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|  | **Database Management Systems**  **BSCS-4**  **Department of Computer Science**  **Bahria University, Lahore Campus** |

**Assignment: [1]**

Date: Week 4, 15th October 2023

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Roll No: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Evaluation of CLO** | **Question Number** | **Marks** | **Obtained Marks** |
| **CLO: Queries to extract information from database.** |  |  |  |
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| **Total Marks** | | **25** |  |

**Instructions for the Case Study:**

**Perform the following SQL queries based on the given database schema. Suitable tuples have to be entered so that queries may be executed correctly.**

**Scenario:**

A university database contains information about students, courses, and registrations. The database schema consists of the following tables:

**1. Students:**

- student\_id (Primary Key)

- student\_name

- student\_age

- student\_major

**2. Courses:**

- course\_id (Primary Key)

- course\_name

- course\_department

- course\_credits

**3. Registrations:**

- registration\_id (Primary Key)

- student\_id (Foreign Key referencing Students)

- course\_id (Foreign Key referencing Courses)

- registration\_date

**Assume suitable data exists in these tables.**

**Task 1:**

1. Write SQL queries to create the database named "UniversityDB" and create the three tables (Students, Courses, Registrations) with the appropriate attributes.
2. Display the names of all courses offered by the university.
3. List all students who are majoring in "Computer Science."
4. Show the course names that belong to the "Science" department.
5. Retrieve the names of students who have registered for the course with ID 101.
6. Display the total number of registrations in the database.

**Task 2:**

1. Write an SQL query to calculate the average age of all students.
2. List the course names that have more than 3 credits.
3. Show the names of students who are majoring in "Mathematics" and are older than 20 years.
4. Display the student names who have not registered for any course.
5. List the course names along with the count of students registered for each course.
6. Retrieve the student names who registered for courses in the year 2022.

**Task 3:**

1. Calculate the sum of credits for all courses.
2. Show the student names along with their major and the department of the courses they have registered for.
3. Display the course names with the earliest registration date.
4. List the student names who registered for the same course multiple times.
5. Retrieve the course names that have the highest number of registrations.
6. Eliminate the "Registrations" table from the database.

**Please provide SQL queries with results for each task**