

Full Stack AI Software Development

Exercise

Exercise

Work in a small group to design a database for **Library** that could handle an activity:

- **Membership management** — register, update, and manage library members.
- **Book information** — store book details (title, author, category, and availability per branch).
- **Borrowing activity** — track which member borrows which books, and which staff handles it.
- **Transaction records** — allow multiple books in one borrowing transaction, calculate total and possible fines.
- **Staff management** — store staff information and work schedule.
- **Branch management** — handle multiple library branches and their locations.

Exercise

Work in a small group to design a database for **E-Commerce** that could handle an activity:

- **User Management** – store customer and admin information.
- **Product Management** – store product details, categories, and stock.
- **Order & Transaction** – record customer orders, multiple items per order, and payment status.
- **Cart System** – manage items customers add before checkout.
- **Payment** – track payment method, amount, and confirmation.
- **Shipping** – handle delivery information and tracking status.
- **Review & Rating (optional)** – allow users to review and rate products.

Exercise

Work in a small group to design a database for **Employee Management System** that could handle an activity:

- **Employee Information** – store employee data (name, contact, position, status).
- **Department & Position** – organize employees into departments and roles.
- **Attendance Tracking** – record check-in/out time and working hours.
- **Leave Management** – handle leave requests, approval, and leave balance.
- **Payroll** – record salary, bonuses, and deductions.
- **Performance Evaluation** – track employee performance and feedback.
- **Project Assignment (optional)** – assign employees to projects and roles.

Exercise

Go to <https://dev.mysql.com/doc/index-other.html> and download world db. Extract and import world data into your MySQL.

1. Find country name with most population from table country
2. Find the second one country with most population from table country
3. Find country name with lowest population from table country
4. Find the third one country with lowest population from table country
5. Find the largest continent by sum surface area with life expectancy more than 75

Exercise

Go to <https://dev.mysql.com/doc/index-other.html> and download sakila db. Extract and import sakila data into your MySQL.

1. Show all data using IN, and display the country_id and country columns of the following countries: China, Bangladesh, and India
2. Find every actors whose last names contain the letters OD. Order the rows by last name and first name, in that order
3. Modify table actors. Add a middle_name column to the table actor. Position it between first_name and last_name. Hint: you will need to specify the data type.
4. List every last names of actors and the number of actors who have that last name, but only for names that are shared by at least two actors
5. Join the table and display the first and last names, as well as the address, of each staff member.

Exercise

6. Find out how many copies of the film “Hunchback Impossible” exist in the inventory system
7. Find and display the most frequently rented movies in descending order.
8. Write down a query in order to display each store its store ID, city, and country
9. Use subqueries to display every actors who appear in the film Alone Trip.
10. Delete the middle_name column from table actors

Thank you

