CIS 11051 – PRACTICAL FOR DATABASE DESIGN
DEPARTMENT OF ICT
FACULTY OF TECHNOLOGY
SOUTH EASTERN UNIVERSITY OF SRI LANKA

Lab Sheet: 10
Date:

Title: MySQL JOINS

Aims:

- To use appropriate JOIN conditions in MySQL queries

Tasks:

- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- CROSS JOIN

Exercise 1:

1. Create a database named Lab10_Part1 and tables named Employees and Projects as shown below.

Employees table:

Column Name	***Constraints***
emp_id	Primary key
name	Nullable
department	Nullable
salary	Nullable
age	Nullable

Projects table:

Column Name	***Constraints***
project_id	Primary key
emp_id	Nullable
project_name	Nullable
duration_months	Nullable

Employees table:

emp_id	name	department	salary	age
101	Alice	HR	50000	30
102	Bob	IT	60000	28
103	Charlie	Finance	55000	32
104	Diana	IT	60000	28
105	Eva	Marketing	48000	27
106	Frank	Finance	53000	35
107	Grace	HR	50000	30

Projects table:

project_id	emp_id	project_name	duration_months
201	101	Onboarding App	6
202	102	E-commerce Site	12
203	103	Payroll System	9
204	108	CRM Platform	10
205	106	Audit Tool	4
206	101	Employee Survey	3
207	109	Marketing Portal	5

Section A – INNER JOIN Focus

1. List all employees' names who are working on a project along with the project name.

2. Show all projects names with a duration greater than 6 months along with the corresponding employee names.

3. List employee names and project names where the salary is more than 55000.

Section B – LEFT JOIN Focus

1. Display a list of all employee's names and their assigned project names.

2. List the names of all employees and their project names if any, but only for employees whose age is between 28 and 32.

Section C – RIGHT JOIN Focus

1. Show all project names and their assigned employee names.

2. Display all project names and employee names (if assigned), where the project duration is more than 5 months OR the employee's salary is less than 55000.

Section D – CROSS JOIN Focus

1. Create a cross combination of all employees with all project names (Cartesian product).

2. How many total combinations exist between employees and projects? Use aggregation.

Section E – Mixed Concepts

1. Find the average salary of employees in each department who have at least one project.

2. Find the number of employees with duplicate salaries and show their salary and count.

3. Show the project names and corresponding employee names (if available), but only for projects assigned to employee IDs in (101, 103, 109).

Exercise 2 (ADVANCE):

1. Create a **database** called **Lab10_Part2** with two **tables**: **Customers and Orders**. Insert the given records using **appropriate data types**, establish a **foreign key relationship** between the tables, and use **INNER JOIN** in the queries to **retrieve the required results**.

Table: Customers

CustomerID	CustomerName	ContactName	Address	City	Country
1	Green Valley Farms	John Smith	101 Maple Street	New York	USA
2	Oceanic Foods	Emma Johnson	202 Ocean Drive	Los Angeles	USA
3	Sunny Cafe	Daniel Brown	303 Sunset Blvd	Miami	USA
4	Tech World	Lisa Williams	404 Tech Ave	San Jose	USA
5	Happy Pets	James Davis	505 Pet Lane	Chicago	USA
6	The Book Nook	Sophia Miller	606 Library Road	Boston	USA
7	Gourmet Market	Benjamin Wilson	707 Gourmet Street	Houston	USA
8	Travel Experts	Olivia Martinez	808 Travel Blvd	Seattle	USA
9	Bloom Florists	Alexander Garcia	909 Rose Avenue	Denver	USA
10	Fast Fix Repairs	Charlotte Anderson	1001 Fixer Street	Atlanta	USA

Table: Orders

OrderID	CustomerID	OrderDate
10248	9	7/4/2022
10249	8	7/5/2022
10250	3	7/8/2022
10251	8	7/8/2022
10252	7	7/9/2022
10253	3	7/10/2022
10254	1	7/11/2022
10255	4	7/4/2022

2. Show the details of customer ID, customer name from customer table, orderID and order date, only who made orders. And sort them by the customerID in ascending order.

3. Display the customer details who made orders on after July10,2022.

4. Display the details of customers who made orders and the date they made.

5. Count orders made by every customer and display the customer Id from customers and the number of orders made by them. Arrange the table in ascending order.

6. Display the customer Id from customer table who made more than one order.

Discussion:

- Write a brief paragraph that describes a real-world scenario, where using JOINs can simplify database queries and improve performance.