**PRACTICAL 1**

**Aim:** project Definition and Objective of the PULMS and perform a requirements of engineering process

A **Public University Library Management System (PULMS)** is essential for modern academic libraries to manage resources efficiently, enhance user experience, and support the academic needs of the university community. With functions like cataloging, lending, inventory management, and reporting, PULMS ensures that libraries are well-organized and serve their patrons effectively.

**Definition of PULMS:**

A **Public University Library Management System (PULMS)** is a digital platform designed to help libraries in universities efficiently manage their resources, services, and operations. It typically automates tasks such as cataloging, lending, returning, and inventory management, ensuring that library services are accessible, organized, and easily maintainable.

**Information:**

PULMS integrates different functions to ensure seamless operations and enhance the user experience for both library staff and patrons (students, faculty, and staff). It typically consists of various modules that address specific aspects of library management:

* **Catalog Management:** Organizing library resources (books, journals, multimedia, etc.) into a searchable database.
* **Borrowing and Returning System:** Allows users to borrow and return books, journals, and other materials, including tracking the due dates for return.
* **User Registration and Management:** Creating user profiles for library patrons, including students, faculty, and staff, with access to borrowing and other privileges.
* **Inventory Management:** Managing the collection and inventory of the library, including the addition of new books and the tracking of lost or damaged materials.
* **Search Functionality:** A robust search engine to enable users to search for materials by title, author, ISBN, or other parameters.
* **Fee Management:** Automatically tracking overdue books and charging fines for late returns.

**Functions of PULMS:**

1. **Cataloging and Organizing Resources:** PULMS helps libraries catalog books, journals, e-books, and other resources with metadata (such as author, title, publisher, and subject) for easy search and retrieval.
2. **User Registration and Authentication:** New users can register on the system, and existing users can log in to access their accounts, track borrowing history, and manage their checkouts.
3. **Issuing and Returning Books:** PULMS tracks the borrowing and returning of library materials, maintaining accurate records of who borrowed what and when it’s due for return.
4. **Search and Retrieval:** A key function of PULMS is to allow students, faculty, and staff to search the library catalog for books, journals, or other materials and view availability.
5. **Reservation System:** Users can place reservations on books that are currently unavailable. Once the book is returned, the system notifies the user.
6. **Fee Management:** The system can track overdue books and automatically calculate fines based on the library’s fine policy.
7. **Inventory Management:** Library staff can add, delete, or update the status of library materials in the system, keeping track of the library's holdings and ensuring proper management.
8. **Reporting and Analytics:** The system generates reports on various library activities, such as usage statistics, overdue items, fines, and inventory status. These insights help library management make informed decisions.
9. **Resource Recommendation System:** Some advanced systems include a recommendation engine that suggests books or articles based on the user’s borrowing history or interests.

**Features of PULMS:**

* **Automated Circulation System:** Handles the issuance, renewal, and return of library materials.
* **Cataloging and Classification:** Allows the systematic cataloging of books and resources based on various classification schemes like Dewey Decimal or Library of Congress Classification.
* **Multi-User Access:** Enables access for multiple types of users, such as students, faculty, library staff, and administrators, each with specific roles and privileges.
* **Barcode Scanning:** Many systems integrate with barcode or RFID technology to easily check in and check out library materials.
* **Online Access:** Allows users to access library resources, check their borrowing status, and even request materials remotely via the library's online portal.
* **Search and Filtering Options:** Offers advanced search options, including keyword search, author search, genre search, and more.
* **Reports and Analytics Tools:** Generates detailed reports on library usage, collection performance, and overdue items for library staff and administrators.
* **Mobile Access:** Many modern library systems offer mobile apps or responsive websites for users to access library services on the go.

**Benefits of PULMS:**

1. **Increased Efficiency:** Automates repetitive tasks like cataloging, checkouts, and returns, saving time for library staff and improving operational efficiency.
2. **Improved User Experience:** With features like online catalogs, mobile access, and seamless borrowing/returning processes, users can enjoy a more convenient and personalized experience.
3. **Better Inventory Management:** Library resources are organized and tracked more accurately, which reduces the risk of loss or theft.
4. **Data-Driven Decision Making:** With built-in reporting tools, library administrators can gain insights into library usage, popular resources, and operational bottlenecks.
5. **Reduced Human Errors:** Automation minimizes the chances of manual errors, such as incorrectly logged borrowing dates, fines, or missing books.
6. **Access Control and Security:** PULMS ensures that only authorized users can access certain resources and that transactions (such as borrowing or returning books) are accurately logged.
7. **Cost Reduction:** The system can help minimize the costs associated with manual record-keeping, human resources, and paper-based processes.
8. **Scalability:** PULMS can scale as the library’s collection grows, accommodating new users and expanding to different branches or departments within a university.

**Types of Public University Library Management Systems:**

Library management systems can be broadly classified based on their scope, features, and deployment methods:

1. **Standalone Library Management Systems:**
   * These are systems designed for small or single-location libraries that do not require integration with other university systems.
   * **Example:** Koha (open-source library management system).
2. **Integrated Library Management Systems (ILMS):**
   * These systems integrate with other university systems, such as student information systems or digital repositories. They provide a more unified experience across the entire campus ecosystem.
   * **Example:** Alma (cloud-based ILMS), Ex Libris.
3. **Cloud-Based Library Management Systems:**
   * These are hosted on the cloud and offer flexibility, accessibility, and scalability. They often come with subscription-based pricing and automatic updates.
   * **Example:** Libsys, OCLC’s WorldShare Management Services.
4. **Open-Source Library Management Systems:**
   * These systems are free to use and can be customized by universities to meet their specific needs. Open-source systems are popular due to their cost-effectiveness and flexibility.
   * **Example:** Koha, Evergreen.
5. **Library Management Systems with Integrated Digital Library Features:**
   * These systems not only manage physical resources but also include functionalities to manage digital resources, such as e-books, journals, and online databases.
   * **Example:** DSpace (used for managing and sharing digital repositories).

### ****Conclusion:****

A **Public University Library Management System (PULMS)** is essential for modern academic libraries to manage resources efficiently, enhance user experience, and support the academic needs of the university community. With functions like cataloging, lending, inventory management, and reporting, PULMS ensures that libraries are well-organized and serve their patrons effectively. The benefits of such systems include increased operational efficiency, improved access to resources, and cost savings, while the various types of PULMS offer flexibility depending on the scale and needs of the university.