IT314-Software Engineering

Lab-1

Identifying Functional and Non-Functional Requirements

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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.

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Functional Requirements:
1. It needs to enter information on new books, circulars, periodicals, etc. Every time new stock is received or an item is removed, the stock information is updated.

2. A web application should be developed using HTML5.

3. Manage Periodicals: This refers to items like newspapers, journals, and other periodicals. Its job is to manage the publications in an appropriate way.

4. Providing identification numbers: Each object receives a special identification number from the system independently. Additionally, it ought to give each member a unique identifying number.

5. Audit: A LIS(Library Information System) should include the necessary functionalities to make it simple and quick to audit all of the library's assets.

6. Keeping Records: It is necessary to keep track of all the information necessary for the proper operation of the library, including the staff, members, and assets.

7. This web application should run only within the institute LAN.

8. The software must be able to generate receipts.

9. The system should notify the user and librarian about the overdue books.

10. The user can log in, view the catalog, search for books, checkout, reserve, renew and return a book.

11. The system also enables a member to extend the date of his borrowing if no other booking for that particular book has been made.

12. The librarian registers new users, adds and maintains the books, collects fines for overdue books, and issues books to users who need them.

Non-functional requirements:

1. 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. When the library is open, the System must be functional, and if it is not, it must be repaired in an hour or less.

3. Within two seconds or fewer, the system needs to react to the queries.

4. Adding new features and changing the technology should be as simple and clear as possible.

5. the software should be simple to maintain. The software must also be portable in addition to this.

6. Only authorized users would have access to the system. On the network, it will be secure and only authorized users will be able to use it.

7. The suggested system would be expandable to accommodate more users.

8. The Server would be able to perform desired tasks in a reasonable unit of time.

9. Minimize the output delay.Run the query as fast as possible.

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.

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Scope:-

1. Create a smartphone application for people with hearing loss.

2. Apply artificial intelligence to identify important sound occurrences, such automobile horns and newborns.

Features:-

1. Immediate alerts for identified sound events

2. Continual logging of sound events

3. Storing information about sound events logs\

Non Functional Aspects:-

1. Optimized for Android

2. Low-latency to ensure real-time functionality