*Heaven's Light is Our Guide*

**Rajshahi University of Engineering & Technology**


## Course Title

# Data Base Systems-Sessional

## Course No.

ECE-2216

## Report

01

**Date of Submission:** 23.09.2024


| **Submitted By** | **Submitted To** |
|---|---|
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**Experiment No.:** 01

**Experiment Name**: Create a Database containing following info for 10 students.

I. Roll

II. Name

III. Semester

IV. Major Subject

V. Obtained Marks

## Theory:

A database is a structured collection of data stored electronically. For this task, a relational database management system (RDBMS) like MySQL can be used. In Task 1, the database and a table with fields (Roll, Name, Semester, Major Subject, and Marks) are created using SQL. Task 2 involves modifying a specific column's name and datatype through the `ALTER TABLE` command. Task 3 adds a column 'log' using conditional logic to categorize students. Finally, Task 4 deletes records where students' marks are below 30 using the `DELETE` command.

**Task-1:** Create database and table.

## Code:

```sql
CREATE TABLE Ten_students(
    Roll INT(15),
    Name CHAR(15),
    Semester VARCHAR(255),
    Subject CHAR(15),
    Obtained_marks INT(10)
    );

INSERT INTO Ten_students(Roll, Name, Semester, Subject, Obtained_marks) VALUES
(2110043, 'Ripon', '2-2', 'Math', 95),
(2110044, 'Sadaf', '2-2', 'Math', 93),
(2110045, 'Arif', '2-2', 'Math', 60),
(2110056, 'Prattay', '2-2', 'Math', 55),
(2110057, 'Sadi', '2-2', 'Math', 65),
(2110042, 'Shad', '2-2', 'Math', 35),
(2110041, 'Ribbie', '2-2', 'Math', 25),
(2110055, 'Fahim', '2-2', 'Math', 30),
(2110060, 'Anirban','2-2','Math', 27),
(2110061, 'Chotan', '2-2', 'Math', 40);
```

**Output:**

| Roll | Name | Semester | Subject | Obtained_marks |
|---|---|---|---|---|
| 2110043 | Ripon | 2-2 | Math | 95 |
| 2110044 | Sadaf | 2-2 | Math | 93 |
| 2110045 | Arif | 2-2 | Math | 60 |
| 2110056 | Prattay | 2-2 | Math | 55 |
| 2110057 | Sadi | 2-2 | Math | 65 |
| 2110042 | Shad | 2-2 | Math | 35 |
| 2110041 | Ribbie | 2-2 | Math | 25 |
| 2110055 | Fahim | 2-2 | Math | 30 |
| 2110060 | Anirban | 2-2 | Math | 27 |
| 2110061 | Chotan | 2-2 | Math | 40 |

**Task-2:** Change a specific column name and its datatype.

**Code:**

un SQL query/queries on table st-10.ten_students:

```
1 ALTER TABLE `ten_students` CHANGE COLUMN Roll st_Id INT(20);
```

## Output:

| st_Id | Name | Semester | Subject | Obtained_marks |
|---|---|---|---|---|
| 2110043 | Ripon | 2-2 | Math | 95 |
| 2110044 | Sadaf | 2-2 | Math | 93 |
| 2110045 | Arif | 2-2 | Math | 60 |
| 2110056 | Prattay | 2-2 | Math | 55 |
| 2110057 | Sadi | 2-2 | Math | 65 |
| 2110042 | Shad | 2-2 | Math | 35 |
| 2110041 | Ribbie | 2-2 | Math | 25 |
| 2110055 | Fahim | 2-2 | Math | 30 |
| 2110060 | Anirban | 2-2 | Math | 27 |
| 2110061 | Chotan | 2-2 | Math | 40 |

**Task-3:** Add a new column named as “log”. Set the value to applicable or not applicable based on the condition (marks < 30).

## Code:

```
ALTER TABLE ten_students ADD log VARCHAR(25);
UPDATE ten_students SET log = 'Applicable' WHERE Obtained_marks < 30;
UPDATE ten_students SET log = 'Not Applicable' WHERE Obtained_marks >=30;
```

**Output:**

| st_Id | Name | Semester | Subject | Obtained_marks | log |
|---|---|---|---|---|---|
| 2110043 | Ripon | 2-2 | Math | 95 | Not Applicable |
| 2110044 | Sadaf | 2-2 | Math | 93 | Not Applicable |
| 2110045 | Arif | 2-2 | Math | 60 | Not Applicable |
| 2110056 | Prattay | 2-2 | Math | 55 | Not Applicable |
| 2110057 | Sadi | 2-2 | Math | 65 | Not Applicable |
| 2110042 | Shad | 2-2 | Math | 35 | Not Applicable |
| 2110041 | Ribbie | 2-2 | Math | 25 | Applicable |
| 2110055 | Fahim | 2-2 | Math | 30 | Not Applicable |
| 2110060 | Anirban | 2-2 | Math | 27 | Applicable |
| 2110061 | Chotan | 2-2 | Math | 40 | Not Applicable |

**Task-4:** Delete the student information for those whose marks are below 30.

**Code:**

```
1 DELETE FROM ten_students WHERE Obtained_marks <30;
```

**Output:**

| st_Id | Name | Semester | Subject | Obtained_marks | log |
|---|---|---|---|---|---|
| 2110043 | Ripon | 2-2 | Math | 95 | Not Applicable |
| 2110044 | Sadaf | 2-2 | Math | 93 | Not Applicable |
| 2110045 | Arif | 2-2 | Math | 60 | Not Applicable |
| 2110056 | Prattay | 2-2 | Math | 55 | Not Applicable |
| 2110057 | Sadi | 2-2 | Math | 65 | Not Applicable |
| 2110042 | Shad | 2-2 | Math | 35 | Not Applicable |
| 2110055 | Fahim | 2-2 | Math | 30 | Not Applicable |
| 2110061 | Chotan | 2-2 | Math | 40 | Not Applicable |

## Discussion:

In this lab, the creation and manipulation of a student database is demonstrated. The database ensures structured storage of student information. Renaming columns and altering their datatype enhances flexibility in handling data. Adding a conditional 'log' column automates classification based on student performance, which is useful in real-life scenarios for eligibility checks. The "log" column was added to flag students with marks below 30 as "not applicable." Finally, data integrity was ensured by deleting the information of students with poor performance, thereby showcasing essential database management techniques like filtering and deletion. This exercise provides hands-on experience in SQL operations essential for database handling.

## References:

[1] W3Schools, "SQL CREATE TABLE Statement," [Online]. Available: https://www.w3schools.com/sql/sql_create_table.asp. [Accessed: 24-Sep-2024].

[2] Javatpoint, "How to Add Column in the Table in SQL," [Online]. Available: https://www.javatpoint.com/how-to-add-column-in-the-table-in-sql. [Accessed: 24-Sep-2024].