Library Information System

Group B5:

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Overview:

- The Library Information System (LIS) is a system that is designed to automate the various activities of a library, including the issue and return of books by members, as well as user queries regarding the availability of books. The system will manage a collection of 10,000 books, each with a unique ISBN number, and will be used by four categories of library members: undergraduate students, postgraduate students, research scholars, and faculty members. Each member will be assigned a unique library membership code number.

- The LIS will provide functionalities for book management, member management, and librarian management. The system will allow the library clerk to enter book details, display book availability, and update book information. The system will also support issuing books to members, with loan limits and duration varying by member type, registering book returns, allowing book reservations, calculating penalty charges, and printing reminder messages. The system will also allow the Librarian to create and delete member records, check book statistics, dispose of books, and enter book procurement information.

- The LIS will have a user-friendly interface, be accessible to all authorized users, have a good security, fast response time and can handle large number of concurrent users, scalable, reliable, with backup and recovery mechanism, compatible with existing hardware and software, easy to maintain, and comply with relevant laws and regulations.

Scope:

The LIS will provide the following functionalities:

- **Book Management:** Entering book details, displaying book availability, and updating book information.

- **Member Management:** Membership registration, book issuance, book return, book reservation, penalty charge calculation, reminder messages, and member record management.
- **Librarian Management:** Book statistics, book disposal, and book procurement.

Constraints:

- **Data entry:** All book and member information must be entered manually by the library clerk.
- **Loan limits:** The loan limits and duration for each member category are fixed and cannot be modified by the librarian.
- **Penalty rate:** The penalty rate for overdue books is fixed and cannot be modified by the librarian.Reservation period: The reservation period for a book is fixed at seven days and cannot be modified by the librarian.

Assumptions:

- System is only accessible to authorized personnel.
- The system will be used in a single library location.
- All the books are in good condition when they are entered into the system.
- The system will be used during regular library hours.
- The internet connection is stable and fast enough to support the system's requirements.
- The system will be used by members and librarians who are familiar with basic computer operation.
- The system will be compatible with the existing hardware and software infrastructure.
- The LIS will be in compliance with all relevant laws and regulations.
- The system will be implemented in a timely manner with minimal disruption to library operations.

Functional requirements:

Book Management :
- **Entering book details :** The Library clerk should be able to enter the details of a book into the LIS through a suitable interface, including ISBN number, title, author, publisher, publication date, and other relevant information.

- **Book availability :** The LIS should answer user queries regarding whether a particular book is available. If a book is available, LIS should display the rack number in which the book is available and the number of copies available. The system should also allow the Librarian to update the information of a book when it is lost or damaged.

Member Management :

- **Membership categories:** There are four categories of members of the library: undergraduate students, post graduate students, research scholars, and faculty members. Each member will be assigned a unique library membership code number.

- **Book issuance:** The LIS will support issuing books to members, with loan limits and duration varying by member type. Undergraduate students can issue up to 2 books for 1 month duration, postgraduate students can issue up to 4 books for 1 month duration, research scholars can issue up to 6 books for 3 months duration, and faculty members can issue up to 10 books for six months duration.

- **Book return:** LIS registers each book issued to a member. When a member returns a book, LIS deletes the book from the member's account and makes the book available for future issue.

- **Book reservation:** Members should be allowed to reserve books which have been issued out. When such a reserved book is returned, LIS should print a slip for the concerned member to get the book issued and should disallow the issue of the book to any other member for a period of seven days or until the member who has reserved the book gets it issued.

- **Penalty charge:** When a member returns a book, LIS prints a bill for the penalty charge for overdue books. LIS calculates the penalty charge by multiplying the number of days the book is overdue by the penalty rate.

- **Reminder messages:** LIS prints reminder messages for the members against whom books are overdue, upon a request by the Librarian.

- **Member record management:** LIS should allow the Librarian to create and delete member records. The system should also allow the Librarian to update the member's information when needed.

Librarian Management:

- **Book statistics:** The Librarian periodically needs to check if there are any books which have not been issued even once during the last five years. He uses this information in planning to dispose off unused and old books. For this purpose it is necessary for LIS to maintain the statistics regarding issuance of different books.

- **Book disposal:** When books are disposed off, the Library clerk should be able to delete the book from the list of books in the Library.

- **Book procurement:** When a book is procured the system should support entering the details.

Non- Functional Requirements:

- **User interface:** The system should provide a user-friendly interface that is easy to navigate and understand for both the library clerk and members.

- **Accessibility:** The system should be accessible to all authorized users, including library staff and members, with different levels of access rights based on their roles.

- **Security:** The system should ensure the security of personal and confidential information of members and books. It should also prevent unauthorized access to the system and data.

- **Performance:** The system should have a fast response time and be able to handle a large number of concurrent users without any delay in performance.

- **Scalability:**The system should be able to handle an increase in the number of books and members in the future.

- **Reliability:** The system should be reliable and have a high availability rate, ensuring that the library can operate smoothly.

- **Backup and recovery:** The system should have a reliable backup and recovery mechanism to ensure the integrity of the data in case of any system failure.

- **Compatibility:** The system should be compatible with the library's existing hardware and software infrastructure.

- **Maintenance:** The system should be easy to maintain and update to ensure that it stays current and functional over time.

- **Compliance**: The system should comply with relevant laws and regulations regarding data protection and privacy.

Conclusion:

In conclusion, the Library Information System (LIS) is a system that aims to automate the various activities of a library. It will manage a collection of 10,000 books, each with a unique ISBN number, and will be used by four categories of library members: undergraduate students, postgraduate students, research scholars, and faculty members. The LIS will provide functionalities for book management, member management, and librarian management. The system will be user-friendly, accessible, secure, and fast, reliable, scalable and easy to maintain. It will also comply with relevant laws and regulations. The SRS document outlined the requirements, constraints, assumptions for the development of the LIS. The system is expected to improve the efficiency and effectiveness of library operations, making the library's resources more accessible to members and easier to manage for librarians.