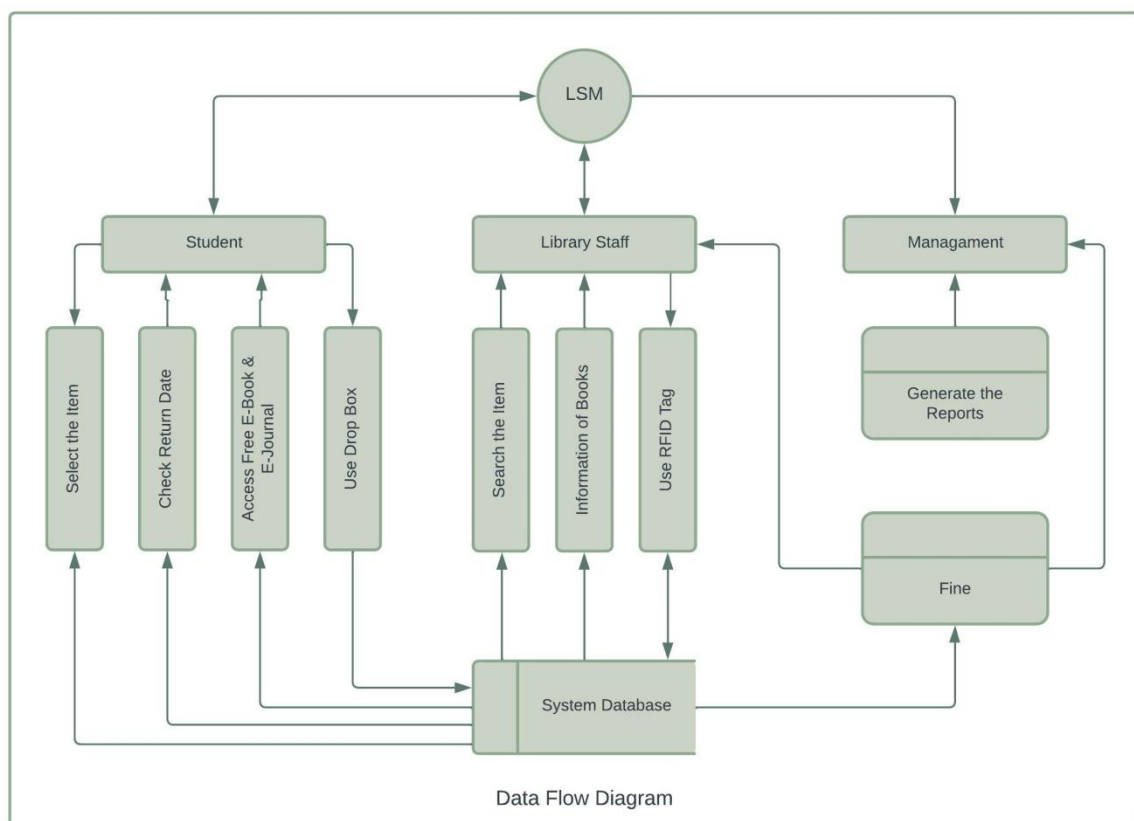- System will generate the report for the management

- **Flowchart for LMS**

Flowchart
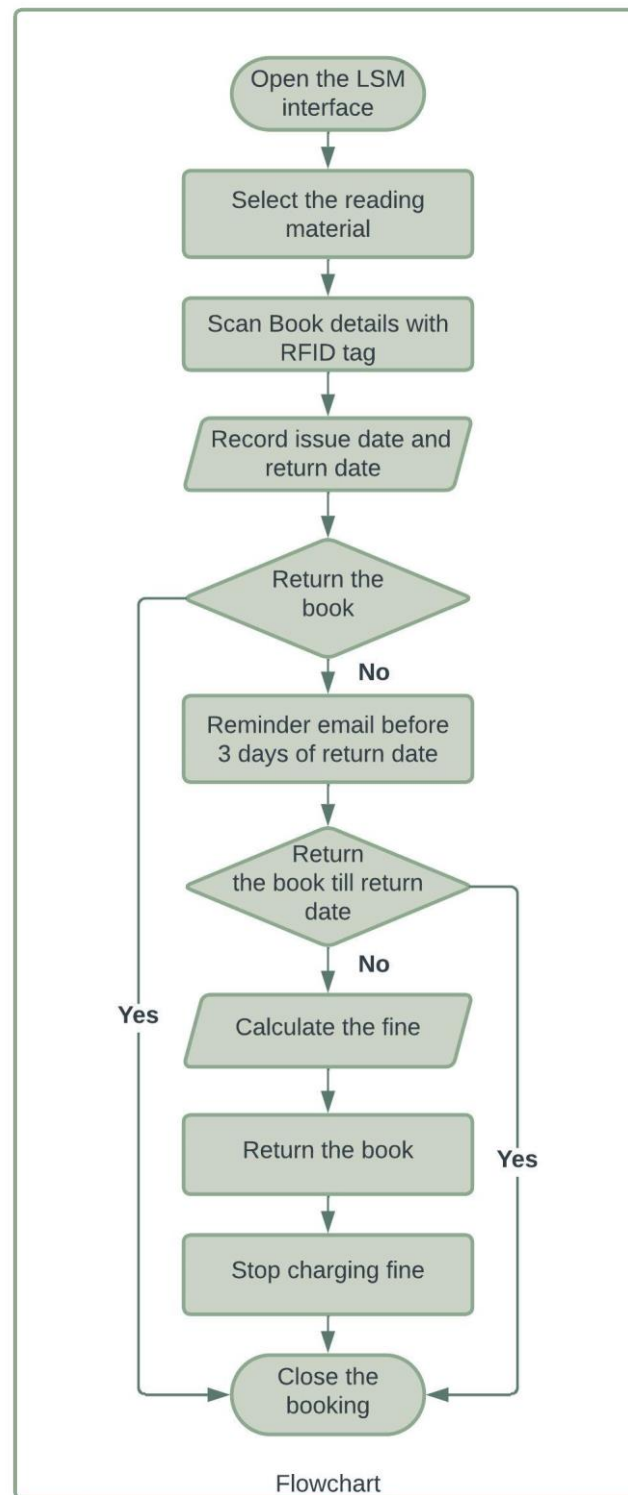
SCOPE using Use Case Diagram (UML)

Use Case Diagram
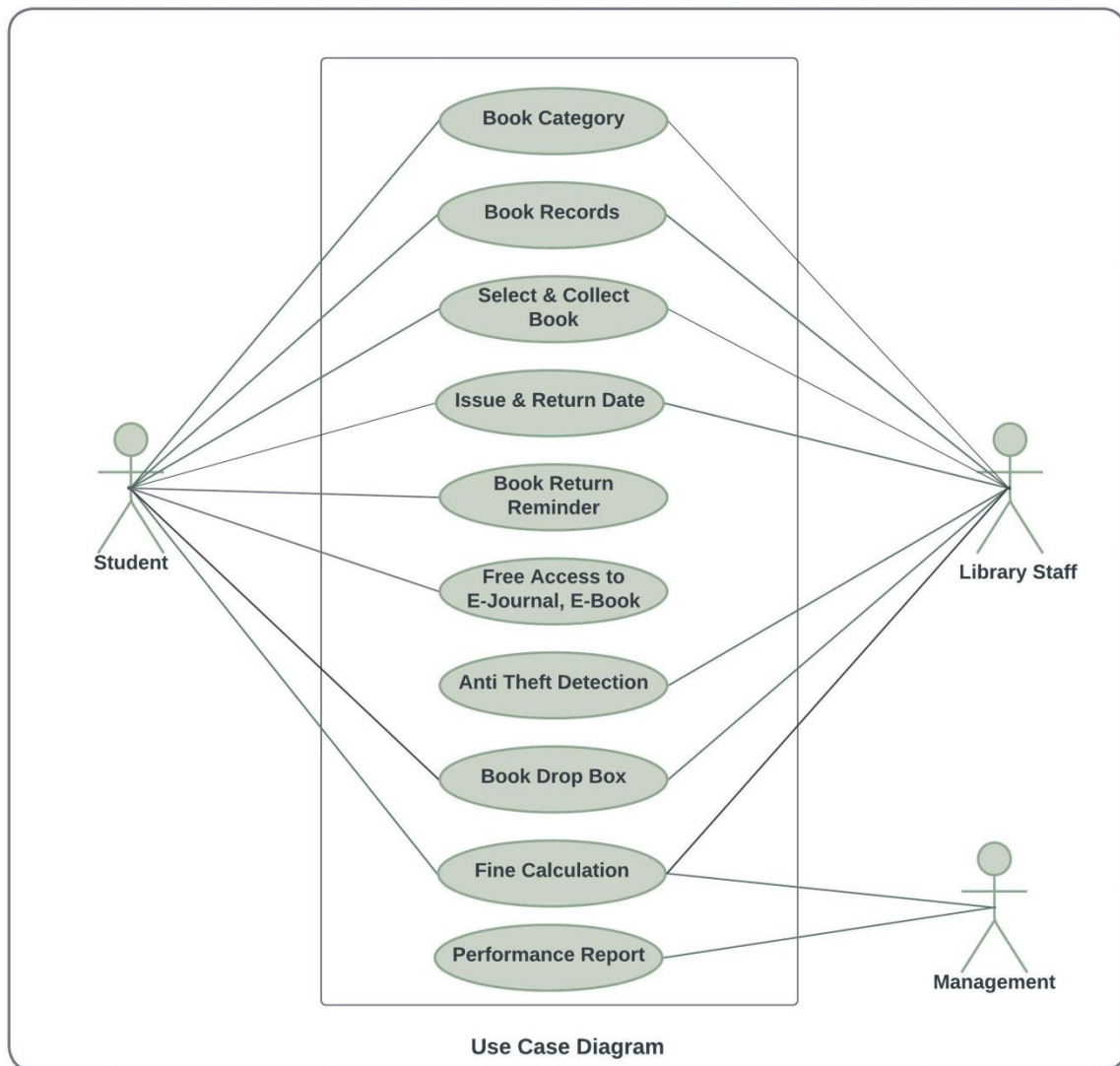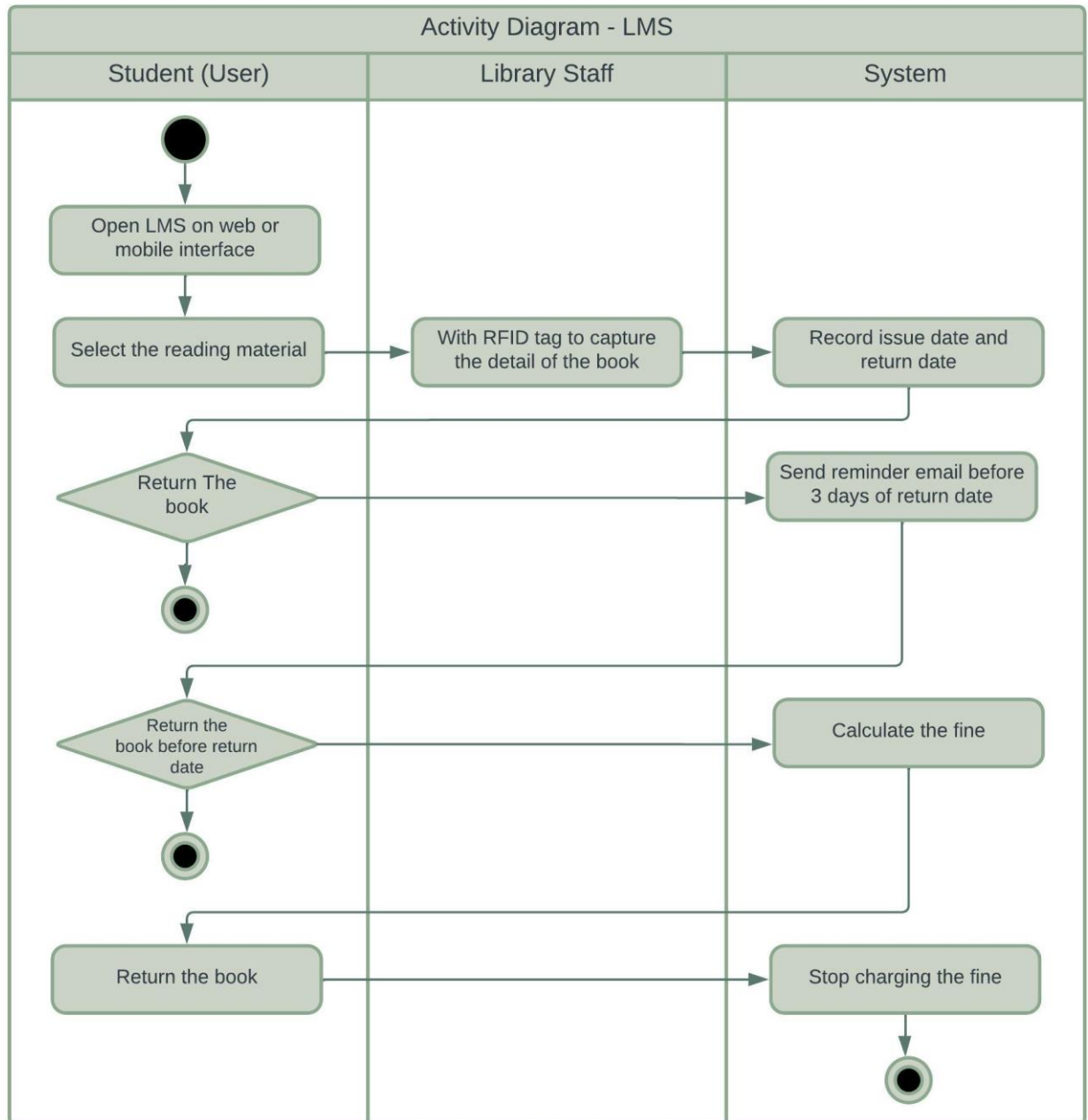
SCOPE using Context Diagram

Context Diagram

DATA FLOW DIAGRAM

Data Flow Diagram

ACTIVITY DIAGRAM

IN SCOPE

- System will have web and mobile interface
- Different item categories
- RFID tag & RFID reader
- Fine calculation
- Record the book details
- Search book by categories
- Book return reminder email
- Free access to e-book and e-journal
- Anti-theft detection
- Book drop box station (24 hours access)
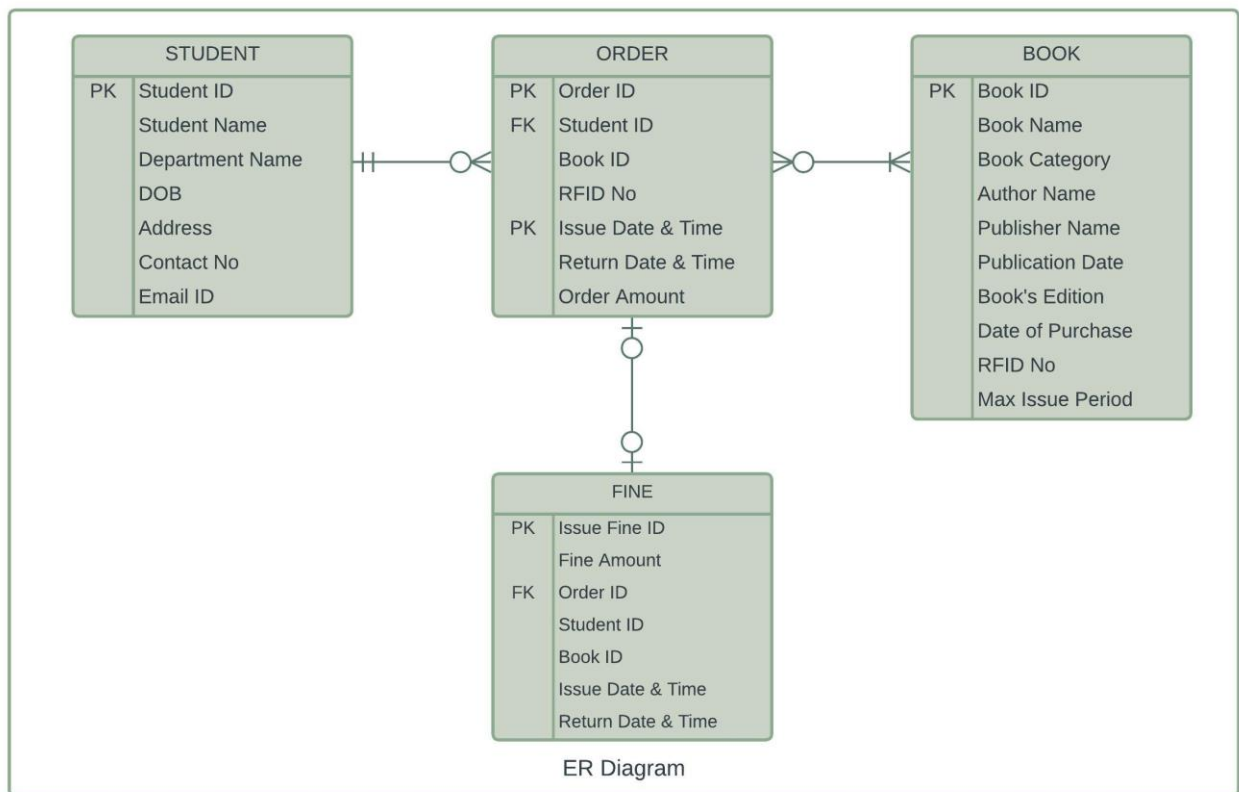- Generate the reports

OUT OF SCOPE

- Student access to check to fine and pay online.
- Feature for library staff to edit previous book records.
- Future book availability.
- Check booking history.

Wireframes:

The wireframe of 'library employees to create new records for book '

ER DIAGRAM FOR THE SOFTWARE

ER Diagram

FUNCTIONAL REQUIREMENTS

- Write down all the functional requirements for the system in a list format.
- The LMS should record different categories of material.
- Set different issuing period for different categories of material.
- Student should able to search select the material which they want to read.
- Library staff should able to use RFID reader to capture the details of the book.
- Library staff should able to search the book as per different filters (criteria).
- Generate issue date and return date.
- In case of delay return system should automatically calculate the fine.
- Create record of each reading material using unique RFID tag.
- Student can check the return date of their book on web and mobile interface.
- Using book drop box with RFID reader student should able to return the book any time.
- System should cancel the loan when student deposit book in drop box.
- Using book drop box with RFID reader student should able to return the book any time.
- System should provide anti-theft detection using the RFID reader.
- Student should have free access to e-book & e-journals.

NON-FUNCTIONAL REQUIREMENTS

- System should send reminder email to student before 3 days of return date.
- System should create various reports for the management.

System Requirement:

- LMS should support Windows & MacOS.
- To use the system users will need the internet connection.
- System should contain RFID (NCIP 2.0 HTTP).
- Need cloud space to save the data.
- System should perform auto schedule task.
- LMS should be highly secure and reliable.

Usability:

- Should be user-friendly UI.
- Should be self-explanatory UI.
- Very simple data field which is easy to understand.

Environments

- We are creating and maintaining the system in Java