

IT 314

Lab 1

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Q.1. 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.

Ans:

FR(Functional Requirements)

1. The ability for members to borrow and return books from their desk/chamber.
2. The ability for members to extend the date of borrowing if no other booking has been made.
3. The ability for the librarian to handle day to day book transactions without any difficulties.

4. The ability for the librarian to add new records and remove records from the system.
5. The ability for non-members to browse and search books online.
6. The feature of issuing or returning books should only be given to members of the LIS.
7. The LIS should only run within the institute LAN.

NFR(Non Functional Requirements)

1. Confidential information such as passwords should not be stored in plain text within the LIS.
2. The LIS should be accessible to multiple users at the same time.
3. The LIS should not have any restrictions on the number of users who can use the software.
4. Reduced security risk of the software due to application running only within the institute LAN.
5. The web application should be made using the latest HTML 5.

Q.2. 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.

Ans:

Scope:

The scope of this project is to create a mobile application that addresses the everyday needs of individuals with disabling hearing loss.

Features:

1. Artificial intelligence that recognizes key sound events of interest to this community
2. Immediate alerts for events such as car horns
3. Continual logging of sound events
4. Optimized for Android
5. Low-latency to work in real-time

Non-functional aspects:

1. User-friendly interface
2. Security features to protect user's data
3. Accessibility features for individuals with hearing loss
4. Low power consumption to conserve battery life.
5. High level of performance and responsiveness
6. Scalability to accommodate future updates and features.
7. High level of reliability and stability.
8. Offline functionality
9. Testability and maintainability.
10. Quality of service and customer support.