
Department of
Computer Science and Engineering

# Title: Modifying MySQL databases and Updating Data in MySQL Table

Database System Lab

CSE 210


Green University of Bangladesh

# 1 Objective(s)

- To gain the advance knowledge for modifying and updating MySQL databases.
- To implement different types of modifying statements using ADD, DROP, CHANGE and UPDATE. .

# 2 Problem analysis

The modify command is used when we have to modify a column in the existing table, like add a new one, modify the datatype for a column, and drop an existing column. By using this command we have to apply some changes to the result set field. The UPDATE statement updates data in a table. It allows you to change the values in one or more columns of a single row or multiple rows.

## 2.1 Table modification using alter table

The ALTER TABLE statement is used to add, delete, or modify columns in an existing table. It is also used to add and drop various constraints on an existing table.

- To add a column in a table, use the following syntax:

```
ALTER TABLE Customers ADD column_name datatype;
```

- To delete a column in a table, use the following syntax:

```
ALTER TABLE table_name DROP COLUMN column_name;
```

- To change the data type of a column in a table, use the following syntax:

```
ALTER TABLE table_name ALTER COLUMN column_name datatype;
```

- The UPDATE statement is used to modify the existing records in a table.

```
UPDATE table_name
SET column1 = value1, column2 = value2,...
WHERE condition;
```

# 3 Procedure (Implementation in MySQL)

1. **Create a table and Automatic increment values:**

```
CREATE TABLE Persons
(
ID int NOT NULL AUTO_INCREMENT,
FirstName varchar(50) NOT NULL,
LastName varchar(50),
Address varchar(50),
Email varchar(50),
PRIMARY KEY(ID)
);
```

2. **Mysql Add Column Examples:**

```
ALTER TABLE Persons ADD COLUMN City varchar(100);
```

3. **DROP an attributes/column from table persons:**

```
ALTER TABLE Persons DROP COLUMN Email;
```

4. **Add an attributes/column to table persons in any position of column:**

```
ALTER TABLE Persons ADD COLUMN Email varchar (100) AFTER LastName;
```

5. **Add an attributes/column to table persons in the first column:**

```
ALTER TABLE Persons
ADD COLUMN Gender Char(1)
FIRST;
```

6. **Add multiple attributes/column to table persons in single command:**

```
ALTER TABLE Persons
ADD COLUMN Salary int,
ADD COLUMN Entry_Date date;
```

7. **DROP multiple attributes/column from table persons:**

```
ALTER TABLE Persons
DROP COLUMN Gender,
DROP COLUMN Email;
```

8. **Changing columns constraints using MySQL ALTER TABLE statement:**

```
ALTER TABLE Persons
CHANGE COLUMN Salary Salary varchar(255) NOT NULL;
```

9. **Changing columns name using MySQL ALTER TABLE statement:**

**-Syntax:**

```
ALTER TABLE table_name
CHANGE COLUMN Old_Column_Name New_Column_Name Datatype If any Constraint;
```

```
ALTER TABLE Persons
CHANGE COLUMN Address Permanent_Address varchar(255) NOT NULL;
```

10. **Inserting data into tables using MySQL INSERT statement:(At First Create a Table**

```
CREATE TABLE Person_Info(
ID int NOT NULL AUTO_INCREMENT,
FirstName varchar(50) NOT NULL,
LastName varchar(50),
Address varchar(50),
Email varchar(50),
Salary int NOT NULL,
PRIMARY KEY(ID)
);
```

**Fig-1: Structure of Person_Info Table**

| Name | Type | Collation | Attributes | Null | Default | Comments | Extra |
|---|---|---|---|---|---|---|---|
| ID | int(11) | | | No | *None* | | AUTO_INCREMENT |
| FirstName | varchar(50) | utf8mb4_general_ci | | No | *None* | | |
| LastName | varchar(50) | utf8mb4_general_ci | | Yes | *NULL* | | |
| Address | varchar(50) | utf8mb4_general_ci | | Yes | *NULL* | | |
| Email | varchar(50) | utf8mb4_general_ci | | Yes | *NULL* | | |
| Salary | int(11) | | | No | *None* | | |

11. **Insert values into person_info table:**

```
INSERT INTO Persons (‘ID‘, ‘FirstName‘, ‘LastName‘, ‘Address‘, ‘Email‘, ‘Salary‘)

VALUES (’101’,’Abir’,’Rahman’,’Dhaka-1216’,’Abir@gmail.com’,20000);
```

```
INSERT INTO Persons (‘ID‘, ‘FirstName‘, ‘LastName‘, ‘Address‘, ‘Email‘, ‘Salary‘)

VALUES (Null,’Salma’,’Akter’,’Rajshahi-7000’,’Salma@gmail.com’,250000);
```

12. **Find all records from person_info:**
    SELECT *FROM ‘person_info‘;

**Fig-2: View the all record from Person_Info table**

| ID | FirstName | LastName | Address | Email | Salary |
|---|---|---|---|---|---|
| 101 | Abir | Rahman | Dhaka-1216 | Abir@gmail.com | 20000 |
| 102 | Salma | Akter | Rajshahi-7000 | Salma@gmail.com | 250000 |

13. **MySQL copy table examples:**

```
CREATE TABLE IF NOT EXISTS Person_info_Backup
SELECT * FROM Person_info;
```

**Fig-3: Find all records from new copied table Person_Info_Backup**

```
SELECT * FROM `person_info_backup`
```

Show all | Number of rows: 25 Filter rows: Search this table

+ Options

| ID | FirstName | LastName | Address | Email | Salary |
|---|---|---|---|---|---|
| 101 | Abir | Rahman | Dhaka-1216 | Abir@gmail.com | 20000 |
| 102 | Salma | Akter | Rajshahi-7000 | Salma@gmail.com | 250000 |

14. **Updating data using MySQL UPDATE statement**
    **o UPDATE a column single value:**

```
UPDATE person_info
SET Salary=300000
WHERE ID=101;
```

**o UPDATE a multiple columns single value:**

```
UPDATE person_info
SET FirstName= 'Arham', LastName='Ahmmed'
WHERE ID=102;
```

# 4 Discussion & Conclusion

Based on the focused objective(s) to understand about the knowledge of ALTER, ADD, DROP,CHANGE and UPDATE commands a real life object. And the lab exercise made students more confident towards the fulfilment of the objectives(s).

# 5 Lab Task (Please implement yourself and show the output to the instructor)

1. employee (e_name, street, city)
   company (company_name, branch, city)
   works (w_name, e_name, company_name, salary)

   Consider the employee database, give an expression in SQL for each of the following queries.

   a. Create this database and Insert information into employee, company and works (at least 2).

   b. Add emp_id and entry_date columns in employee relation.

   c. Modify column name city(employee)=address.

   d. Add column email in table employee. Update email and address columns information.

   e. Create a backup relation for works and employee table.

   f. Add key constraint (FOREIGN KEY) in company_name field to the works table.

# 6 Lab Exercise (Submit as a report)

1. Create This following Bank Database.

   branch (branch_name, branch_city, assets)
   customer (customer_id,customer_name, customer_city)
   account (account_number, branch_name, balance)
   loan (loan_number, branch_name, amount)
   depositor (customer_name, account_number)
   borrower (customer_name, loan_number)

   - Tables are placed according to parent and child relationship
   - Create above table considering PRIMARY KEY and FOREIGN KEY.
   - Data type for amount and balance are INTEGER otherwise VARCHAR(13).
   - Insert records into your table.
   - Add column Email in customer relation and Set the value.
   - Change the name of column name customer_city and modify the data type of column assets

# 7 Policy

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