20/2/22 # Data Manipulation Language - Project

- **AIM** - To use Data Manipulation Language to insert data to blood donation database and apply different manipulation queries.
- **Project Title** - Blood Donation Management System
- **Inserting Data**

→ **Insert Statement**

Adds new rows to tables.

Syntax :

```
Insert into tableName Values (value1, value2 ··· );
```

Q Insert rows to Blood Bank table using the syntax above:

→ Insert into Bloodbank values ('BB101', '0101', 'A+ x2', 'Rotary');

→ Insert into Bloodbank values ('BB102', '0102', 'B+ x 3', 'Red Cross').

→ Insert into Bloodbank values ('BB103', '0103', 'AB+ x 5', 'Sankalp India').

→ Insert into Bloodbank values ('BB104', '0104', 'AB- x1', 'Athar Blood').

→ Insert into Bloodbank values ('BB105', '0105', 'O- x7', 'National Blood Society').

→ Select * from Bloodbank;

Insert Data into BloodBank Table

```
mysql> Insert Into BloodBank values('BB101','O101','A+ x 2','Rotary');
Query OK, 1 row affected (0.27 sec)

mysql> Insert Into BloodBank values('BB102','O102','B+ x 3','Red Cross');
Query OK, 1 row affected (0.27 sec)

mysql> Insert Into BloodBank values('BB103','O103','AB+ x 5','Sankalp India');
Query OK, 1 row affected (0.14 sec)

mysql> Insert Into BloodBank values('BB104','O104','AB- x 1','Athar Blood');
Query OK, 1 row affected (0.13 sec)

mysql> Insert Into BloodBank values('BB105','O105','O- x 7','National Blood Society');
Query OK, 1 row affected (0.09 sec)

mysql> Select * from blood;
Empty set (0.03 sec)

mysql> Select * from bloodbank;
+-------------+---------+-----------+-----------------------+
| BloodBankID | ORDERID | OrderDesc | Name                  |
+-------------+---------+-----------+-----------------------+
| BB101       | O101    | A+ x 2    | Rotary                |
| BB102       | O102    | B+ x 3    | Red Cross             |
| BB103       | O103    | AB+ x 5   | Sankalp India         |
| BB104       | O104    | AB- x 1   | Athar Blood           |
| BB105       | O105    | O- x 7    | National Blood Society |
+-------------+---------+-----------+-----------------------+
5 rows in set (0.05 sec)
```

Insert Data into Blood Table

```
mysql> Insert Into Blood values('B101','A+','BB101','2022-01-07');
Query OK, 1 row affected (0.15 sec)

mysql> Insert Into Blood values('B102','B+','BB102','2022-01-22');
Query OK, 1 row affected (0.13 sec)

mysql> Insert Into Blood values('B103','O+','BB102','2022-02-22');
Query OK, 1 row affected (0.27 sec)

mysql> Insert Into Blood values('B104','AB+','BB103','2022-01-09');
Query OK, 1 row affected (0.39 sec)

mysql> Insert Into Blood values('B105','A-','BB105','2022-01-19');
Query OK, 1 row affected (0.42 sec)

mysql> Insert Into Blood values('B105','B-','BB104','2022-01-29');
ERROR 1062 (23000): Duplicate entry 'B105' for key 'blood.PRIMARY'
mysql> Insert Into Blood values('B106','B-','BB104','2022-01-29');
Query OK, 1 row affected (0.17 sec)

mysql> Insert Into Blood values('B107','O-','BB103','2022-01-18');
Query OK, 1 row affected (0.08 sec)

mysql> Insert Into Blood values('B108','AB-','BB105','2022-01-15');
Query OK, 1 row affected (0.28 sec)

mysql> Select * from blood;
+---------+-----------+-------------+------------+
| BloodID | BloodType | BloodBankID | DateOfReg  |
+---------+-----------+-------------+------------+
| B101    | A+        | BB101       | 2022-01-07 |
| B102    | B+        | BB102       | 2022-01-22 |
| B103    | O+        | BB102       | 2022-02-22 |
| B104    | AB+       | BB103       | 2022-01-09 |
| B105    | A-        | BB105       | 2022-01-19 |
| B106    | B-        | BB104       | 2022-01-29 |
| B107    | O-        | BB103       | 2022-01-18 |
| B108    | AB-       | BB105       | 2022-01-15 |
+---------+-----------+-------------+------------+
8 rows in set (0.00 sec)
```

Q. Insert data into Blood Table

→ Insert into blood values ('B101', 'A+', 'BB101', '2022-01-07');

→ Insert into blood values ('B102', 'B+', 'BB102', '2022-01-22');

→ Insert into blood values ('B103', 'O+', 'BB102', '2022-02-22');

→ Insert into blood values ('B104', 'AB+', 'BB103', '2022-01-09');

→ Insert into blood values ('B105', 'A-', 'BB105', '2022-01-19');

→ Insert into blood values ('B106', 'B-', 'BB104', '2022-01-24');

→ Insert into blood values ('B107', 'O-', 'BB103', '2022-01-18');

→ Insert into blood values ('B108', 'AB-', 'BB105', '2022-01-15');

Q. Insert data into Hospital Table.

→ Insert into hospital values ('H101', '0101', 'Ruby Hall', '3467876543', 'Pune');

→ Insert into hospital values ('H102', '0102', 'Apollo', '6678776543', 'Mumbai');

→ Insert into hospital values ('H103', '0103', 'Columbia Asia', '6758986543', 'Chennai');

→ Insert into hospital values ('H104', '0104', 'Nobel Hospital', '9898986543', 'Pune');

→ Insert into hospital values ('H105', '0105', 'Care Hospital', '9076786543', 'Delhi');

Insert Data into Hospital Table

```
mysql> Insert Into Hospital values('H101','O101','Ruby Hall','3467876543','Pune');
Query OK, 1 row affected (0.13 sec)

mysql> Insert Into Hospital values('H102','O102','Apollo','6678776543','Mumbai');
Query OK, 1 row affected (0.18 sec)

mysql> Insert Into Hospital values('H103','O103','Columbia Asia','6758986543','Chennai');
Query OK, 1 row affected (0.07 sec)

mysql> Insert Into Hospital values('H104','O104','Nobel Hospital','9898986543','Pune');
Query OK, 1 row affected (0.18 sec)

mysql> Insert Into Hospital values('H105','O105','Care Hospital','9076786543','Delhi');
Query OK, 1 row affected (0.11 sec)

mysql> select * from hospital;
+------------+---------+---------------+------------+---------+
| HospitalID | OrderID | Name          | Phone      | Address |
+------------+---------+---------------+------------+---------+
| H101       | O101    | Ruby Hall     | 3467876543 | Pune    |
| H102       | O102    | Apollo        | 6678776543 | Mumbai  |
| H103       | O103    | Columbia Asia | 6758986543 | Chennai |
| H104       | O104    | Nobel Hospital| 9898986543 | Pune    |
| H105       | O105    | Care Hospital | 9076786543 | Delhi   |
+------------+---------+---------------+------------+---------+
5 rows in set (0.00 sec)
```

Insert Data into Stock Table

```
mysql> Insert into stock values('S101','B101',115);
Query OK, 1 row affected (0.09 sec)

mysql> Insert into stock values('S102','B102',220);
Query OK, 1 row affected (0.19 sec)

mysql> Insert into stock values('S103','B103',890);
Query OK, 1 row affected (0.12 sec)

mysql> Insert into stock values('S104','B104',90);
Query OK, 1 row affected (0.15 sec)

mysql> Insert into stock values('S105','B105',45);
Query OK, 1 row affected (0.27 sec)

mysql> Insert into stock values('S106','B106',25);
Query OK, 1 row affected (0.20 sec)

mysql> Insert into stock values('S107','B107',102);
Query OK, 1 row affected (0.12 sec)

mysql> Insert into stock values('S108','B108',108);
Query OK, 1 row affected (0.15 sec)

mysql> SELECT * FROM STOCK;
+---------+---------+------+
| StockID | BloodID | Qty  |
+---------+---------+------+
| S101    | B101    |  115 |
| S102    | B102    |  220 |
| S103    | B103    |  890 |
| S104    | B104    |   90 |
| S105    | B105    |   45 |
| S106    | B106    |   25 |
| S107    | B107    |  102 |
| S108    | B108    |  108 |
```

Q. Insert data into Stock Table

-> Insert into Stock values ('S101', 'B101', 115);

-> Insert into Stock values ('S102', 'B102', 220);

-> Insert into stock values ('S103', 'B103', 890);

-> Insert into stock values ('S104', 'B104', 90);

-> Insert into stock values ('S105', 'B105', 45);

-> Insert into stock values ('S106', 'B106', 25);

-> Insert into stock values ('S107', 'B107', 102);

-> Insert into stock values ('S108', 'B108', 108);

Q Insert data into Manager Table

-> Insert into Manager values ('M101', 'Jay', '8988987090', '123, Pune', 'jay@gmail.com');

-> Insert into Manager values ('M102', 'Sia', '4545457090', 'Chennai, 23', 'sia@gmail.com');

-> Insert into Manager values ('M103', 'Aja', '8787870904', '890, Delhi', 'aja@gmail.com');

-> Insert into Manager values ('M104', 'Marc', '7798487090', '55, Mumbai', 'marc@gmail.com');

Insert Data into Manager Table

```
mysql> iNSERT INTO MANAGER values('M101','Jay','8989870904','123,Pune','jay@gmail.com');
Query OK, 1 row affected (0.05 sec)

mysql> iNSERT INTO MANAGER values('M102','Sia','45454570904','678,Chennai','sia@gmail.com');
Query OK, 1 row affected (0.23 sec)

mysql> iNSERT INTO MANAGER values('M103','Aja','8787870904','890,Delhi','aja@gmail.com');
Query OK, 1 row affected (0.07 sec)

mysql> iNSERT INTO MANAGER values('M104','Max','7787870904','55,Mumbai','max@gmail.com');
Query OK, 1 row affected (0.17 sec)

mysql> select * from manager;
+-------+------+-------------+-------------+---------------+
| EmpID | Name | Phone       | Address     | email         |
+-------+------+-------------+-------------+---------------+
| M101  | Jay  | 8989870904  | 123,Pune    | jay@gmail.com |
| M102  | Sia  | 45454570904 | 678,Chennai | sia@gmail.com |
| M103  | Aja  | 8787870904  | 890,Delhi   | aja@gmail.com |
| M104  | Max  | 7787870904  | 55,Mumbai   | max@gmail.com |
+-------+------+-------------+-------------+---------------+
4 rows in set (0.00 sec)
```

→ Apply Different Manipulations

o Update Statement

Syntax :
Update table set column = value, column = value
where condition ;

Q Change email of employee with empid = 'M102' to 'sia23@gmail.com' of table employ manager

→ Update Manager set email = 'sia23@gmail.com' where empid = 'M102';

Q. Change lastname of personnel with firstname 'Alex' to 'MJ'

→ Update Personnel set lastname = 'MJ' where firstname = 'Alex';

Q. Change the email to 'xyz@gmail.com' for all rows that have null values in email column of table labtech.

→ Update LabTech set email = 'xyz@gmail.com' where email is null;

Applying Different Manipulation Techniques

Update Statement

```
mysql> update manager set email='sia23@gmail.com' where empid='M102';
Query OK, 1 row affected (0.98 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM MANAGER;
+-------+------+-------------+-------------+-----------------+
| EmpID | Name | Phone       | Address     | email           |
+-------+------+-------------+-------------+-----------------+
| M101  | Jay  | 8989870904  | 123,Pune    | jay@gmail.com   |
| M102  | Sia  | 45454570904 | 678,Chennai | sia23@gmail.com |
| M103  | Aja  | 8787870904  | 890,Delhi   | aja@gmail.com   |
| M104  | Max  | 7787870904  | 55,Mumbai   | max@gmail.com   |
+-------+------+-------------+-------------+-----------------+
4 rows in set (0.03 sec)
```


```
mysql> update manager set email='sia23@gmail.com' where empid='M102';
Query OK, 1 row affected (0.98 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM MANAGER;
+-------+------+-------------+-------------+-----------------+
| EmpID | Name | Phone       | Address     | email           |
+-------+------+-------------+-------------+-----------------+
| M101  | Jay  | 8989870904  | 123,Pune    | jay@gmail.com   |
| M102  | Sia  | 45454570904 | 678,Chennai | sia23@gmail.com |
| M103  | Aja  | 8787870904  | 890,Delhi   | aja@gmail.com   |
| M104  | Max  | 7787870904  | 55,Mumbai   | max@gmail.com   |
+-------+------+-------------+-------------+-----------------+
4 rows in set (0.03 sec)
```


```
mysql> select * from labtech;
+-----------+----------+-----------+---------------+------------+------------+
| firstName | lastname | address   | email         | phone      | dob        |
+-----------+----------+-----------+---------------+------------+------------+
| Alex      | Paul     | Australia | xyz@gmail.com | 4556789098 | 2000-03-01 |
| Tom       | j        | us        | NULL          | NULL       | NULL       |
+-----------+----------+-----------+---------------+------------+------------+
2 rows in set (0.00 sec)

mysql> update labtech set email='xyz@gmail.com' where email is null;
Query OK, 1 row affected (0.13 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from labtech;
+-----------+----------+-----------+---------------+------------+------------+
| firstName | lastname | address   | email         | phone      | dob        |
+-----------+----------+-----------+---------------+------------+------------+
| Alex      | Paul     | Australia | xyz@gmail.com | 4556789098 | 2000-03-01 |
| Tom       | j        | us        | xyz@gmail.com | NULL       | NULL       |
+-----------+----------+-----------+---------------+------------+------------+
```

- **Delete Statement**

Remove existing rows from a table by using delete statement.

Syntax:
Delete from table where condition

Q. Delete from LabTech where firstName = 'Pam' and also, the address is uk

→ Delete from LabTech where firstName = 'Pam' and address = 'uk';

Q. Delete all rows from LabTech where the phone value is null.

→ Delete from LabTech where phone is null;

- **Select Statement**

To perform a query we use select statement. Syntax:
select [Distinct] {*, column [alias], ...} from table;

Q. List all the rows of table hospital.

→ select * from hospital;

Q. List the firstName and bloodType of donor Table

→ select firstName, bloodType from Donor;

Delete Statement

```
mysql> delete from labtech where firstname='Pam' and address='uk';
Query OK, 1 row affected (0.31 sec)

mysql> select * from labtech;
+-----------+----------+-----------+---------------+------------+------------+
| firstName | lastname | address   | email         | phone      | dob        |
+-----------+----------+-----------+---------------+------------+------------+
| Alex      | Paul     | Australia | xyz@gmail.com | 4556789098 | 2000-03-01 |
| Tom       | j        | us        | xyz@gmail.com | NULL       | NULL       |
| Pam       | j        | us        | NULL          | NULL       | NULL       |
+-----------+----------+-----------+---------------+------------+------------+
3 rows in set (0.00 sec)

mysql> delete from labtech where phone is null;
Query OK, 2 rows affected (0.11 sec)

mysql> select * from labtech;
+-----------+----------+-----------+---------------+------------+------------+
| firstName | lastname | address   | email         | phone      | dob        |
+-----------+----------+-----------+---------------+------------+------------+
| Alex      | Paul     | Australia | xyz@gmail.com | 4556789098 | 2000-03-01 |
+-----------+----------+-----------+---------------+------------+------------+
1 row in set (0.00 sec)
```

Select Statement

```
mysql> select * from hospital;
+------------+---------+----------------+------------+---------+
| HospitalID | OrderID | Name           | Phone      | Address |
+------------+---------+----------------+------------+---------+
| H101       | O101    | Ruby Hall      | 3467876543 | Pune    |
| H102       | O102    | Apollo         | 6678776543 | Mumbai  |
| H103       | O103    | Columbia Asia  | 6758986543 | Chennai |
| H104       | O104    | Nobel Hospital | 9898986543 | Pune    |
| H105       | O105    | Care Hospital  | 9076786543 | Delhi   |
+------------+---------+----------------+------------+---------+
5 rows in set (0.21 sec)

mysql> select firstName,bloodType from donor;
+-----------+-----------+
| firstName | bloodType |
+-----------+-----------+
| Alex      | O+        |
| Bell      | B+        |
| Cass      | AB+       |
| Jess      | O-        |
| Jerry     | B+        |
| Terry     | AB+       |
| Mia       | B+        |
| Anna      | B-        |
+-----------+-----------+
8 rows in set (0.04 sec)
```

o

Result

Data Manipulation Language commands were understood and implemented for adding and manipulating records of blood Donation database.