Name	Sujal Sandeep Dingankar, Harsha Tanaji Surwase
UID	2024301005, 2024301033
Experiment No.	2
Aim	To understand DDL and DML commands in MySql.
Problem Statement	Write DDL commands to create a table with primary key, foreign key, and check constraints, and demonstrate altering the table to add, modify, or drop a column. Use DML commands to insert values into the table, update specific records, and delete records.
	mysgl> create database BMS:

DDL Command

```
mysql> create database BMS;
Query OK, 1 row affected (0.01 sec)
mysql> use BMS;
Database changed
```

Database created with the name BMS and use command is used with database name to perform operations on the database.

```
mysql> create table Donor(
    -> id int primary key,
    -> firstname varchar(20) not null,
    -> lastname varchar(20) not null,
    -> contact varchar(11),
    -> email varchar(550) unique,
    -> bloodgroup varchar(30),
-> Age integer check(Age >= 18),
    -> healthstatus varchar(20)
-> );
Query OK, 0 rows affected (0.04 sec)
mysql> desc Donor;
 Field
                  Type
                                   Null
                                          Key
                                                 Default | Extra
  id
                  int
                                   NO
                                           PRI
                                                 NULL
  firstname
                  varchar(20)
                                   NO
                                                 NULL
  lastname
                  varchar(20)
                                   NO
                                                 NULL
                  varchar(11)
                                   YES
  contact
                                                 NULL
                                           UNI
                                   YES
  email
                  varchar(550)
                                                 NULL
                                   YES
  bloodgroup
                  varchar(30)
                                                 NULL
                                   YES
                                                 NULL
                  int
  Age
  healthstatus
                  varchar(20)
                                   YES
                                                 NULL
 rows in set (0.01 sec)
```

The Donor table is created with a primary key, unique email, and not null constraints on `firstName` and `lastName`. It includes a check constraint on `Age` (must be ≥ 18) and stores other details like contact, blood group, and health status.

```
mysql> create table Blood(
    -> id int primary key,
    -> bloodgroup varchar(20) not null,
    -> quantity integer,
    -> expiry_date date,
    -> bloodStatus varchar(10)
    -> );
Query OK, 0 rows affected (0.03 sec)
mysql> desc Blood;
 Field
                               Null |
                                             Default |
                Type
                                       Key
  id
                 int
                                NO
                                       PRI
                                             NULL
  bloodgroup
                 varchar(20)
                                NO
                                             NULL
                                YES
                                             NULL
  quantity
                 int
  expiry_date
                 date
                                YES
                                             NULL
  bloodStatus
                varchar(10)
                               YES
                                             NULL
 rows in set (0.00 sec)
```

The **Blood** table is created to store information about blood units. It includes attributes such as id (the primary key), bloodgroup, quantity, expiry_date, and bloodStatus. This table helps manage the inventory of blood units and track their availability and condition.

```
mysql> create table Donne(
    -> id int primary key,
-> firstname varchar(10) not null,
    -> lastname varchar(10) not null,
    -> contact varchar(20),
    -> email varchar(30) unique,
    -> bloodgroup varchar(10)
    -> healthstatus varchar(15).
    -> request_id varchar(10),
    -> request_date date
    -> );
Query OK, 0 rows affected (0.03 sec)
mysql> desc donne;
  Field
                                 Null
                                                Default
                  Type
                                         Key
                                                           Extra
                                         PRI
  id
                  int
                                 NO
                                                NULL
  firstname
                  varchar(10)
                                  NO
                                                NULL
                  varchar(10)
                                  NO
                                                NULL
  lastname
  contact
                   varchar(20)
                                  YES
                                                NULL
  email
                   varchar(30)
                                  YES
                                         UNI
                                                NULL
  bloodgroup
                   varchar(10)
                                  YES
                                                NULL
                  varchar(15)
  healthstatus
                                  YES
                                                NULL
                  varchar(10)
  request_id
                                  YES
                                                NULL
  request_date
                                  YES
                                                NULL
9 rows in set (0.00 sec)
```

The **Donne** table is designed to hold details about donors. It consists of attributes including id (the primary key), firstName, lastName, contact, email (which is unique), bloodgroup, request_id, request date and healthstatus. This structure ensures that each donor's information is recorded accurately for future reference.

```
mysql> CREATE TABLE Blood_Donation (
           id INT PRIMARY KEY,
           donar_id INT(20),
           blood_id INT(20),
           donee_id INT(20)
           donation_date DATE,
           receive_date DATE,
           FOREIGN KEY (donar_id) REFERENCES Donor(id),
           FOREIGN KEY (blood_id) REFERENCES Blood(id)
           FOREIGN KEY (donee_id) REFERENCES Donne(id)
    -> );
Query OK, 0 rows affected, 3 warnings (0.04 sec)
mysql> desc Blood_Donation;
  Field
                   Type
                          Null
                                 Key
                                        Default | Extra
  id
                   int
                          NO
                                  PRI
                                        NULL
  donar_id
                   int
                          YES
                                  MUL
                                        NULL
  blood_id
                   int
                          YES
                                  MUL
                                        NULL
  donee_id
                   int
                          YES
                                  MUL
                                        NULL
  donation_date
                   date
                          YES
                                        NULL
  receive_date
                   date
                          YES
                                        NULL
 rows in set (0.00 sec)
```

The **Blood_Donation** table serves to link donations to their respective donors and blood units. It contains foreign keys referencing the id from the **Donor** table, id from the **Blood** table, and id from the **Donne** table, along with a donation_date. This table maintains the relationships between donors and the blood they donate, facilitating effective tracking of donation events.

Alter Command:

```
mysql> alter table Donor
    -> add Column gender varchar(15);
Query OK, 0 rows affected (0.04 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> desc Donor;
  Field
                                 Null
                                               Default
                 Type
                                        Key
                                                         Extra
                  int
                                 NO
                                         PRI
                                               NULL
  firstname
                  varchar(20)
                                 NO
                                               NULL
                  varchar(20)
                                               NULL
  lastname
                                 NO
                  varchar(11)
  contact
                                 YES
                                               NULL
                                         UNI
  email
                  varchar(550)
                                 YES
                                               NULL
  bloodgroup
                  varchar(30)
                                 YES
                                               NULL
  Age
                  int
                                 YES
                                               NULL
  healthstatus
                  varchar(20)
                                 YES
                                               NULL
                                 YES
                  varchar(15)
                                               NULL
  gender
 rows in set (0.00 sec)
```

The command adds a new column named **gender** of type **varchar(15)** to the existing **Donor** table, allowing the storage of gender information for each donor.

```
mysql> alter table Donor
   -> modify column gender varchar(15) not null;
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> desc Donor;
 Field
                 Type
                                Null | Key | Default | Extra
  id
                 int
                                        PRI
                                              NULL
                                 NO
  firstname
                 varchar(20)
                                              NULL
                                 NO
                 varchar(20)
  lastname
                                 NO
                                              NULL
                 varchar(11)
                                 YES
  contact
                                              NULL
                                        UNI
  email
                 varchar(550)
                                 YES
                                              NULL
  bloodgroup
                 varchar(30)
                                 YES
                                              NULL
                 int
                                 YES
                                              NULL
  Age
  healthstatus
                 varchar(20)
                                 YES
                                              NULL
                 varchar(15)
                                              NULL
  gender
                                NO
9 rows in set (0.00 sec)
```

The gender column is modified with not null so it will not accept null values for further insert operation.

```
mysql> alter table Donor
-> drop column gender;
Query OK, 0 rows affected (0.03 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> desc Donor;
  Field
                                      Null | Key | Default | Extra
                   Type
  id
                                               PRI
                    int
                                      NO
                                                      NULL
  firstname
                    varchar(20)
                                      NO
                                                      NULL
  lastname
                    varchar(20)
                                      NO
                                                      NULL
                                      YES
                    varchar(11)
  contact
                                                      NULL
                    varchar(550)
                                      YES
                                               UNI
  email
                                                      NULL
                                      YES
  bloodgroup
                    varchar(30)
                                                      NULL
                    int
                                      YES
                                                      NULL
  healthstatus | varchar(20)
                                      YES
                                                      NULL
  rows in set (0.00 sec)
```

Gender column is dropped using alter command.

```
mysql> truncate table bloodManager;
Query OK, 0 rows affected (0.04 sec)
```

Truncate command used.

```
mysql> drop table bloodManager;
Query OK, 0 rows affected (0.02 sec)
```

Drop Command used.

DML Command

```
mysql> INSERT INTO Donor(id, firstname, lastname, contact, email, bloodgroup, Age, healthstatus)
      -> VALUES
     -> VALUES
-> (101, 'Sujal', 'Dingankar', '7798802841', 'sujal.dingankar@spit.ac.in', '0+', 20, 'Healthy'
-> (102, 'Shreeya', 'Nemade', '7698231082', 'shreeya.nemade@spit.ac.in', 'A+', 19, 'Healthy'),
-> (103, 'Harsha', 'Surwase', '5612798561', 'harsha.surwase@spit.ac.in', 'B+', 19, 'Healthy'),
-> (104, 'Avinash', 'Patil', '1234598745', 'avinash.patil@spit.ac.in', 'AB+', 20, 'Healthy'),
-> (105, 'Shruti', 'Bhuvad', '455612345', 'shruti.bhuvad@spit.ac.in', 'A+', 21, 'Healthy');
                                                      '7798802841', 'sujal.dingankar@spit.ac.in', '0+', 20, 'Healthy'),
'7698231082', 'shreeya.nemade@spit.ac.in', 'A+', 19, 'Healthy'),
Query OK, 5 rows affected (0.01 sec)
Records: 5 Duplicates: 0 Warnings: 0
mysql> select * from Donor;
           firstname
                              lastname
                                                  contact
                                                                      email
                                                                                                                    bloodgroup
                                                                                                                                                 | healthstatus
                                                                                                                                         Age
                                                                                                                                                    Healthy
   101
           Sujal
                               Dingankar
                                                  7798802841
                                                                      sujal.dingankar@spit.ac.in
   102
                                                  7698231082
                                                                                                                                            19
                                                                                                                                                    Healthy
           Shreeya
                                                                                                                    Δ+
                               Nemade
                                                                       shreeya.nemade@spit.ac.in
   103
           Harsha
                               Surwase
                                                  5612798561
                                                                       harsha.surwase@spit.ac.in
                                                                                                                    B+
                                                                                                                                            19
                                                                                                                                                    Healthy
                                                                                                                                                   Healthy
  104
                               Patil
                                                  1234598745
                                                                      avinash.patil@spit.ac.in
                                                                                                                    AB+
           Avinash
                                                                                                                                            20
                                                  455612345
  105
           Shruti
                               Bhuvad
                                                                      shruti.bhuvad@spit.ac.in
                                                                                                                                                   Healthy
5 rows in set (0.00 sec)
```

This INSERT command adds five records to the Donor table, each representing a unique donor with attributes such as ID, first name, last name, contact number, email address, blood group, age and health status, all adhering to the specified data types and constraints.

```
mysql> Insert into Blood(id, bloodgroup, quantity, expiry_date, bloodstatus) Values
     -> (101, 'A+',50,'2024-10-13','Available'),
-> (102,'B+',100,'2024-10-09','Available'),
-> (103,'AB+',150,'2024-10-15','Expired'),
-> (104,'0+',170,'2024-10-20','Available'),
-> (105,'A+',60,'2024-10-14','Available');
Query OK, 5 rows affected (0.01 sec)
Records: 5 Duplicates: 0 Warnings: 0
mysql> select * from Blood;
  id
          bloodgroup
                             quantity
                                             expiry_date
                                                                 bloodStatus
  101
           Α+
                                      50
                                             2024-10-13
                                                                 Available
           B+
                                             2024-10-09
                                                                 Available
  102
                                     100
  103
           AB+
                                             2024-10-15
                                                                 Expired
                                     150
  104
           0+
                                     170
                                             2024-10-20
                                                                 Available
  105
           Α+
                                      60
                                             2024-10-14
                                                                 Available
  rows in set (0.00 sec)
```

This INSERT command adds five records to the Blood table, detailing various blood units with attributes including ID, blood group, quantity, expiry date, and availability status.

```
mysql> Insert into Donne(id, firstname, lastname, contact, email, bloodgroup, healthstatus, request_id, request_date)
      -> (101, 'Shubham', 'Bhuvad', '7798521123', 'shubham.bhuvad@spit.ac.in', 'A+', 'Healthy', 'R001', '2024-10-05'),
     -> (102, 'Sanjay', 'Kadam', '4568912345', 'sanjay.bhuvad@spit.ac.in', 'AB+', 'Healthy', 'R002', '2024-10-06'),
-> (103, 'Harshvardan', 'Nemade', '777894561', 'harshavardan.nemade@spit.ac.in', '0+', 'Healthy', 'R003', '2024-10-14'),
-> (104, 'Soham', 'Bhojane', '564781234', 'soham.bhojane@spit.ac.in', 'A+', 'Healthy', 'R004', '2024-10-20'),
-> (105, 'Pratiksha', 'Kunke', '8895421463', 'pratiksha.kunke@spit.ac.in', 'B+', 'Healthy', 'R005', '2024-10-18');
Query OK, 5 rows affected (0.01 sec)
Records: 5 Duplicates: 0 Warnings: 0
mysql> select * from Donne:
        firstname
                            | lastname | contact
                                                                email
                                                                                                             | bloodgroup | healthstatus | request_id | request_date
  101
        Shubham
                               Bhuvad
                                              7798521123 | shubham.bhuvad@spit.ac.in
                                                                                                                                 Healthy
                                                                                                                                                                         2024-10-05
                                               4568912345
                                                                                                                                                                         2024-10-06
   102
           Sanjay
                               Kadam
                                                                 sanjay.bhuvad@spit.ac.in
                                                                                                               AB+
                                                                                                                                 Healthy
                                                                                                                                                      R002
                                                                                                                                 Healthy
   103
          Harshvardan
                               Nemade
                                               777894561
                                                                 harshavardan.nemade@spit.ac.in
                                                                                                              0+
                                                                                                                                                      R003
                                                                                                                                                                         2024-10-14
   104
           Soham
                               Bhojane
                                               564781234
                                                                 soham.bhojane@spit.ac.in
                                                                                                               Δ+
                                                                                                                                 Healthy
                                                                                                                                                      R004
                                                                                                                                                                         2024-10-20
                                                                                                                                                                        2024-10-18
  105 | Pratiksha
                               Kunke
                                              8895421463
                                                                pratiksha.kunke@spit.ac.in
                                                                                                               B+
                                                                                                                                 Healthy
                                                                                                                                                      R005
  rows in set (0.00 sec)
```

This **INSERT** command adds five records to the **Donne** table, capturing essential details for each individual, including ID, first name, last name, contact number, email address, blood group, and health status.

```
mysql> Insert into blood_donation(id,donar_id, blood_id, donee_id, donation_date, receive_date)
      -> Values
-> Values
-> (01,101,101,101,'2024-10-01','2024-10-05'),
-> (02,102,102,NULL,'2024-10-15',NULL),
-> (03,103,103,NULL,'2024-10-20',NULL),
-> (04,104,104,104,'2024-10-16','2024-10-12'),
-> (05,105,105,105,'2024-10-24','2024-10-25');
Query OK, 5 rows affected (0.01 sec)
Records: 5 Duplicates: 0 Warnings: 0
mysql> select * from blood_donation;
          donar_id | blood_id | donee_id | donation_date
   id |
                                                                                    receive_date
    1
                  101
                                  101
                                                   101
                                                            2024-10-01
                                                                                    2024-10-05
                  102
                                  102
                                                            2024-10-15
                                                 NULL
                                                                                    NULL
                                                            2024-10-20
                  103
                                   103
                                                 NULL
                                                                                    NULL
    Ц
                  104
                                  104
                                                   104
                                                            2024-10-16
                                                                                    2024-10-12
    5
                  105
                                  105
                                                   105
                                                            2024-10-24
                                                                                    2024-10-25
5 rows in set (0.00 sec)
```

This **INSERT** command adds five records to the **Blood_Donation** table, documenting donation events with details including the donation ID, donor ID, blood ID, individual ID, and the date of donation.

id firstname	lastname	contact	email	bloodgroup	Age	healthstatus
101 Sujal 102 Shreeya 103 Harsha 104 Avinash 105 Shruti	Dingankar Nemade Surwase Patil Bhuvad	7798802841 7698231082 5612798561 1234598745 455612345	sujal.dingankar@spit.ac.in shreeya.nemade@spit.ac.in harsha.surwase@spit.ac.in avinash.patil@spit.ac.in shruti.bhuvad@spit.ac.in	0+ A+ B+ AB+ A+	20 19 19 19 20 21	Healthy Healthy Healthy Healthy Healthy
rows in set (0.0 sql> update Dono ery OK, 1 row af	r set firstna fected (0.01	sec)	nere id = 104;			
sql> update Dono ery OK, 1 row af ws matched: 1 C sql> Select * fr	r set firstna fected (0.01 hanged: 1 Wa om Donor;	sec) arnings: 0	, 	 bloodgroup	 Age	 healthstatus
sql> update Dono ery OK, 1 row af ws matched: 1 C sql> Select * frid firstname	r set firstna fected (0.01 hanged: 1 Wa om Donor; + lastname	sec) arnings: 0 contact	email	bloodgroup		+
sql> update Dono ery OK, 1 row af ws matched: 1 C sql> Select * frid firstname	r set firstna fected (0.01 hanged: 1 Wa om Donor; + lastname + Dingankar	sec) arnings: 0 contact 7798802841	 email sujal.dingankar@spit.ac.in	 0+	 20	Healthy
sql> update Dono ery OK, 1 row af ws matched: 1 C sql> Select * fr id firstname	r set firstna fected (0.01 hanged: 1 Wa om Donor; + lastname + Dingankar Nemade	sec) arnings: 0 contact 7798802841 7698231082		 0+ A+	20 19	Healthy
rsql> update Dono lery OK, 1 row af lws matched: 1 C rsql> Select * fr id firstname id Sujal	r set firstna fected (0.01 hanged: 1 Wa om Donor; + lastname + Dingankar	sec) arnings: 0 contact 7798802841	 email sujal.dingankar@spit.ac.in	 0+	 20	

This **UPDATE** command modifies the **firstName** of the donor with ID **104**, changing it to "Avi" in the **Donor** table.

ysql> Select * fr	UIII DUIIUI,					
id firstname	lastname	contact	email	bloodgroup	Age	healthstatus
101 Sujal	Dingankar	7798802841	sujal.dingankar@spit.ac.in	0+	20	Healthy
102 Shreeya	Nemade	7698231082	shreeya.nemade@spit.ac.in	A+	19	Healthy
103 Harsha	Surwase	5612798561	harsha.surwase@spit.ac.in	B+	19	Healthy
104 Avi	Patil	1234598745	avinash.patil@spit.ac.in	AB+	20	Healthy
105 Shruti	Bhuvad	455612345	shruti.bhuvad@spit.ac.in	A+	21	Healthy
ysql> update Dono: -> set age = 20 -> where email	9	ac.in':				
	0 like'%spit.a ffected (0.01 hanged: 3 Wa	l sec)				
-> set age = 20 -> where email uery OK, 3 rows a- ows matched: 5 Cl	0 like'%spit.a ffected (0.01 hanged: 3 Wa	l sec)	 email	bloodgroup	 Age	healthstatus
-> set age = 20 -> where email uery OK, 3 rows a- ows matched: 5 Cl ysql> Select * fr	0 like'%spit.a ffected (0.03 hanged: 3 Wa om Donor; !	l sec) arnings: 0	email sujal.dingankar@spit.ac.in	 bloodgroup 	+ Age 	healthstatus
-> set age = 20 -> where email uery OK, 3 rows a- ows matched: 5 Cl ysql> Select * fro- id firstname	0 like'%spit.a ffected (0.01 hanged: 3 Wa om Donor; + lastname	l sec) arnings: 0		·		
-> set age = 20 -> where email uery OK, 3 rows a- ows matched: 5 Cl ysql> Select * fr id firstname	0 like'%spit.a ffected (0.01 hanged: 3 Wa om Donor;	L sec) arnings: 0 contact 7798802841 7698231082 5612798561	sujal.dingankar@spit.ac.in shreeya.nemade@spit.ac.in harsha.surwase@spit.ac.in	 0+	20	Healthy
-> set age = 20 -> where email uery OK, 3 rows a ows matched: 5 cl ysql> Select * fr id firstname 101 Sujal 102 Shreeya	0 like'%spit.a ffected (0.01 hanged: 3 Wa om Donor;	l sec) arnings: 0 contact 7798802841 7698231082	sujal.dingankar@spit.ac.in shreeya.nemade@spit.ac.in	0+ A+	20 20	Healthy Healthy

This **UPDATE** command sets the **age** to **20** for all donors in the **Donor** table whose email addresses end with **@spit.ac.in**.

	<pre>mysql> DELETE FROM Blood_Donation WHERE donee_id = 105; Query OK, 1 row affected (0.01 sec) mysql> DELETE FROM Donne WHERE bloodgroup = 'B+'; Query OK, 1 row affected (0.00 sec) mysql> Select * from Donne;</pre>									
	id	 firstname	 lastname	 contact	+ email	+ bloodgroup	+ healthstatus !	+ request_id	+ request_date	
	102 103	Shubham Sanjay Harshvardan Soham	:	7798521123 4568912345 777894561 564781234	shubham.bhuvad@spit.ac.in sanjay.bhuvad@spit.ac.in harshavardan.nemade@spit.ac.in soham.bhojane@spit.ac.in	A+ AB+ O+ A+	Healthy Healthy Healthy Healthy	R001 R002 R003 R004	2024-10-05 2024-10-06 2024-10-14 2024-10-20	
	This	in set (0.00 s	TE co		removes all record	s from	the Don i	ne table	where the	
Conclusion	in N expo	IySQL t	to creatimpro	te and r	arned how to use di nanage database str y skills in organ ase.	ructures	and mai	nipulate	data. This	