Library Book Management System (MySQL Only)

Project Title

Library Book Management System (MySQL Only)

Project Goal

Design a simple MySQL database to manage books, students, and borrow records in a library. The project demonstrates basic SQL features and relationships using multiple related tables.

Schema Overview

1. students - Stores student details like name, email, department, and gender.
2. books - Stores book information such as title, author, category, and available copies.
3. librarians - Records librarian details including name and experience.
4. borrow - Tracks which student borrowed which book, issued by which librarian, along with borrow and return dates.

Relationships

One student can borrow many books (One-to-Many).
One librarian can issue many borrow records (One-to-Many).
One book can be borrowed by many students (Many-to-Many via borrow table).

Tasks Performed

A. CRUD Operations:

- Add new student, book, librarian, and borrow record.
- Update book copies.
- Delete a borrow record.
- View all students or books.

B. Join Queries:

- Show which student borrowed which book.

- List all books borrowed with librarian name.
- Show borrow history of a particular student.

C. Aggregate Queries:

- Count total books borrowed by each student.
- Find the most borrowed book.
- Average experience of librarians.
- Total number of students.
- Minimum and maximum borrow dates for a specific book.

Conclusion

This project efficiently demonstrates the use of MySQL in a real-world library system. It highlights the importance of relational design, foreign key constraints, and common SQL operations. The schema is simple yet powerful, and it provides a foundation that can be extended into a complete library management application.