ASSIGNMENT 3

Install Mysql Workbench on your system

https://www.youtube.com/watch?v=WuBcTJnIuzo

1. What is a Database?
2. Define MySQL.
3. What is SQL?
4. What are the types of databases?
5. What is a Table in a database?
6. What is a Primary Key?
7. What is a Foreign Key?
8. What is a Query?
9. What is a Relational Database?
10. What is NoSQL?
11. What are some popular database management systems?How do you create a database in MySQL?
12. How do you create a table in MySQL?
13. How do you insert data into a table?
14. How do you select data from a table?
15. What is a WHERE clause?
16. What is a JOIN in SQL?
17. What are the basic SQL commands? (SELECT, INSERT, UPDATE, DELETE)
18. How do you update data in a table?
19. How do you delete data from a table?

Practice:

Task:

- Create a simple database: ev_battery
- Create the above Stations table
- Insert 2–3 records into the table

Sample Answer:

```
CREATE DATABASE ev_battery;
USE ev_battery;
CREATE TABLE Stations (
station_id INT PRIMARY KEY,location VARCHAR(100),
total_batteries INT,
available_batteries INT
);
INSERT INTO Stations VALUES (1, 'Pune Station 1', 10, 6);
INSERT INTO Stations VALUES (2, 'Mumbai Station 2', 8, 3);
```

Querying & Simple Relationships

Concepts to Learn:- SELECT, INSERT, UPDATE, DELETE
- WHERE clause
- Basics of Joins (Just conceptual)

Example Table Structure:

```
CREATE TABLE Users (
user_id INT PRIMARY KEY,
name VARCHAR(50),
```

vehicle_type VARCHAR(30)
);
CREATE TABLE Swap_Log (
log_id INT PRIMARY KEY,
user_id INT,
station_id INT,
swap_time DATETIME,
FOREIGN KEY (user_id) REFERENCES Users(user_id),
FOREIGN KEY (station_id) REFERENCES Stations(station_id)
) ; **Tasks:**
- Create Users and Swap_Log tables
- Insert dummy data into all 3 tables
- Run queries like:- Get all swap logs
- Show station availability
- List all users with vehicle type 'Two-Wheeler'

Sample Answer:

```
INSERT INTO Users VALUES (1, 'Amit', 'Two-Wheeler');
INSERT INTO Users VALUES (2, 'Sneha', 'Three-Wheeler');
INSERT INTO Swap_Log VALUES (1, 1, 1, '2025-06-02 10:00:00');
INSERT INTO Swap_Log VALUES (2, 2, 2, '2025-06-02 11:00:00');
-- Get all swap logs
SELECT * FROM Swap_Log;
-- Show station availability
SELECT location, available_batteries FROM Stations;
-- List all users with vehicle type 'Two-Wheeler'
SELECT * FROM Users WHERE vehicle_type = 'Two-Wheeler';
```

Complete tasks given below:

Task 1: Create a Charging_Stations Table

Objective: Learn to create a new table and insert data.
Instructions:
Create a new database: ev_charging
Create a table Charging_Stations with columns:
- - station_id (INT, Primary Key)
- - city (VARCHAR)
- - charging_ports (INT)
- - fast_charging_available (BOOLEAN)

Insert 2–3 records into the table.

Task 2: Create Vehicles and Charging_Log Tables Objective: Practice multiple tables and relationships.
Instructions:
Create a Vehicles table with vehicle_id, owner_name, and type
Create a Charging_Log table with:
- - log_id (Primary Key)
- - vehicle_id (Foreign Key)
- - station_id (Foreign Key)
- - charge_time (DATETIME)

Insert sample data into both tables.

Task 3: Perform Data Queries

Objective: Use SELECT and WHERE clauses to filter and view data.

Instructions:
Get all charging logs
Show all charging stations in a specific city
List all vehicles of type 'Electric Scooter'

Task 4: Modify Data with UPDATE and DELETE

Objective: Practice editing and deleting records.
Instructions:
• Update the number of charging ports for a specific station
Change a vehicle's type from 'Electric Bike' to 'Electric Car'
Delete a record from the Charging_Log table

Task 5: Join Tables and Write Advanced Queries

Objective: Practice JOIN and conditional filters.
Instructions:
a)
Join Vehicles and Charging_Log to show which vehicle charged where and when
b)
List all charging logs for stations that support fast charging
c)
Show vehicles that charged after a specific date