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

**Lab Assignment 3 FALL 2023**

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

**Tables:**

1. **Course Table**

|  |  |  |  |
| --- | --- | --- | --- |
| | CourseID | | CourseName | Department | | Credits | |
| 101 | | Programming | | Computer Science | | 4 |
| 102 | Biology | Biology | 3 |
| 103 | Calculus | Mathematics | 5 |
| 104 | Psychology | Psychology | 3 |

1. **2-Student Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| StudentID | FirstName | LastName | Age | major |
| 1 | Muhammmad | Ali | 21 | Computer Science |
| 2 | Khuram | Shahzad | 22 | Biology |
| 3 | Saima | Saleem | 20 | engineering |
| 4 | Imran | Dar | 23 | Psychology |
|  |  |  |  |  |

1. **Enrollment table**

|  |  |  |  |
| --- | --- | --- | --- |
| | EnrollmentID | Student Id | Course ID | Enrollment date |
| 1 | 1 | 101 | 2023-02-15 |
| 2 | 2 | 102 | 2023-02-16 |
| 3 | 3 | 103 | 2023-02-17 |
| 4 | 4 | 104 | 2023-02-18 |

**Practical Application Questions:**

**Question 1: Retrieve Students in the Computer Science Department** Write an SQL query to retrieve the details of students who are majoring in "Computer Science" and their enrolled courses. Include student ID, first name, last name, age, major, course ID, course name, and enrollment date.

**Question 2: Count Students in Each Department** Write an SQL query to count the number of students in each department. Include department name and the count of students in each department.

**Question 3: List Courses and Their Departments** Write an SQL query to list all courses along with their corresponding departments. Include course ID, course name, department name, and credits.

**Question 4: Calculate the Average Age of Psychology Students** Write an SQL query to calculate the average age of students majoring in "Psychology."

**Question 5: Retrieve Course Names and Number of Students Enrolled** Write an SQL query to retrieve the course names and the number of students enrolled in each course. Include course name and the count of students.

**Question 6: List Students Enrolled in All Available Courses** Write an SQL query to list the names of students who have enrolled in all available courses.

**Question 7: Find the Courses with the Highest and Lowest Credit Values** Write an SQL query to find the courses with the highest and lowest credit values. Include course ID, course name, and credit value.

**Question 8: Retrieve Students Enrolled in More Than One Course** Write an SQL query to retrieve the details of students who have enrolled in more than one course.

**Question 9: List Courses Not Chosen by Any Student** Write an SQL query to list the course names that have not been chosen by any student.

**Question 10: Calculate the Average Age of Students for Each Major** Write an SQL query to calculate the average age of students for each major and display the major with the highest average age.

**Instructions:**

* Answer each question by providing the SQL query and the result.
* Submission format: A typed document (Word/PDF) containing your responses and SQL code.
* Deadline for submission: [12-12-2023].

This assignment is designed to test your SQL query-writing skills on a different set of tables and data. If you have any questions or need clarification, feel free to ask. Good luck!