Introduction to Database Systems

Lab-02

Task 1:

1. 1.Create a table PRODUCTS with the following schema:
    - Product_id: Product ID
    - Product_name: Product Name
    - Category: Product Category
    - Price: Product Price
    - Stock: Quantity in Stock
    - Added_date: Date Added
2. Insert records into the PRODUCTS table with at least 5 different products. Ensure to include varying categories and prices.
3. Display all records from the PRODUCTS table.
4. Show the details of products that belong to the "Electronics" category and have a price between 100 and 500.
5. Update the Stock quantity of the product with Product_id 3 to 50.
6. Delete the product with Product_id 5.
7. Truncate the PRODUCTS table to remove all records but keep the structure.
8. Show unique product categories from the PRODUCTS table.
9. Rename the column Price to Product_Price in the PRODUCTS table.
10. Display the products sorted by Price in descending order.
11. Show products where the Product_name starts with the letter "S".
12. Retrieve records where Added_date is NULL.
13. Select products where Stock is greater than 20 and Price is less than 200, using logical operators.

```sql
Create Database lab02;
use lab02;
CREATE TABLE PRODUCTS (
    Product_id INT PRIMARY KEY,
    Product_name VARCHAR(100),
    Category VARCHAR(50),
    Price DECIMAL(10, 2),
    Stock INT,
    Added_date DATE
);

INSERT INTO PRODUCTS (Product_id, Product_name, Category, Price, Stock, Added_date)
VALUES
(1, 'Laptop', 'Electronics', 1500.00, 20, '2025-08-01'),
(2, 'Basketball', 'Sports', 30.00, 100, '2025-07-15'),
(3, 'Smartphone', 'Electronics', 350.00, 80, '2025-08-10'),
(4, 'Shirt', 'Clothing', 25.00, 200, '2025-06-01'),
(5, 'Headphones', 'Electronics', 120.00, 50, '2025-07-20');

SELECT * FROM PRODUCTS;

SELECT *
FROM PRODUCTS
WHERE Category = 'Electronics'
  AND Price BETWEEN 100 AND 500;

UPDATE PRODUCTS
SET Stock = 50
WHERE Product_id = 3;

DELETE FROM PRODUCTS
WHERE Product_id = 5;

TRUNCATE TABLE PRODUCTS;

SELECT DISTINCT Category
FROM PRODUCTS;

ALTER TABLE PRODUCTS
RENAME COLUMN Price TO Product_Price;

SELECT *
FROM PRODUCTS
ORDER BY Product_Price DESC;

SELECT *
FROM PRODUCTS
WHERE Product_name LIKE 'S%';

SELECT *
FROM PRODUCTS
WHERE Added_date IS NULL;

SELECT *
FROM PRODUCTS
WHERE Stock > 20
  AND Product_Price < 200;
```

Task -02:

1. Create a table EMPLOYEES with the following schema:
   - Emp_id: Employee ID
   - Name: Employee Name
   - Department: Employee Department
   - Salary: Employee Salary
   - Hire_date: Date of Hiring
2. Insert records into the EMPLOYEES table with at least 6 different employees, covering various departments and salaries
3. Show all records from the EMPLOYEES table.
4. Display the records of employees who are in the "HR" department and have a salary between 3000 and 6000
5. Update the Salary of the employee with Emp_id 4 to 7000.
6. Delete the record of the employee named "Alex".
7. Truncate the EMPLOYEES table to remove all records but retain the table structure.
8. Show distinct employee departments from the EMPLOYEES table.
9. Rename the table EMPLOYEES to STAFF.
10. Display employee names ordered by Salary in ascending order.
11. Show employees whose names contain the letter "J".
12. Retrieve records where Hire_date is NULL.
13. Select employees where Salary is greater than 4000 and Department is not "IT", using logical operators.

```sql
Create database lab02;
use lab02;
CREATE TABLE EMPLOYEES (
    Emp_id INT PRIMARY KEY,
    Name VARCHAR(100),
    Department VARCHAR(50),
    Salary DECIMAL(10, 2),
    Hire_date DATE
);

INSERT INTO EMPLOYEES (Emp_id, Name, Department, Salary, Hire_date)
VALUES
(1, 'John Doe', 'HR', 5000, '2022-05-01'),
(2, 'Jane Smith', 'IT', 7000, '2020-11-15'),
(3, 'Michael Brown', 'Finance', 6000, '2021-07-20'),
(4, 'Sarah Davis', 'HR', 4500, '2023-01-12'),
(5, 'Alex Johnson', 'Marketing', 5500, '2022-09-10'),
(6, 'Emily White', 'IT', 8000, '2019-02-25');

SELECT * FROM EMPLOYEES;

SELECT * FROM EMPLOYEES
WHERE Department = 'HR' AND Salary BETWEEN 3000 AND 6000;

UPDATE EMPLOYEES
SET Salary = 7000
WHERE Emp_id = 4;

DELETE FROM EMPLOYEES
WHERE Name = 'Alex Johnson';

TRUNCATE TABLE EMPLOYEES;

SELECT DISTINCT Department FROM EMPLOYEES;

ALTER TABLE EMPLOYEES RENAME TO STAFF;

SELECT Name FROM STAFF
ORDER BY Salary ASC;

SELECT * FROM STAFF
WHERE Name LIKE '%J%';

SELECT * FROM STAFF
WHERE Hire_date IS NULL;

SELECT * FROM STAFF
WHERE Salary > 4000 AND Department != 'IT';
```