

LAB : 5

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Question: 1

A few ambiguities and omissions are:

1. Can users search for the destinations? Instead of showing potential destinations only? [Ambiguity]
2. If the selected destination train becomes just full, then how would this case be handled? [Omission]
3. If the user booked the wrong destination then how can the ticket be canceled? What should be canceling criteria like as per the remaining time, the returning amount is to be decided. [Omission]
4. What if the train got canceled after we parched the ticket? What will be the procedure to get the refund[Omission]
5. How can customers give feedback about the booking experience? Or how can they give any suggestions? [Omission]
6. Can the user select the type of seat (sleeper/seater/AC / non-AC) after selecting the destination? [Omission]

7. Can users select specific seats like window seats or can they select specific berths like lower, middle or upper? [Omission]
8. Will the system show the no. of seats which are available for reservation (booking) and train info like arrival time, departure time and platform number?[Omission]
9. Does the User need to reopen the app every time for booking several tickets or they can book the tickets at once? If users can book many tickets together then the destination should be the same or different? [Ambiguity]
10. Once the ticket is issued, how the user gets the ticket is not mentioned. Does the machine print the ticket, or is it sent via email, or is it shown on the screen. or if the system is automated and the ticket checker gets the ticket in his database and the user just needs to tell his ID and the ticket checker will look for active tickets by that ID for the day. [Omission]
11. Only one payment option is available. Other options like debit card, cash, UPI should also be available. There is no mention of invalid credentials and how they will be handled by the system. [Ambiguity, Omission]
12. What type of confirmation do we have to provide the customer, a text message? In case of a text message, when is the mobile number or mail address asked as input? [Omission]
13. Suppose I am at station X but I want to buy a ticket for station Y to Station Z, if possible has not been clarified. Are the tickets available in advance, for example, can I book a ticket for a journey 1 month in advance? Do I get to select a seat of my choice if available? Are the arrival and departure times dynamically updated if I have booked my ticket 1 month in advance? Can it handle the case when it needs to send a reminder before several minutes that you have booked this ticket and your departure time in some minutes? [Ambiguity, Omission]

Question: 2

The Functional Requirements are:

1. **User Registration:** If the new students, professors arrive at the institute and they want to use this system then they should be able to register themselves using the email id provided by the institute only, for subsequent transactions they would have to use this email id and password only. The user will have to verify his/her identity by clicking on the link that was sent on the registered email id. Library managers are personally provided ID passwords from administrations.
2. **User login:** Verified users can log in to the system otherwise requests would be denied. After successful login, the user will be redirected to the home page.
3. **Change or Forget Password:** In this case, users will have to enter an email id to receive the link to change the password, if the email id is registered then they would get the mail on that ID along with the link to change the password for this account.
4. **Home page:** The home page should show new arrivals, trending books that are currently available at the Library. After the user starts using this system, the home page will show the books related to the user's interest.
5. **Search books:** This feature is available to all registered and non-registered users. There should be a button to issue the book. This button will be enabled if the book is available and the user is a verified user.
6. **Issue book:** Once the user has clicked the issue button from the home page or search item, the system will check the following points
 - If the book is currently available,
 - User has already issued some number of books that user has not achieved the maximum number of issued books
 - If the previous book issued has not crossed the due date

If these cases are true then only the user can issue the new book. The count of the total issued books on user's accounts and returning time of the book will also be updated on the database.

7. **Physically Taking the books:** Once the user has issued a book user will have to take it physically from the library, if the user does not come and take the book in 3 hours then the user book issued will be canceled and the user will have to reiterate through the issuing process.

At the time of physically issuing the book, the library manager will update the database that the user has taken the book.

8. **User Profile:** Registered users can manage all the transactions like currently issued books, wishlist, issued book history, the deadline of currently issued books, reissuing books from a user's profile.
9. **Extension of keeping the Issued book:** If the user later realizes that he/she will need some more time to use the book, then they can simply reissue the book from their profile on the LIS system. Users can reissue the book continuously 3 times only, after that they will have to return the book.
10. **Returning Books:** The user will be sent a notification on the deadline of the returning currently issued book before one day, the next day the user will have to physically go there and return the book. The library manager will again update the database that users have physically returned the book. Accordingly, **User issued book history and Library transaction** history will be updated. If the user doesn't return the book on time **then the fine will start applying** to the user's account, after a certain limit of days the account would be blocked and the user will have to first return all the pending dues and books to reactivate the account.
11. **Automated mass mail for newly added or deleted books:** Will automatically mail the institute members of newly added books or deleted books, so that they can stay informed.
12. **Add and delete feature:** librarian can update newly added books and delete old books
13. **Pre-booking of the book and waiting list:** If some books are in great demand then there should be a Pre-booking mechanism and waiting list for the same book so all the users get an equal amount of time (justice).

The **Non-Functional Requirements** are:

1. Service should be available at all times.
2. The system should be able to handle multiple users simultaneously searching for books.
At least 100 users can access the system together.
3. Login can be done only when connected to the college LAN.
4. Passwords should be encrypted and not in plain text for security purposes.
5. Affiliation with Institute's database of institute members.
6. Database for books: For maintaining the record of deleted and updated books and a total number of books.
7. Same copy of the book can not be issued to different users at the same time. (Transaction should be atomic)