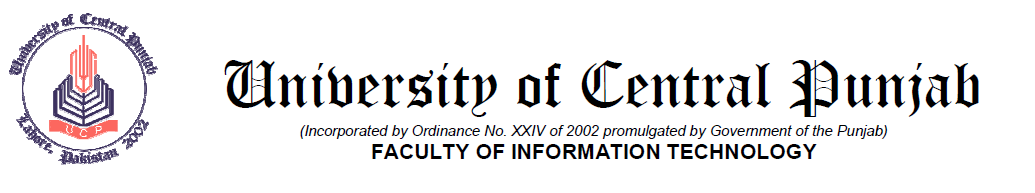
****

**Introduction to Database System**

**Fall 2024**

**Lab\_13**

**Students Table:**

| **student\_id** | **name** | **department** | **CGPA** |
| --- | --- | --- | --- |
| 1 | Alice | Computer Science | 3.9 |
| 2 | Bob | Electrical Engineering | 2.8 |
| 3 | Charlie | Computer Science | 3.4 |
| 4 | David | Mechanical Engineering | 2.5 |
| 5 | Eve | Computer Science | 3.7 |

**Employees Table:**

| **employee\_id** | **name** | **department** | **basic\_salary** | **allowance** |
| --- | --- | --- | --- | --- |
| 101 | John Doe | Finance | 50000 | 10000 |
| 102 | Jane Smith | IT | 60000 | 12000 |
| 103 | Mike Johnson | Finance | 55000 | 8000 |
| 104 | Emily Davis | HR | 45000 | 7000 |
| 105 | Robert Brown | IT | 65000 | 15000 |

**Departments Table:**

| **department\_id** | **department\_name** |
| --- | --- |
| 1 | Finance |
| 2 | IT |
| 3 | HR |
| 4 | Mechanical Engineering |

**Products Table:**

| **product\_id** | **product\_name** | **category** | **price** |
| --- | --- | --- | --- |
| 1 | Laptop | Electronics | 1200 |
| 2 | Mobile Phone | Electronics | 800 |
| 3 | Tablet | Electronics | 600 |
| 4 | Chair | Furniture | 150 |
| 5 | Table | Furniture | 300 |

**Views**

**Question 1:**

Create a view named StudentView that displays the student\_id, name, and CGPA of students from the Students table where the CGPA is greater than 3.0.

**Question 2:**

Create a view named EmployeeSalaryView that shows the employee\_id, name, department, and total\_salary (calculated as basic\_salary + allowance) from the Employees table.

**Question 3:**

Create a view named StudentViewWithGrade that includes the student\_id, name, and a column for grade based on the CGPA, where:

      •     CGPA >= 3.7 is classified as “Excellent”

      •     CGPA >= 3.0 but less than 3.7 is classified as “Good”

      •     CGPA < 3.0 is classified as “Average”

**Nested Queries**

**Question 1:**

Write a nested query to find the names of students with the highest CGPA in the Students table.

**Question 2:**

Write a nested query to display the names of employees from the Employees table whose total salary (basic salary + allowance) is greater than the average total salary.

**Question 3:**

Write a nested query to find the department with the highest total salary by using the Employees table and grouping by department.

**Correlated Queries**

**Question 1:**

Write a correlated query to find the names of students whose CGPA is greater than the average CGPA of students in their respective departments from the Students table.

**Question 2:**

Write a correlated query to find the names of employees in the Employees table whose total salary (basic salary + allowance) is greater than the average total salary of their own department.

**Question 3:**

Write a correlated query to find the names of products from the Products table where the price is greater than the average price of products in the same category.