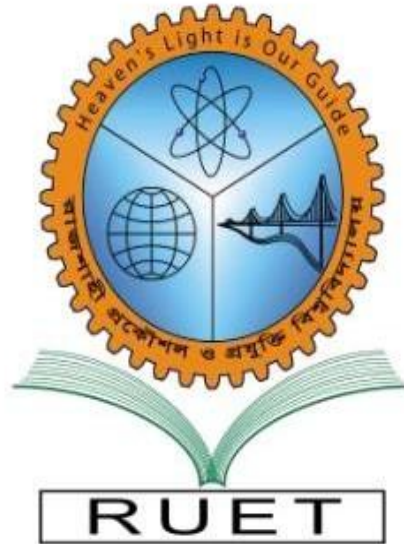


Heaven's Light is Our Guide

Rajshahi University of Engineering and Technology



Department of Electrical & Computer Engineering

Lab Report

Course Code : ECE 2216

Course Title : Data Base System Sessional

Lab Report NO. : 01

Submission Date: 23 September, 2024

Submitted To

Oishi Jyoti
Assistant Professor
Department of Electrical and
Computer Engineering, RUET

Submitted By

Name: Md. Abu Nayeem
Roll: 2110037
Department of Electrical and
Computer Engineering, RUET

Problem Statement:

Create a database containing following info for 10 students

1. Roll
2. Name
3. Semester
4. Major Subject
5. Obtained Marks

Task 1: Create database and table.

Task 2 : Change a specific column name and data type.

Task 3 : Add a new column named as log. Set the value applicable and not applicable for the condition(<30).

Task 4: Delete the student info whose marks are below 30.

Tools:

1. XAMPP Control Panel
2. Laptop

Task 1: Create database and table.

Solving procedure:

1. Define table structure.
2. Insert multiple rows of student data with corresponding values.
3. Execute the SQL query.
4. Verify the table contents

Query:

```
1 CREATE table StudentDetails
2 (
3     Roll int(255),
4     Name text(255),
5     Semester varchar(255),
6     MajorSubject text(255),
7     ObtainedMarks int(3)
8 );
9 insert into StudentDetails
10 values
11 (2110037, 'Abu Nayeem', '2-2', 'Machine Learning', 50),
12 (2110038, 'Shakib Hasan', '2-2', 'Machine Learning', 55),
13 (2110039, 'Fatema Khatun', '2-2', 'Artificial Intelligence', 29),
14 (2110040, 'Jahidul Islam', '2-2', 'Data Science', 70),
15 (2110041, 'Anika Rahman', '2-2', 'Electrical Circuits', 25),
16 (2110042, 'Nusrat Jahan', '2-2', 'Control Systems', 15),
17 (2110043, 'Rakibul Hasan', '2-2', 'Electrical Machines', 40),
18 (2110044, 'Farhana Akter', '2-2', 'Power Systems', 30),
19 (2110045, 'Arif Ahmed', '2-2', 'Artificial Intelligence', 45),
20 (2110046, 'Sadiah Islam', '2-2', 'Digital Electronics', 20);
```

Output:

Roll	Name	Semester	MajorSubject	ObtainedMarks
2110037	Abu Nayeem	2-2	Machine Learning	50
2110038	Shakib Hasan	2-2	Machine Learning	55
2110039	Fatema Khatun	2-2	Artificial Intelligence	29
2110040	Jahidul Islam	2-2	Data Science	70
2110041	Anika Rahman	2-2	Electrical Circuits	25
2110042	Nusrat Jahan	2-2	Control Systems	15
2110043	Rakibul Hasan	2-2	Electrical Machines	40
2110044	Farhana Akter	2-2	Power Systems	30
2110045	Arif Ahmed	2-2	Artificial Intelligence	45
2110046	Sadia Islam	2-2	Digital Electronics	20

Task 2: Change a specific column name and data type.

Solving procedure:

1. Use 'ALTER TABLE' to modify the table structure.
2. Use 'CHANGE' to rename the column semester to 'CURRENTSemester'.
3. Update data type to TEXT(255).
4. Execute the query.

Query:

```
1 ALTER TABLE studentdetails
2 change semester CURRENTSemester text(255);
```

Output:

Roll	Name	CURRENTSemester	MajorSubject	ObtainedMarks
2110037	Abu Nayeem	2-2	Machine Learning	50
2110038	Shakib Hasan	2-2	Machine Learning	55
2110039	Fatema Khatun	2-2	Artificial Intelligence	29
2110040	Jahidul Islam	2-2	Data Science	70
2110041	Anika Rahman	2-2	Electrical Circuits	25
2110042	Nusrat Jahan	2-2	Control Systems	15
2110043	Rakibul Hasan	2-2	Electrical Machines	40
2110044	Farhana Akter	2-2	Power Systems	30
2110045	Arif Ahmed	2-2	Artificial Intelligence	45
2110046	Sadia Islam	2-2	Digital Electronics	20

Task 3: Add a new column named as log. Set the value applicable and not applicable for the condition(<30).

Solving procedure:

1. Use 'ALTER TABLE' to modify the table structure.
2. Use 'CHANGE' to rename the column semester to 'CURRENTSemester'.
3. Update the data type to TEXT(255).
4. Execute the query to apply changes.

Query :

```
ALTER TABLE studentdetails  
Add Log text(255);  
Update studentdetails set Log='Not Applicable';  
UPDATE studentdetails set Log='APPLICABLE'WHERE ObtainedMarks<30;
```

Output:

Roll	Name	CURRENTSEMESTER	MajorSubject	ObtainedMarks	Log
2110037	Abu Nayeem	2-2	Machine Learning	50	Not Applicable
2110038	Shakib Hasan	2-2	Machine Learning	55	Not Applicable
2110039	Fatema Khatun	2-2	Artificial Intelligence	29	APPLICABLE
2110040	Jahidul Islam	2-2	Data Science	70	Not Applicable
2110041	Anika Rahman	2-2	Electrical Circuits	25	APPLICABLE
2110042	Nusrat Jahan	2-2	Control Systems	15	APPLICABLE
2110043	Rakibul Hasan	2-2	Electrical Machines	40	Not Applicable
2110044	Farhana Akter	2-2	Power Systems	30	Not Applicable
2110045	Arif Ahmed	2-2	Artificial Intelligence	45	Not Applicable
2110046	Sadia Islam	2-2	Digital Electronics	20	APPLICABLE

Task 4: Delete the student info whose marks are below 30.

Solving procedure:

- Use DELETE to remove student records where obtainedMarks are below 30.
- Apply the condition WHERE obtainedMarks < 30 to target specific rows.
- Execute the query to delete the relevant student information from the table.

Query :

```
1 DELETE from studentdetails where obtainedMarks<30;
```

Output:

Roll	Name	CURRENTSEMESTER	MajorSubject	ObtainedMarks	Log
2110037	Abu Nayeem	2-2	Machine Learning	50	Not Applicable
2110038	Shakib Hasan	2-2	Machine Learning	55	Not Applicable
2110040	Jahidul Islam	2-2	Data Science	70	Not Applicable
2110043	Rakibul Hasan	2-2	Electrical Machines	40	Not Applicable
2110044	Farhana Akter	2-2	Power Systems	30	Not Applicable
2110045	Arif Ahmed	2-2	Artificial Intelligence	45	Not Applicable

Discussion:

In this lab, several SQL statements were utilized to manage the 'StudentDetails' table, beginning with the 'CREATE TABLE' statement, which was used to define the schema and data types for consistency, followed by 'INSERT' statements to populate the table with initial data. The ALTER TABLE command, specifically the 'CHANGE' keyword, was employed to rename the semester column to 'CURRENTSemester' and update its data type to 'TEXT(255)', enhancing flexibility. The 'UPDATE' statement was effectively used to set the log column to 'Not Applicable' for all rows, and specific rows were updated to 'APPLICABLE' based on the condition of 'ObtainedMarks' being less than 30, demonstrating the application of conditional logic. Additionally, the DELETE statement was used to remove records of students with 'ObtainedMarks' below 30, ensuring accurate deletion through specified WHERE conditions. Overall, the queries were performed successfully, achieving the desired modifications, although challenges were faced in ensuring accuracy during condition checks. Proper validation was deemed essential prior to execution to avoid errors.

Reference:

- [1] W3Schools.com, "SQL Syntax," W3Schools, https://www.w3schools.com/sql/sql_syntax.asp (accessed Sep. 23, 2024).
- [2] R. Elmasri and S. B. Navathe, *Fundamentals of Database Systems*, 7th ed. Boston, MA, USA: Pearson, 2016, pp. 235-240.