The University of the Pacific Libraries offer comprehensive services to support the academic and research endeavours of students, faculty, and staff across its Stockton, Sacramento, and San Francisco campuses. These services include access to extensive print and digital collections, research assistance, academic support, and technology resources. To enhance operational efficiency and data management, the Library aim to consolidate their diverse data sources into a unified Database Management System (DBMS).

Project Objective:

Design an Entity-Relationship Diagram (ERD) and develop the corresponding database schema to effectively manage the University of the Pacific Libraries' operations. This system should integrate various aspects of library services.

Here are some key components to consider:

Users Management:

Users include students, faculty, staff, alumni, and community members, each with distinct access privileges and roles.

Capture personal information, contact details, and membership status.

Resource Cataloging:

Maintain records of physical and digital resources such as books, journals, e-books, and multimedia materials.

Track details like titles, authors, publication dates, genres, and availability status.

Borrowing Activities:

Monitor the lending process, including check-out and return dates, overdue items, and associated fines.

Support reservation and renewal functionalities.

Event Scheduling:

Manage workshops, seminars, and other events hosted by the library, including event details, schedules, and participant registrations.

Facility Reservations:

Oversee bookings for study rooms, computer labs, and other library facilities, capturing reservation times, durations, and user information.

Academic Support Services:

Coordinate services such as tutoring, writing assistance, and research consultations, including appointment scheduling and service utilization tracking.

Research Assistance:

Facilitate research help provided by academic support librarians, including consultations on choosing research topics, searching resources, evaluating sources, and managing citations.

Tasks to perform:

ERD Design:

Identify and define entities, attributes, and relationships that encapsulate the library's operations.

Determine cardinalities and constraints to accurately represent data interactions.

Database Schema Development:

Translate the ERD into a relational database schema using SQL.

Create tables with appropriate data types, primary keys, foreign keys, and constraints to enforce data integrity.

Data Population:

Insert sample data into each table to simulate real-world scenarios and facilitate testing.

Deliverables:

A comprehensive ERD illustrating the library's data model.

SQL scripts for creating the database schema and populating it with sample data.