# Assignment: SQL Tasks for SpecialForce Private Limited - Database Operations (MySQL)

**Scenario:**

SpecialForce Private Limited is expanding its workforce and needs help with managing its employee records, departments, and ongoing projects. As a fresh database consultant, your task is to create and manipulate the database to manage their growing employee, department, and project data.

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## Tasks:

### Task 1: Create Tables

1. **Create three tables**: Employees, Departments, and Projects to track employees, departments, and projects, respectively.
    - Ensure each table has a **Primary Key** for uniquely identifying records.
    - Set up **Foreign Key** constraints to link employees to departments and projects.
    - Use appropriate **constraints** (e.g., NOT NULL, UNIQUE, etc.) to maintain data integrity.

### Task 2: Insert Data (Given in excel sheet)

Once you have created the tables, insert the provided data into the respective tables. The data contains details about employees, departments, and projects.

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## Queries to Perform:

**Query 1:** Write a query to retrieve the first name, last name, and department name of all employees. If an employee does not belong to any department, the department name should be NULL.

**Query 2:** Write a query to find all employees in the IT department who earn more than ₹50,000.

**Query 3:** Write a query to list the first name, last name, and email of all employees whose first name starts with 'J' and whose email contains specialforce.com.

**Query 4:** Write a query to find all the distinct department names in the Departments table.

**Query 5:** Write a query to calculate the total salary expenditure of each department.

**Query 6:** Write a query to find the average salary of employees in the Finance department.

**Query 7:** Write a query to find the minimum and maximum salaries of employees in the Sales department.

**Query 8:** Write a query to count the number of employees in each department.

**Query 9:** Write a query to find all employees who were hired between January 1, 2018, and December 31, 2020. Sort the result by hire date in ascending order.

**Query 10:** Write a query to list all employees who do not have an email address.

**Query 11:** Write a query to find all employees who work in HR, Finance, or IT departments.

**Query 12:** Write a query to list the first name, last name, and salary of employees earning between ₹30,000 and ₹70,000. Sort the results by salary in descending order.

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## Transaction Management Tasks:

Use transaction control statements to manage the salary updates as follows:

**Task 1: Increase HR Salaries:**
Write a query to increase the salaries of all employees in the HR department by 5%. Start a transaction before applying the changes.

**Task 2: Savepoint Before Sales Increase:**
Set a savepoint before increasing the salaries of employees in the Sales department by 3%.

**Task 3: Rollback Sales Salary Increase:**
Rollback to the savepoint created before the Sales salary increase.

**Task 4: Commit the Transaction:**
After rolling back the Sales increase, commit the changes made to the HR department salaries.

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**Query 13:** Write a query to join the Employees and Departments tables to list employees and their department names. Make sure all employees are included, even if they don't belong to any department.

**Query 14:** Write a query to list employees who are working on projects that started after January 1, 2023.

**Query 15:** Write a query to list all departments, even those without any employees assigned.

**Query 16:** Write a query to find the employee with the highest salary in each department.

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**Query 17:** Write a query to remove all data from the Employees table but keep the structure intact.

**Query 18:** Write a query to drop the Projects table from the database.

**Query 19:** SpecialForce Private Limited realized they need to store the phone numbers of employees. Write a query to add a new column phone_number (VARCHAR(15)) to the Employees table using the ALTER statement.

**Query 20:** The company also decided to track the budget for each project. Write a query to add a column budget (DECIMAL(10,2)) to the Projects table.

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**Query 21:** Write a query to find the 2nd largest salary from the Employees table using:

- A **subquery**.
- The LIMIT clause.

**Query 22:** Write a query to find the 3rd largest salary from the Employees table using:

- A **subquery**.
- The LIMIT clause.

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**Query 23:** Write a query to drop the Projects table.

**Query 24:** Write a query to truncate the Employees table.