

# **IT-314 (System Software)**

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## **Q1: Identify FRs and NFRs:**

The institute has been recently set up to provide state-of-the-art research facilities in the field of Software Engineering. Apart from research scholars (students) and professors, it also includes quite a large number of employees who work on different projects undertaken by the institution. As the size and capacity of the institute is increasing with the time, it has been proposed to develop a Library Information System (LIS) for the benefit of students and employees of the institute. LIS will enable the members to borrow a book (or return it) with ease while sitting at his desk/chamber. The system also enables a member to extend the date of his borrowing if no other booking for that particular book has been made. For the library staff, this system aids them to easily handle day-to-day book transactions. The librarian, who has administrative privileges and complete control over the system, can enter a new record into the system when a new book has been purchased, or remove a record in case any book is taken off the shelf. Any non-member is free to use this system to browse/search books online. However, issuing or returning books is restricted to valid users (members) of LIS only. The final deliverable would be a web application (using the recent HTML 5), which should run only within the institute LAN. Although this reduces security risk of the software to a large extent, care should be taken no confidential information (eg., passwords) is stored in plain text.

## **Functional Requirements-:**

1. The Library Information System (LIS) should be developed efficiently in accord to the increasing number of students & books .
2. In any case of data leak the system should collapse to prevent the data from leaking.
3. The administrator must have all the privileges to remove and allow any user, regarding any book.
4. A proper maintenance of the book issuing and the validation of the membership should be kept.
5. A verification of the user should be done.
6. Any new member should be allowed to visit the library but should be prompted for the membership before getting access to the books.
7. Updation of the new books , current books should be done.
8. Newspapers, journals, and other periodicals are referred to as "periodicals" to be managed. Its responsibility is to manage the publications in a proper manner
9. The web-application should be accessible only in the institute LAN only.
10. The system should give a reminder to the librarian for the overdue books.
11. If no other booking has been made for that specific book, the system ought to additionally allow a member to prolong the duration of his borrowing.

## **Non-Functional Requirements-:**

### **1. Usability:**

The primary non-functional need for a library management system is usability. Everyone should be able to understand the user interface (UI) and find the necessary information without any extra training. Depending on the needs, other languages can be offered.

2. Users should be given an option to save passwords for efficiency in logging into the system.
3. System algorithm should be able to recommend books to the user on the basis of the information it gets from the users wishlist as well as the history.
4. The software must be as simple to add new features and modify as possible, and it should be simple to maintain. Additionally, the software needs to be portable.
5. System should be endowed with the notify feature so that the user can get to know when the desired book will be available.
6. System should be able to minimize the output lag and execute the query as soon as possible.
7. Adding any new feature to the system should be simple.
8. The system should be fast enough to solve the query of the user.

**Q2: Identify scope, features and non-functional aspects of the following problem.**

Approximately 5% of the world population (or a staggering 466 million people) suffers from disabling hearing loss. We set out to create an impactful solution for this community that addresses some of their everyday needs. Our mobile application uses artificial intelligence to recognize key sound events of interest to this community, such as car horns and babies, where immediate alerts and continual logging are critical for the user. This app is optimized for Android with low-latency so that it works in real-time for use.

### **Scope:**

1. There should be an initiative to make a smartphone app for those who have hearing loss.
2. To recognise significant sound occurrences, such as car horns and babies, use artificial intelligence should be promoted.

### **Features:**

1. Provides prompt alerts for locating sound events.
2. The users who are suffering benefit from continuous logging..
3. preserving information about sound events for future usage.

### **Non-Functional Aspects:**

1. working immediately.
2. made with Android in mind.
3. Real-time functioning is ensured via low latency.