******COMSATS University Islamabad (Lahore** **Campus)**

**Lab Assignment 4 FALL 2023**

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| --- | --- | --- | --- | --- | --- |
| Course Title: | Database Systems I | Course Code: | CSC371 | Credit Hours: | (3+1) |
| Course Instructor: | Khaqan zaheer | Programme Name: | BS Software Engineering | | |
| **Due Date:** | **24-12-2023** | **Maximum Marks:** | | **20** | |
| **Important Instructions / Guidelines:**  **Instructions:**  **- Answer each question, providing the SQL query or stored procedure as required.**  **- Submission format: A typed document (Word/PDF) containing your responses and SQL code.**  **- Deadline for submission: [24-12-2023].** | | | | | |

**Consider the following Tables:**

1. **Employees Table:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| EmployeeID | FirstName | LastName | Age | Position | Salary |
| 1 | Zeeshan | Ali | 28 | Manager | 80000 |
| 2 | Muhammad | Ahmad | 30 | Developer | 65000 |
| 3 | Khuram | Zia | 29 | Analyst | 55000 |
|  |  |  |  |  |  |

1. **Projects Table:**

|  |  |  |  |
| --- | --- | --- | --- |
| ProjectID | ProjectName | StartDate | EndDate |
| 101 | **ProjectX** | **2023-05-01** | **2023-10-30** |
| 102 | **ProjectY** | **2023-06-15** | **2023-12-31** |
| 103 | **ProjectZ** | **2023-04-10** | **2023-09-20** |

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**3.Tasks Table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TaskID | ProjectID | EmployeID | TaskDescription | HoursWorked |
| 1 | **101** | **1** | **Design UI** | **2** |
| 2 | **101** | **2** | **Develop Backend** | **30** |
| 3 | **102** | **3** | **Data Analysis** | **25** |

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**Question 1: SQL Subqueries**

**Question 1.1:**

Write an SQL query to retrieve the first and last names of employees who worked on a project with a start date before '2023-06-01'.

**Question 1.2:**

Write an SQL query to find the project with the most hours worked, displaying the ProjectID, ProjectName, and total HoursWorked.

**Question 2: SQL Stored Procedures**

**Question 2.1:**

Create a stored procedure named `GetTaskDetails` that takes a `TaskID` as input and returns the details (TaskDescription, HoursWorked) of the corresponding task from the **Tasks table.**

**Question 2.2:**

Write an SQL query to execute the `GetTaskDetails` stored procedure for TaskID = 2.

**Question 3: SQL Server String Functions**

**Question 3.1:**

Write an SQL query to concatenate the FirstName and LastName columns of employees and display them as a new column named `FullName`.

**Question 3.2:**

Write an SQL query to find employees whose last names end with 'son'.

**Question 4: SQL Server Numeric Functions**

**Question 4.1:**

Write an SQL query to calculate the average HoursWorked for all tasks.

**Question 4.2:**

Write an SQL query to find tasks with HoursWorked greater than the average, displaying TaskID, TaskDescription, and HoursWorked.

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**If you have any questions or need clarification, feel free to ask. Good luck!**