

Question 1

Ambiguities:

1. Can users select the date of travelling?
2. How will the user give their input? Touchscreen like an ATM or keyboard?
3. Selection of Adult or child or senior citizen. Because the cost of the ticket may differ.
4. Type of ticket? First-class, second class or a normal ticket.
5. Can we buy multiple tickets?
6. Will the Personal Identification Number be verified?
7. Can a customer cancel a ticket? (In case the user changes his/her mind)
8. If the user wants to buy another ticket for a different destination, will he need to go through the whole process again?
9. A menu for destinations is there, but is there a menu for different trains for the same station? The arrival and departure times are displayed?
10. Is there some functionality of a waiting list?
11. How will the user get a confirmation for payment? Print a receipt or SMS or mail?
12. In how many days, would the amount of the cancelled ticket be refunded?

Question 2

Functional Requirements.

1. **New User Signup:** Any student/faculty/staff of the institution can register on the Library Information System (LIS) with their institute email address. Upon registration, they will get a username and password that can be used whenever they use the LIS again.
2. **Login:** Any registered user can login with his/her username and password and access the system for issuing, returning etc.
If a wrong password is entered while logging in or an unregistered user is trying to login, an error would be displayed and they will not be allowed to access the LIS.
There will be an option of a “forgot password”, which will send an email to the registered email ID.
Any user who has logged in will be able to access their own records containing the details of the books they have issued, their return dates etc.
3. **Search Books:** Any user can search for a particular book that is available in the library, including non-registered users. Users can search by Authors, Publishers and Book Titles. The details of the book including the author, genre, year of publication will be displayed. There will be sections displaying the new arrivals, best sellers and popular books. Logged in users will get recommendations based on their reading/search history.

- 4. Issue Books:** Only a registered user will be allowed to issue books from LIS.
If a book is there in LIS records and no other users have issued it , then that book can be issued. The issued book will be added to the user's account with a return date attached to it.
There will be an upper limit to the number of books that an user can issue at a time.
If there is any book that has crossed its return date and has not been returned yet, then that user will not be allowed to issue another book until that non-returned book is returned.
- 5. Return Books:** Issued book should be returned within the deadline date. Once the book is returned, the user account will be updated for the same. There will also be a penalty for the non returned books, charged on a per-day basis.
- 6. Reissue Books:** Only a registered user who has previously issued a book and wants to reissue it before the return date can reissue it. If there is a greater demand for the book, the user might not be able to reissue the same book again. A book can be reissued only twice.
- 7. Check Return Status:** The user will be notified a few days prior that he needs to return the book(s). If he doesn't return the book even after the due date, the user will be flagged and he/she cannot issue a new book until he returns the book. There will also be a penalty for the non returned books, charged on a per-day basis.
- 8. Update Records:** Librarians have the privilege to update records regarding the book's arrival or removal. He/She can increase the count of books or can add new books to the database. He/She can similarly decrease the count of books or can remove books from the database.

Non-functional requirements

- 1. Usability:**
LIS should be easy to use for both the users as well as the librarian, the user should be smoothly able to use all it's functionalities while the librarians should be able to handle all issues/returns and access the user's records with ease.
- 2. Performance Criteria:**
A certain minimum number of users should be handled by the system at any given time.
Example: a hundred users.
The system must be accessible 24*7.
- 3. Security:**
The LIS can be accessed only with devices connected to the institute's Local Area Network.

The system should use ciphertext to store the password of the user.

4. Design :

LIS should be able to run on various browsers like Firefox, Chrome version 12 and above, edge version 15 and above .