Lab Activity : 13

SQL Set Operators in Database Management

Objective:

This lab activity is designed to help students understand and practice SQL set operators, including UNION, UNION ALL, INTERSECT, and EXCEPT (or MINUS depending on the SQL dialect). Students will learn how to combine result sets from multiple SELECT statements to perform various data operations.

Database Schema:

The database consists of two tables: `Employees` and `Consultants`.

1. **Employees Table**

Column Name	Data Type	Description
emp_id	INT	Primary key, unique ID
name	VARCHAR	Name of the employee
dept_id	INT	Department ID

Consultants Table

Column Name	Data Type	Description
cons_id	INT	Primary key, unique ID
name	VARCHAR	Name of the consultant
dept_id	INT	Department ID

Sample Data:

Employees Table

emp_id	name	dept_id
1	Alice	101
2	Bob	102
3	Charlie	103
4	David	101
5	Eve	104

Consultants Table

cons_id	name	dept_id
1	Frank	101
2	Grace	105
3	Eve	104
4	Heidi	106
5	Ivan	102

Lab Tasks:

1. **Task 1: UNION**
   - **Objective:** Retrieve a unique list of all individuals (employees and consultants) without duplicates.

SELECT name FROM Employees

UNION

SELECT name FROM Consultants;

Task 2: UNION ALL

- **Objective:** Retrieve a list of all individuals (employees and consultants) including duplicates.

SELECT name FROM Employees

UNION ALL

SELECT name FROM Consultants;

Task 3: INTERSECT

- **Objective:** Retrieve a list of individuals who are both employees and consultants.

SELECT name FROM Employees

INTERSECT

SELECT name FROM Consultants;

Task 4: EXCEPT (or MINUS)

- **Objective:** Retrieve a list of employees who are not consultants.

SELECT name FROM Employees

EXCEPT

SELECT name FROM Consultants;

OR

SELECT name FROM Employees

MINUS

SELECT name FROM Consultants;

Task 5: Combine Set Operations

- **Objective:** Retrieve a list of all unique names from both tables and then filter out the names that appear in both tables.

SELECT name FROM Employees

UNION

SELECT name FROM Consultants

EXCEPT

SELECT name FROM Employees

INTERSECT

SELECT name FROM Consultants;