HOSPITAL BLOOD BANK MANAGEMENT

❖ ABSTRACT

The hospital blood bank is responsible for management of the hospital's blood stock. This includes maintaining an inventory for each blood group, ensuring an average age of blood at time of issue, and monitoring the amount of blood that becomes out dated or is not used for other reasons.

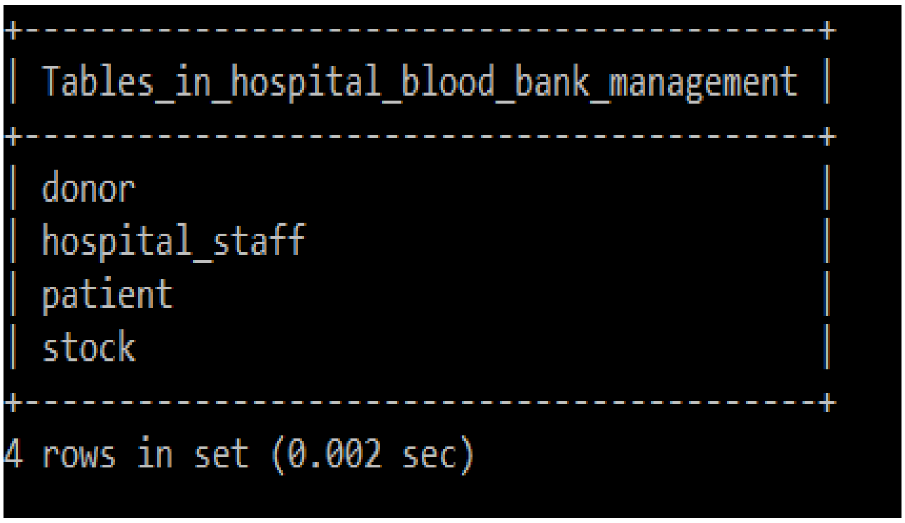
Blood donation management system:

In short we can say that blood donation management system is an online web application which helps the blood bank and hospitals to look for the blood donor information and to provide direct link between the donor and recipient. It provides the unique identification number at the time of blood donation camp which helps him for the future correspondence.

Principle of blood banking:

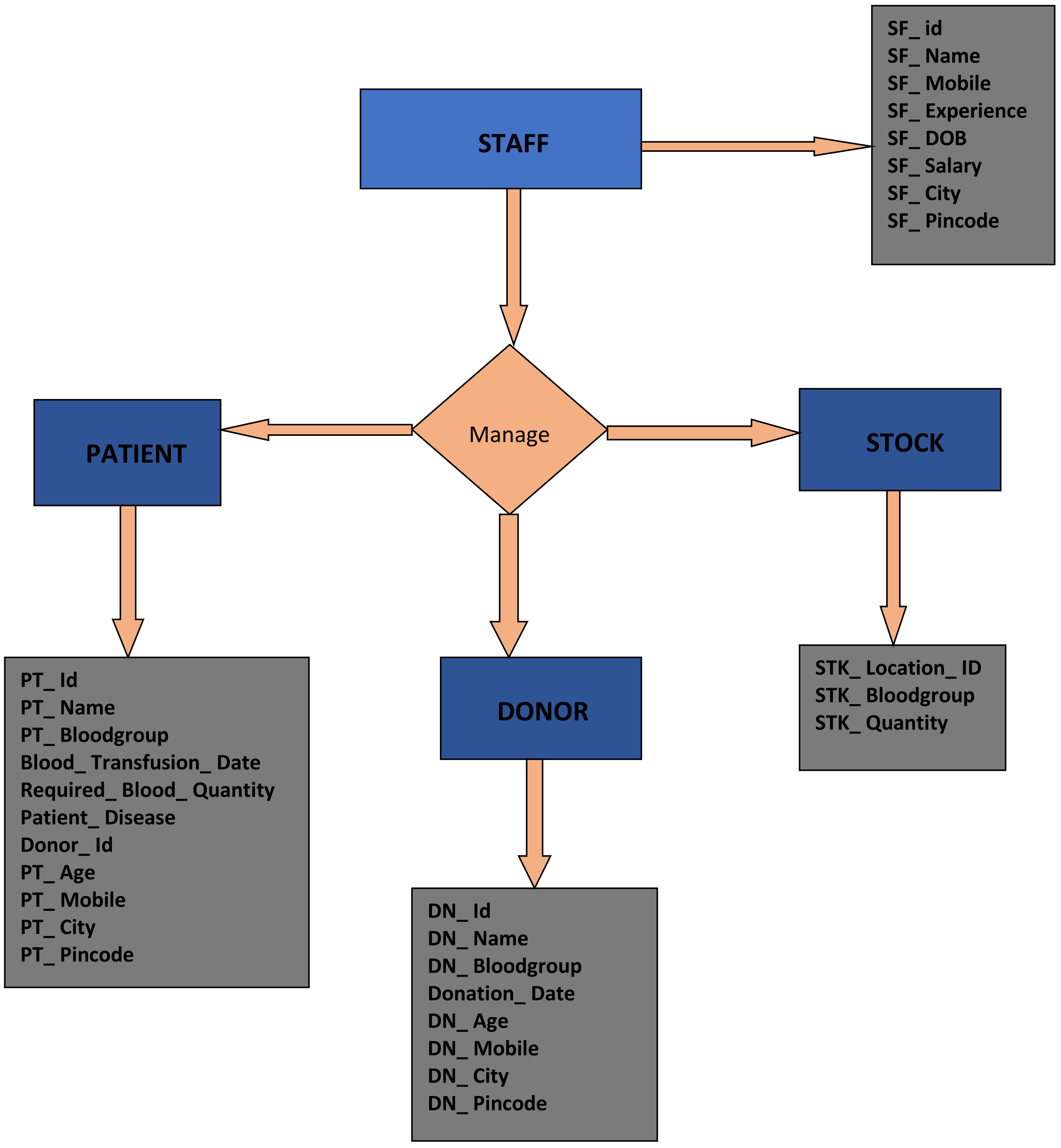
The discipline of Transfusion Medicine (also known as “Blood Banking”) includes: (i) the collection, testing, processing, and preparation of blood and blood components; (ii) the selection of the most appropriate products and transfusion practice based on laboratory findings and patient need; and (iii) the monitoring of the effectiveness of transfusion as modified by disease, physiological status, or the procedure(s) performed. Certain patient groups (e.g., neonates, oncology patients, hematopoietic progenitor cell transplant recipients, those with sickle cell disease, and others); often require complex pretransfusion processing and specialized product selection and modification.

Table List of Hospital Blood Bank Management Project



```
+-----------------------------------------+
| Tables_in_hospital_blood_bank_management |
+-----------------------------------------+
| donor                                    |
| hospital_staff                           |
| patient                                  |
| stock                                    |
+-----------------------------------------+
4 rows in set (0.002 sec)
```

ER DIAGRAM

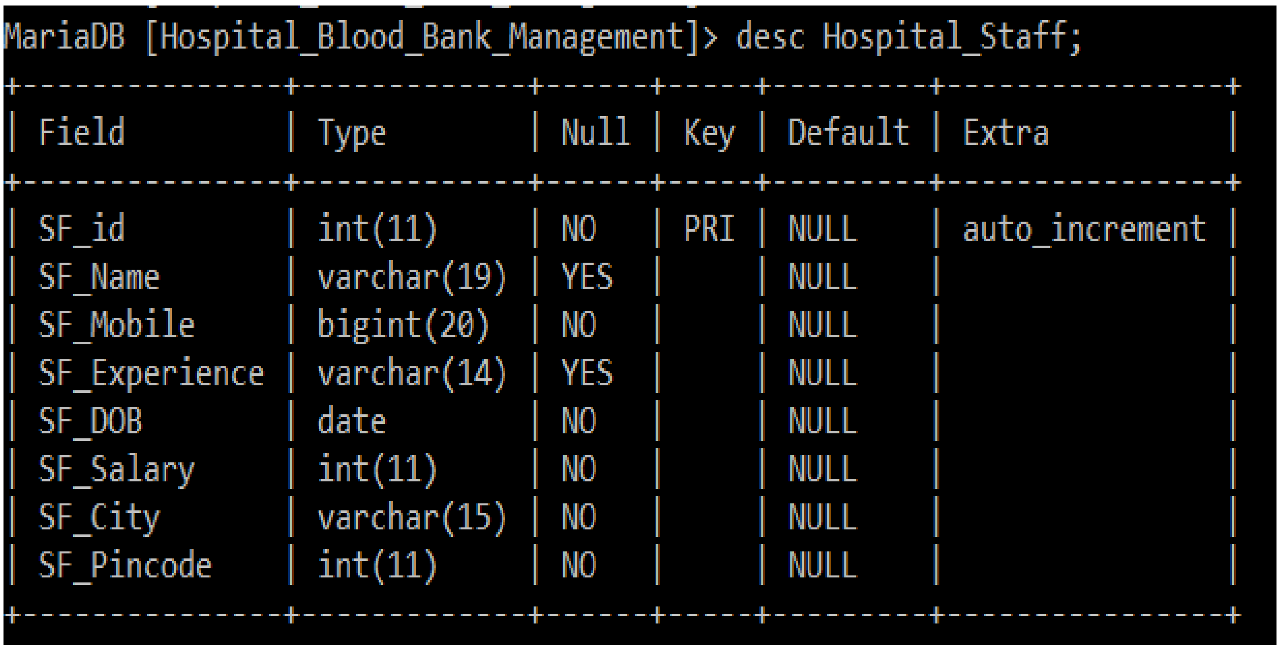


STAFF
SF_ id
SF_ Name
SF_ Mobile
SF_ Experience
SF_ DOB
SF_ Salary
SF_ City
SF_ Pincode
Manage
PATIENT
STOCK
DONOR
PT_ Id
PT_ Name
PT_ Bloodgroup
Blood_ Transfusion_ Date
Required_ Blood_ Quantity
Patient_ Disease
Donor_ Id
PT_ Age
PT_ Mobile
PT_ City
PT_ Pincode
DN_ Id
DN_ Name
DN_ Bloodgroup
Donation_ Date
DN_ Age
DN_ Mobile
DN_ City
DN_ Pincode
STK_ Location_ ID
STK_ Bloodgroup
STK_ Quantity

❖ STRUCTURE OF TABLES

Hospital_Staff Table Structure

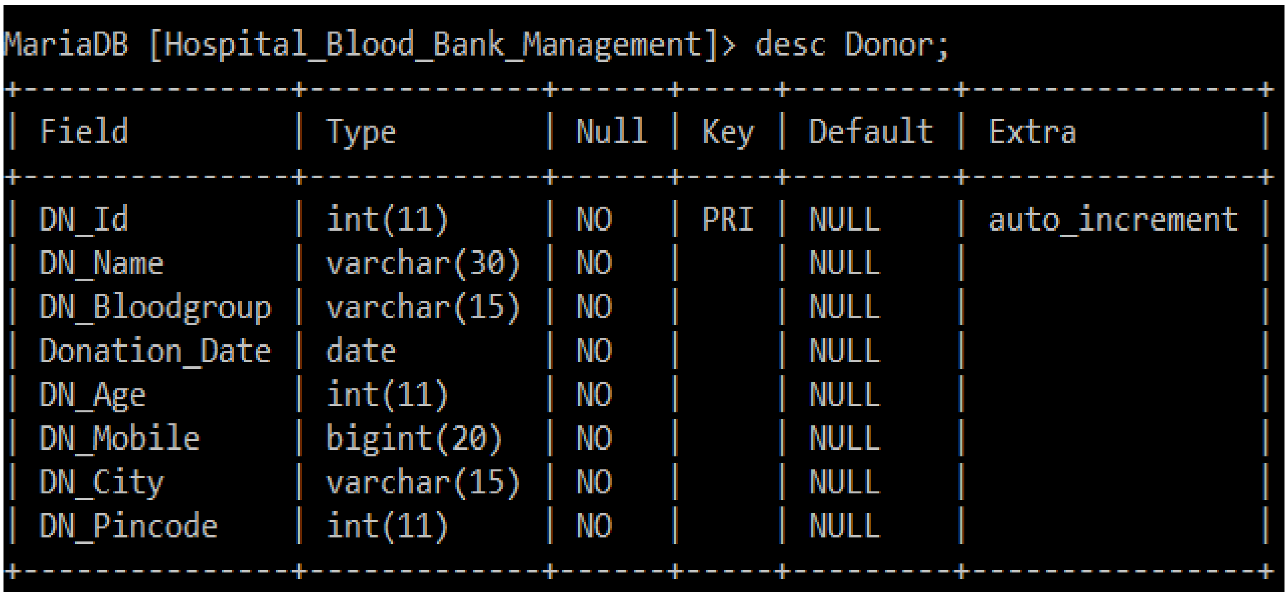
Hospital_Staff table contains the information about the staff who works in the hospital.



```
MariaDB [Hospital_Blood_Bank_Management]> desc Hospital_Staff;
+---------------+-------------+------+-----+---------+----------------+
| Field         | Type        | Null | Key | Default | Extra          |
+---------------+-------------+------+-----+---------+----------------+
| SF_id         | int(11)     | NO   | PRI | NULL    | auto_increment |
| SF_Name       | varchar(19) | YES  |     | NULL    |                |
| SF_Mobile     | bigint(20)  | NO   |     | NULL    |                |
| SF_Experience | varchar(14) | YES  |     | NULL    |                |
| SF_DOB        | date        | NO   |     | NULL    |                |
| SF_Salary     | int(11)     | NO   |     | NULL    |                |
| SF_City       | varchar(15) | NO   |     | NULL    |                |
| SF_Pincode    | int(11)     | NO   |     | NULL    |                |
+---------------+-------------+------+-----+---------+----------------+
```

Donor Table Structure

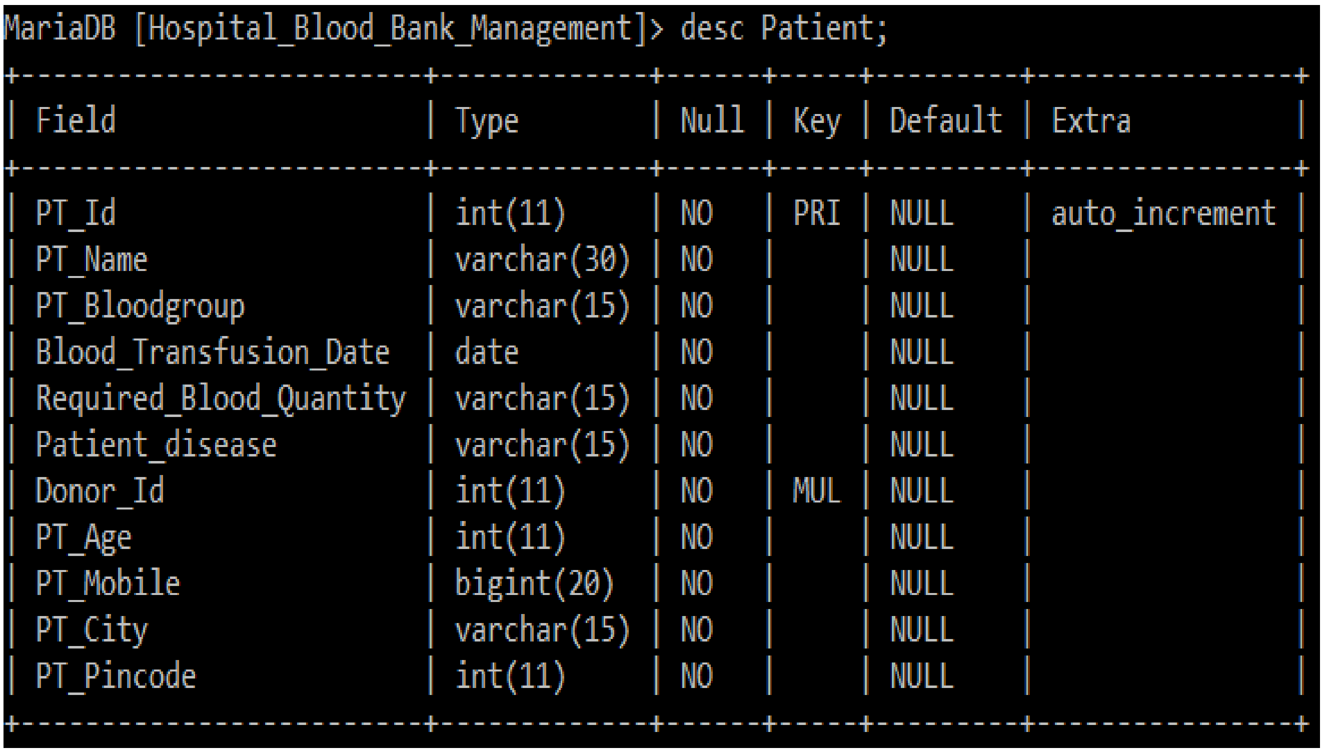
Donor table contains the information about the Donors who have donated the blood.



```
MariaDB [Hospital_Blood_Bank_Management]> desc Donor;
+----------------+-------------+------+-----+---------+----------------+
| Field          | Type        | Null | Key | Default | Extra          |
+----------------+-------------+------+-----+---------+----------------+
| DN_Id          | int(11)     | NO   | PRI | NULL    | auto_increment |
| DN_Name        | varchar(30) | NO   |     | NULL    |                |
| DN_Bloodgroup  | varchar(15) | NO   |     | NULL    |                |
| Donation_Date  | date        | NO   |     | NULL    |                |
| DN_Age         | int(11)     | NO   |     | NULL    |                |
| DN_Mobile      | bigint(20)  | NO   |     | NULL    |                |
| DN_City        | varchar(15) | NO   |     | NULL    |                |
| DN_Pincode     | int(11)     | NO   |     | NULL    |                |
+----------------+-------------+------+-----+---------+----------------+
```

Patient Table Structure

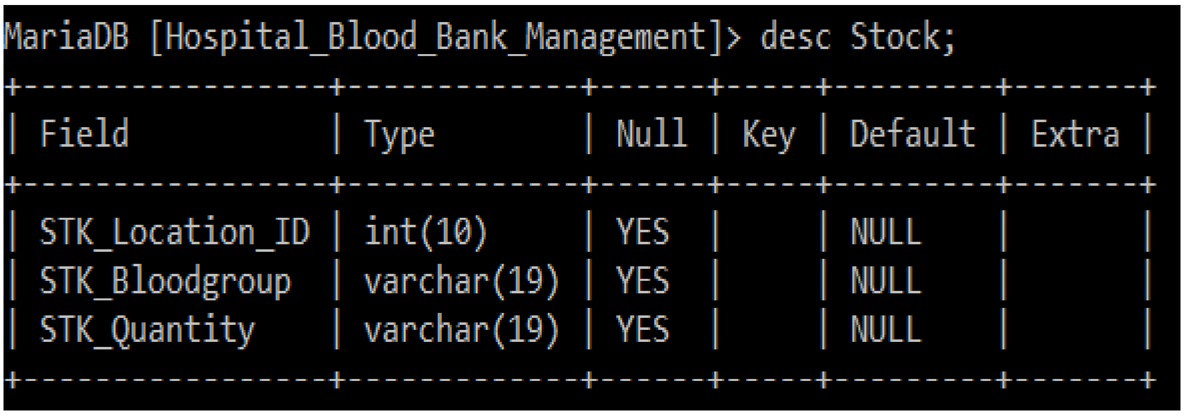
Patent table contains information about the patients who are admitted in the hospital and needed a blood transfusion.



```
MariaDB [Hospital_Blood_Bank_Management]> desc Patient;
+-------------------------+-------------+------+-----+---------+----------------+
| Field                   | Type        | Null | Key | Default | Extra          |
+-------------------------+-------------+------+-----+---------+----------------+
| PT_Id                   | int(11)     | NO   | PRI | NULL    | auto_increment |
| PT_Name                 | varchar(30) | NO   |     | NULL    |                |
| PT_Bloodgroup           | varchar(15) | NO   |     | NULL    |                |
| Blood_Transfusion_Date  | date        | NO   |     | NULL    |                |
| Required_Blood_Quantity | varchar(15) | NO   |     | NULL    |                |
| Patient_disease         | varchar(15) | NO   |     | NULL    |                |
| Donor_Id                | int(11)     | NO   | MUL | NULL    |                |
| PT_Age                  | int(11)     | NO   |     | NULL    |                |
| PT_Mobile               | bigint(20)  | NO   |     | NULL    |                |
| PT_City                 | varchar(15) | NO   |     | NULL    |                |
| PT_Pincode              | int(11)     | NO   |     | NULL    |                |
+-------------------------+-------------+------+-----+---------+----------------+
```

Stock Table Structure

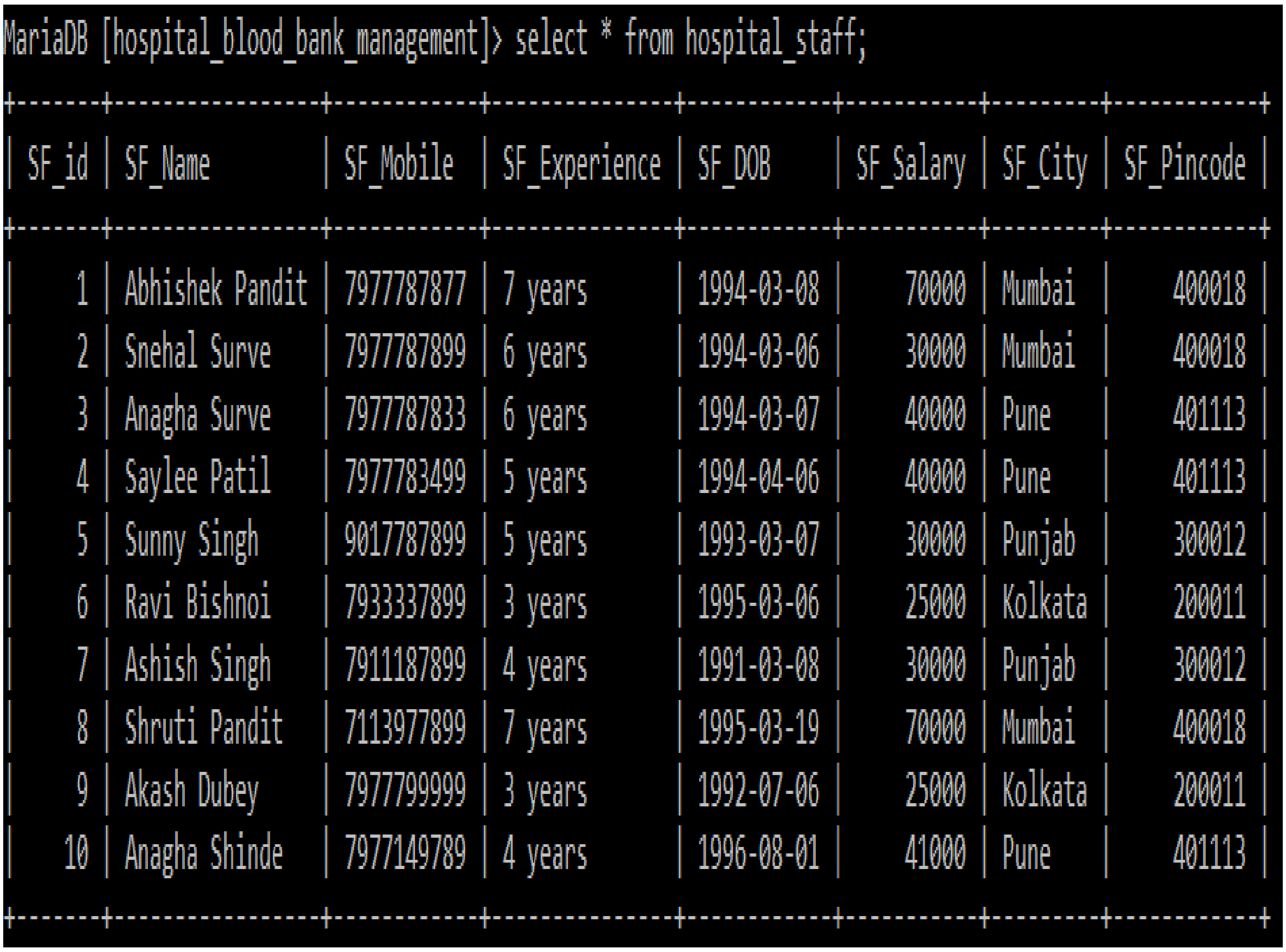
Stock table contains information about the quantity of blood available in stock and where it is stored.



```
MariaDB [Hospital_Blood_Bank_Management]> desc Stock;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| STK_Location_ID | int(10)     | YES  |     | NULL    |       |
| STK_Bloodgroup  | varchar(19) | YES  |     | NULL    |       |
| STK_Quantity    | varchar(19) | YES  |     | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
```

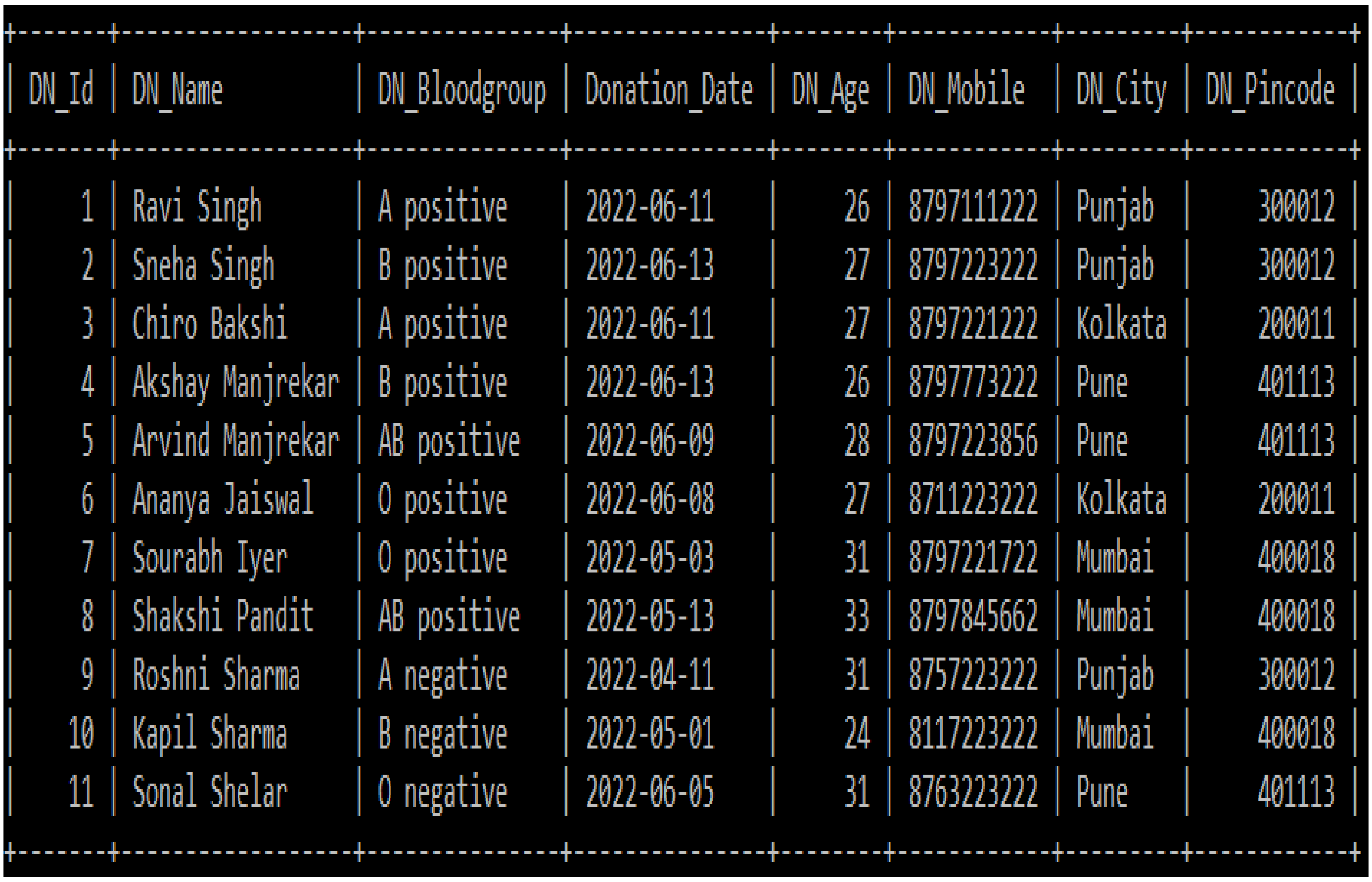
❖ Content of Tables

Hospital_Staff Table Content



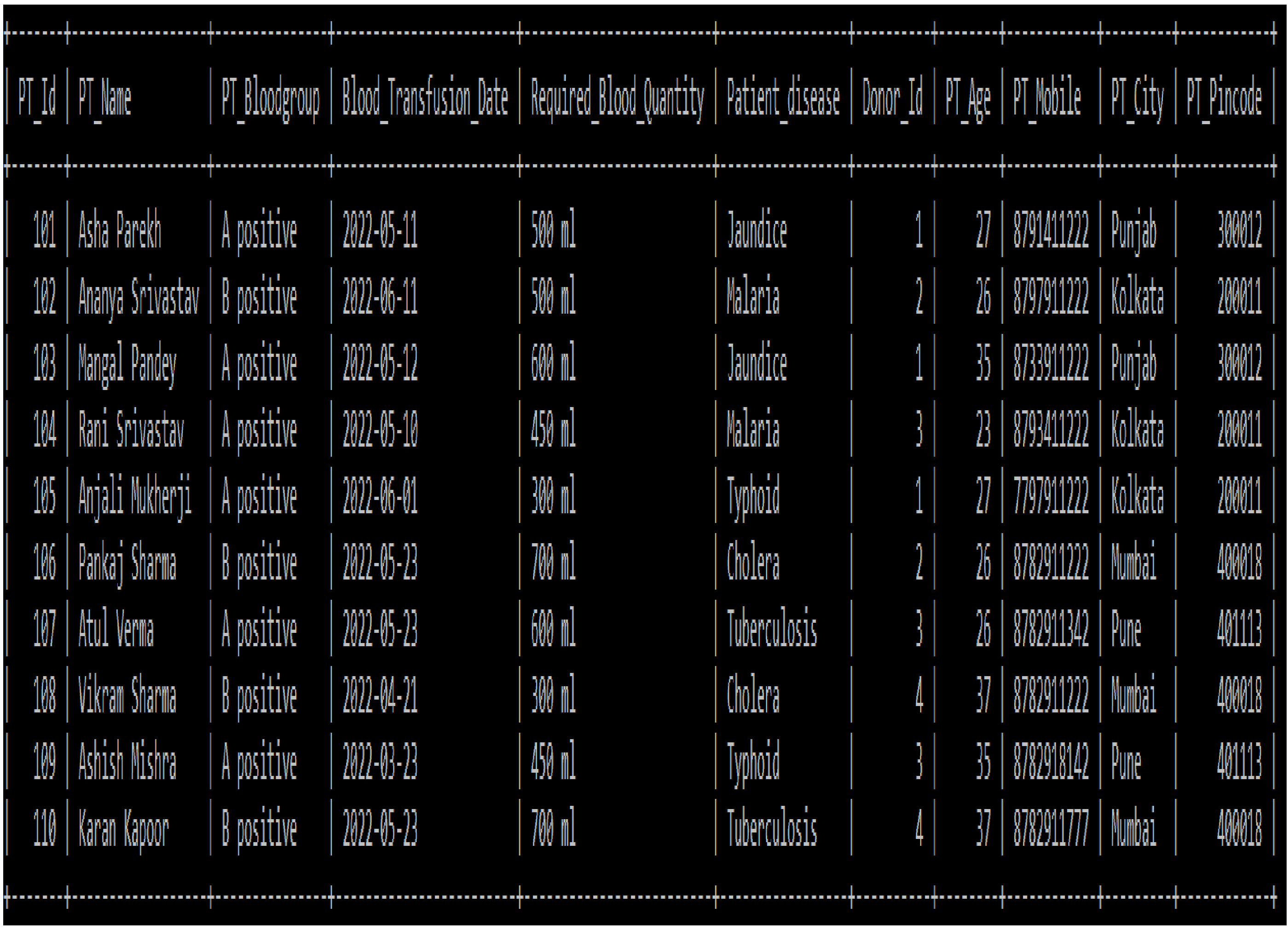
```
MariaDB [hospital_blood_bank_management]> select * from hospital_staff;
+-------+-----------------+-----------+---------------+------------+-----------+---------+------------+
| SF_id | SF_Name         | SF_Mobile | SF_Experience | SF_DOB     | SF_Salary | SF_City | SF_Pincode |
+-------+-----------------+-----------+---------------+------------+-----------+---------+------------+
|     1 | Abhishek Pandit | 7977787877 | 7 years      | 1994-03-08 |     70000 | Mumbai  |     400018 |
|     2 | Snehal Surve    | 7977787899 | 6 years      | 1994-03-06 |     30000 | Mumbai  |     400018 |
|     3 | Anagha Surve    | 7977787833 | 6 years      | 1994-03-07 |     40000 | Pune    |     401113 |
|     4 | Saylee Patil    | 7977783499 | 5 years      | 1994-04-06 |     40000 | Pune    |     401113 |
|     5 | Sunny Singh     | 9017787899 | 5 years      | 1993-03-07 |     30000 | Punjab  |     300012 |
|     6 | Ravi Bishnoi    | 7933337899 | 3 years      | 1995-03-06 |     25000 | Kolkata |     200011 |
|     7 | Ashish Singh    | 7911187899 | 4 years      | 1991-03-08 |     30000 | Punjab  |     300012 |
|     8 | Shruti Pandit   | 7113977899 | 7 years      | 1995-03-19 |     70000 | Mumbai  |     400018 |
|     9 | Akash Dubey     | 7977799999 | 3 years      | 1992-07-06 |     25000 | Kolkata |     200011 |
|    10 | Anagha Shinde   | 7977149789 | 4 years      | 1996-08-01 |     41000 | Pune    |     401113 |
+-------+-----------------+-----------+---------------+------------+-----------+---------+------------+
```

Donor Table Content



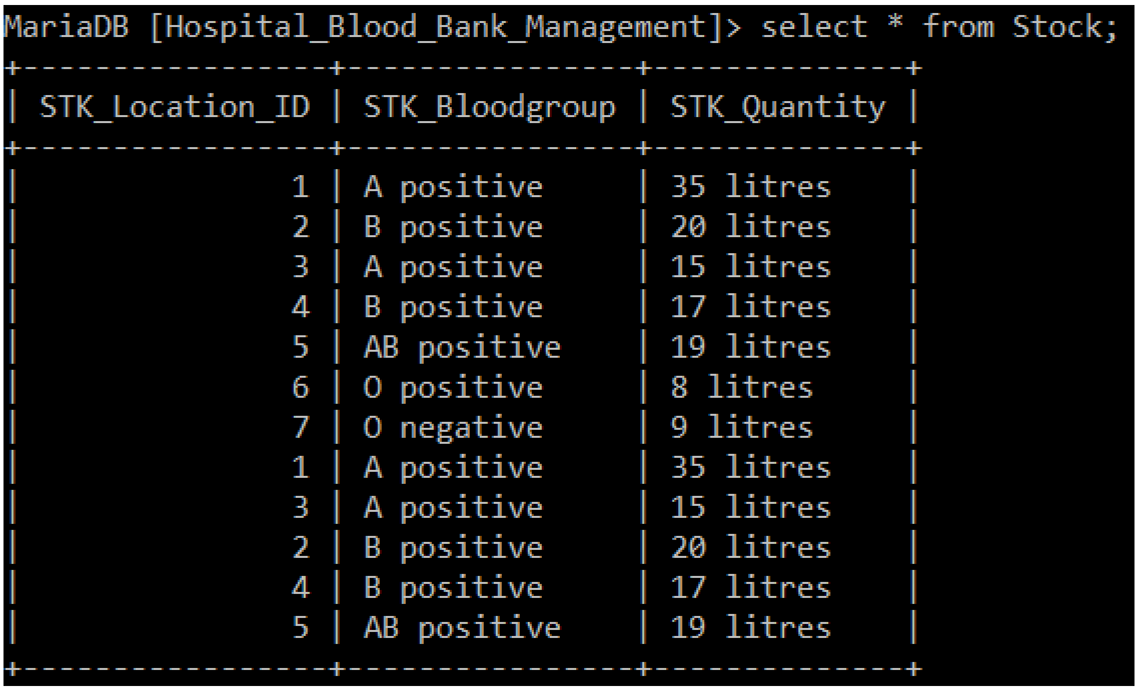
```
+-------+------------------+---------------+---------------+--------+------------+---------+------------+
| DN_Id | DN_Name          | DN_Bloodgroup | Donation_Date | DN_Age | DN_Mobile  | DN_City | DN_Pincode |
+-------+------------------+---------------+---------------+--------+------------+---------+------------+
|     1 | Ravi Singh       | A positive    | 2022-06-11    |     26 | 8797111222 | Punjab  |     300012 |
|     2 | Sneha Singh      | B positive    | 2022-06-13    |     27 | 8797223222 | Punjab  |     300012 |
|     3 | Chiro Bakshi     | A positive    | 2022-06-11    |     27 | 8797221222 | Kolkata |     200011 |
|     4 | Akshay Manjrekar | B positive    | 2022-06-13    |     26 | 8797773222 | Pune    |     401113 |
|     5 | Arvind Manjrekar | AB positive   | 2022-06-09    |     28 | 8797223856 | Pune    |     401113 |
|     6 | Ananya Jaiswal   | O positive    | 2022-06-08    |     27 | 8711223222 | Kolkata |     200011 |
|     7 | Sourabh Iyer     | O positive    | 2022-05-03    |     31 | 8797221722 | Mumbai  |     400018 |
|     8 | Shakshi Pandit   | AB positive   | 2022-05-13    |     33 | 8797845662 | Mumbai  |     400018 |
|     9 | Roshni Sharma    | A negative    | 2022-04-11    |     31 | 8757223222 | Punjab  |     300012 |
|    10 | Kapil Sharma     | B negative    | 2022-05-01    |     24 | 8117223222 | Mumbai  |     400018 |
|    11 | Sonal Shelar     | O negative    | 2022-06-05    |     31 | 8763223222 | Pune    |     401113 |
+-------+------------------+---------------+---------------+--------+------------+---------+------------+
```

Patient Table Content



```
+-------+------------------+---------------+------------------------+-------------------------+-----------------+----------+--------+------------+---------+------------+
| PT_Id | PT_Name          | PT_Bloodgroup | Blood_Transfusion_Date | Required_Blood_Quantity | Patient_disease | Donor_Id | PT_Age | PT_Mobile  | PT_City | PT_Pincode |
+-------+------------------+---------------+------------------------+-------------------------+-----------------+----------+--------+------------+---------+------------+
|   101 | Asha Parekh      | A positive    | 2022-05-11             | 500 ml                  | Jaundice        |        1 |     27 | 8791411222 | Punjab  |     300012 |
|   102 | Ananya Srivastav | B positive    | 2022-06-11             | 500 ml                  | Malaria         |        2 |     26 | 8797911222 | Kolkata |     200011 |
|   103 | Mangal Pandey    | A positive    | 2022-05-12             | 600 ml                  | Jaundice        |        1 |     35 | 8733911222 | Punjab  |     300012 |
|   104 | Rani Srivastav   | A positive    | 2022-05-10             | 450 ml                  | Malaria         |        3 |     23 | 8793411222 | Kolkata |     200011 |
|   105 | Anjali Mukherji  | A positive    | 2022-06-01             | 300 ml                  | Typhoid         |        1 |     27 | 7797911222 | Kolkata |     200011 |
|   106 | Pankaj Sharma    | B positive    | 2022-05-23             | 700 ml                  | Cholera         |        2 |     26 | 8782911222 | Mumbai  |     400018 |
|   107 | Atul Verma       | A positive    | 2022-05-23             | 600 ml                  | Tuberculosis    |        3 |     26 | 8782911342 | Pune    |     401113 |
|   108 | Vikram Sharma    | B positive    | 2022-04-21             | 300 ml                  | Cholera         |        4 |     37 | 8782911222 | Mumbai  |     400018 |
|   109 | Ashish Mishra    | A positive    | 2022-03-23             | 450 ml                  | Typhoid         |        3 |     35 | 8782918142 | Pune    |     401113 |
|   110 | Karan Kapoor     | B positive    | 2022-05-23             | 700 ml                  | Tuberculosis    |        4 |     37 | 8782911777 | Mumbai  |     400018 |
+-------+------------------+---------------+------------------------+-------------------------+-----------------+----------+--------+------------+---------+------------+
```

Stock Table Content

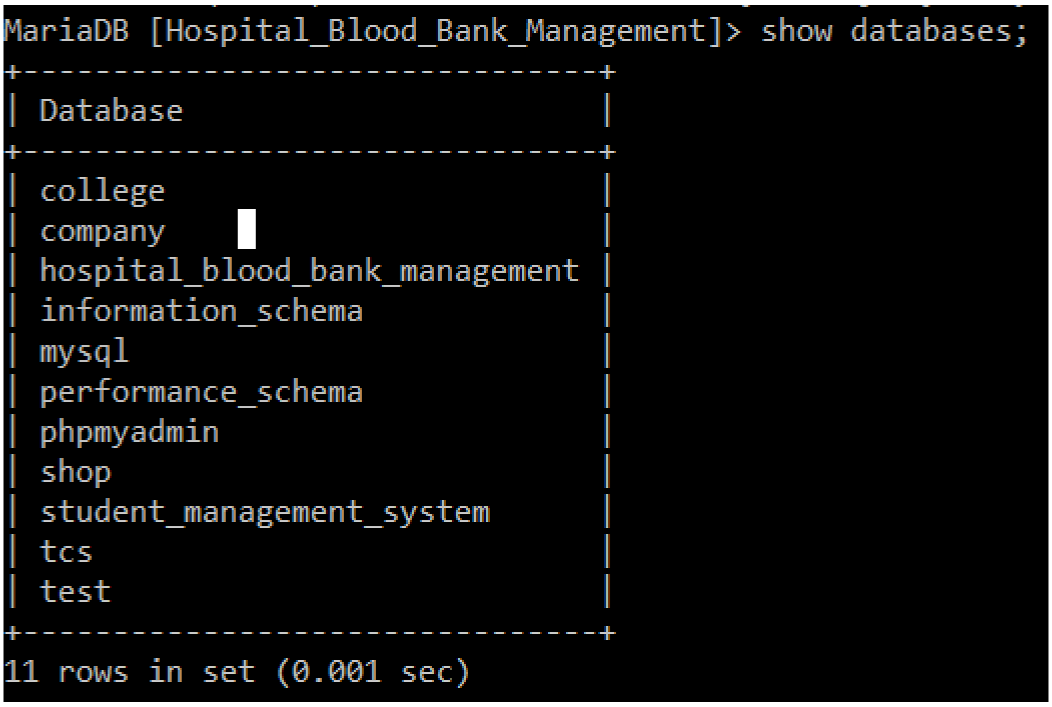


```
MariaDB [Hospital_Blood_Bank_Management]> select * from Stock;
+-----------------+---------------+--------------+
| STK_Location_ID | STK_Bloodgroup | STK_Quantity |
+-----------------+---------------+--------------+
|               1 | A positive     | 35 litres    |
|               2 | B positive     | 20 litres    |
|               3 | A positive     | 15 litres    |
|               4 | B positive     | 17 litres    |
|               5 | AB positive    | 19 litres    |
|               6 | O positive     | 8 litres     |
|               7 | O negative     | 9 litres     |
|               1 | A positive     | 35 litres    |
|               3 | A positive     | 15 litres    |
|               2 | B positive     | 20 litres    |
|               4 | B positive     | 17 litres    |
|               5 | AB positive    | 19 litres    |
+-----------------+---------------+--------------+
```

- **How to create Hospital_Blood_Bank_Management database and Hospital_Staff table shown above in SQL:**

How to create Database:

Mysql -h localhost -u root
Create database Hospital_Blood_Bank_Management;
Show databases;



```
MariaDB [Hospital_Blood_Bank_Management]> show databases;
+--------------------------------+
| Database                       |
+--------------------------------+
| college                        |
| company                        |
| hospital_blood_bank_management |
| information_schema             |
| mysql                          |
| performance_schema             |
| phpmyadmin                     |
| shop                           |
| student_management_system      |
| tcs                            |
| test                           |
+--------------------------------+
11 rows in set (0.001 sec)
```

Show databases command is used to see all the database created in SQL.

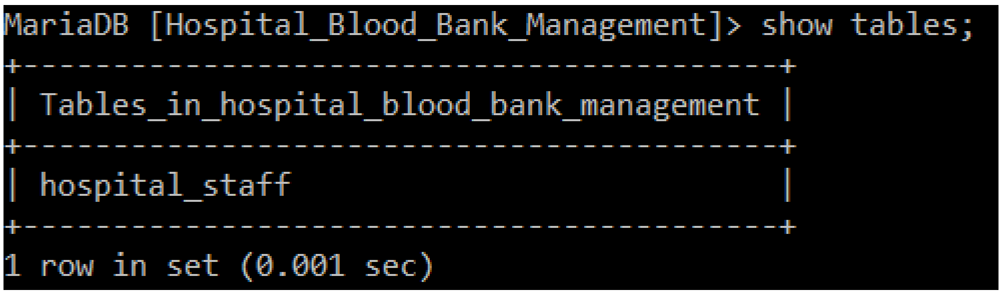
Use Hospital_Blood_Bank_Management;

Use command is used to select the particular database in which you want to make changes.

How to create a Hospital_Staff table in database Hospital_Blood_Bank_Management

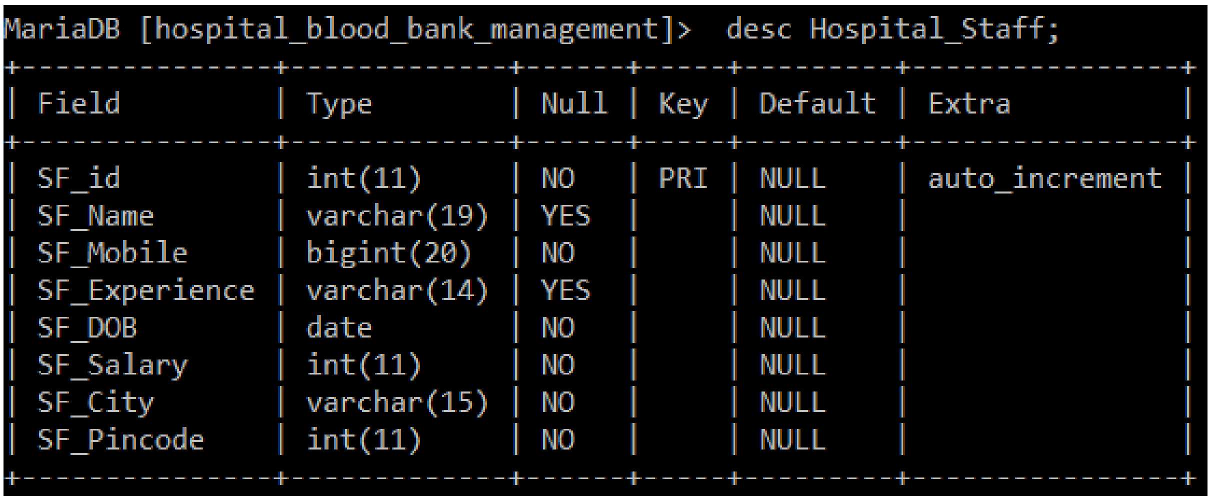
Create table Hospital_Staff (SF_id int not null primary key auto_increment, SF_Name varchar(40) not null, SF_Mobile bigint not null, SF_Experience varchar(15) not null,SF_DOB date not null, SF_Salary int not null, SF_City varchar(15) not null, SF_Pincode int not null);
Show tables;

Show tables command is used to see all the tables created in a Particular database.



```
MariaDB [Hospital_Blood_Bank_Management]> show tables;
+---------------------------------------+
| Tables_in_hospital_blood_bank_management |
+---------------------------------------+
| hospital_staff                        |
+---------------------------------------+
1 row in set (0.001 sec)
```

Desc table_name syntax i.e Desc Hospital_Staff as shown below is used to see the column constraints which we have added while creating the table.

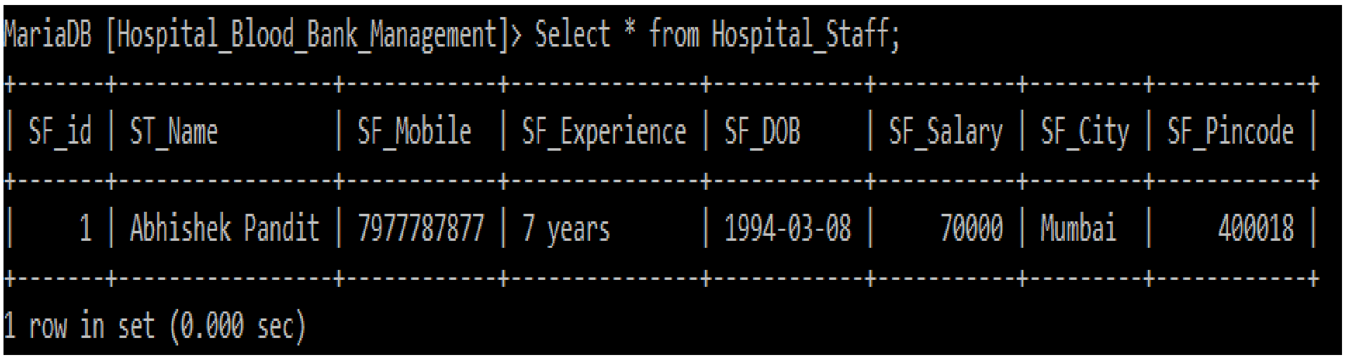


```
MariaDB [hospital_blood_bank_management]>  desc Hospital_Staff;
+---------------+-------------+------+-----+---------+----------------+
| Field         | Type        | Null | Key | Default | Extra          |
+---------------+-------------+------+-----+---------+----------------+
| SF_id         | int(11)     | NO   | PRI | NULL    | auto_increment |
| SF_Name       | varchar(19) | YES  |     | NULL    |                |
| SF_Mobile     | bigint(20)  | NO   |     | NULL    |                |
| SF_Experience | varchar(14) | YES  |     | NULL    |                |
| SF_DOB        | date        | NO   |     | NULL    |                |
| SF_Salary     | int(11)     | NO   |     | NULL    |                |
| SF_City       | varchar(15) | NO   |     | NULL    |                |
| SF_Pincode    | int(11)     | NO   |     | NULL    |                |
+---------------+-------------+------+-----+---------+----------------+
```

How to insert single row of values into table Hospital_Staff

Insert into Hospital_Staff values (1,’Abhishek Pandit’,7977787877,’7 years’,”1994-03-08”,70000,’Mumbai’,400018);
Select * from Hospital_Staff;

Select * from table_name syntax i.e Select * from Hospital_Staff as shown below is used to retrieve all the values which we have inserted in table Hospital_Staff

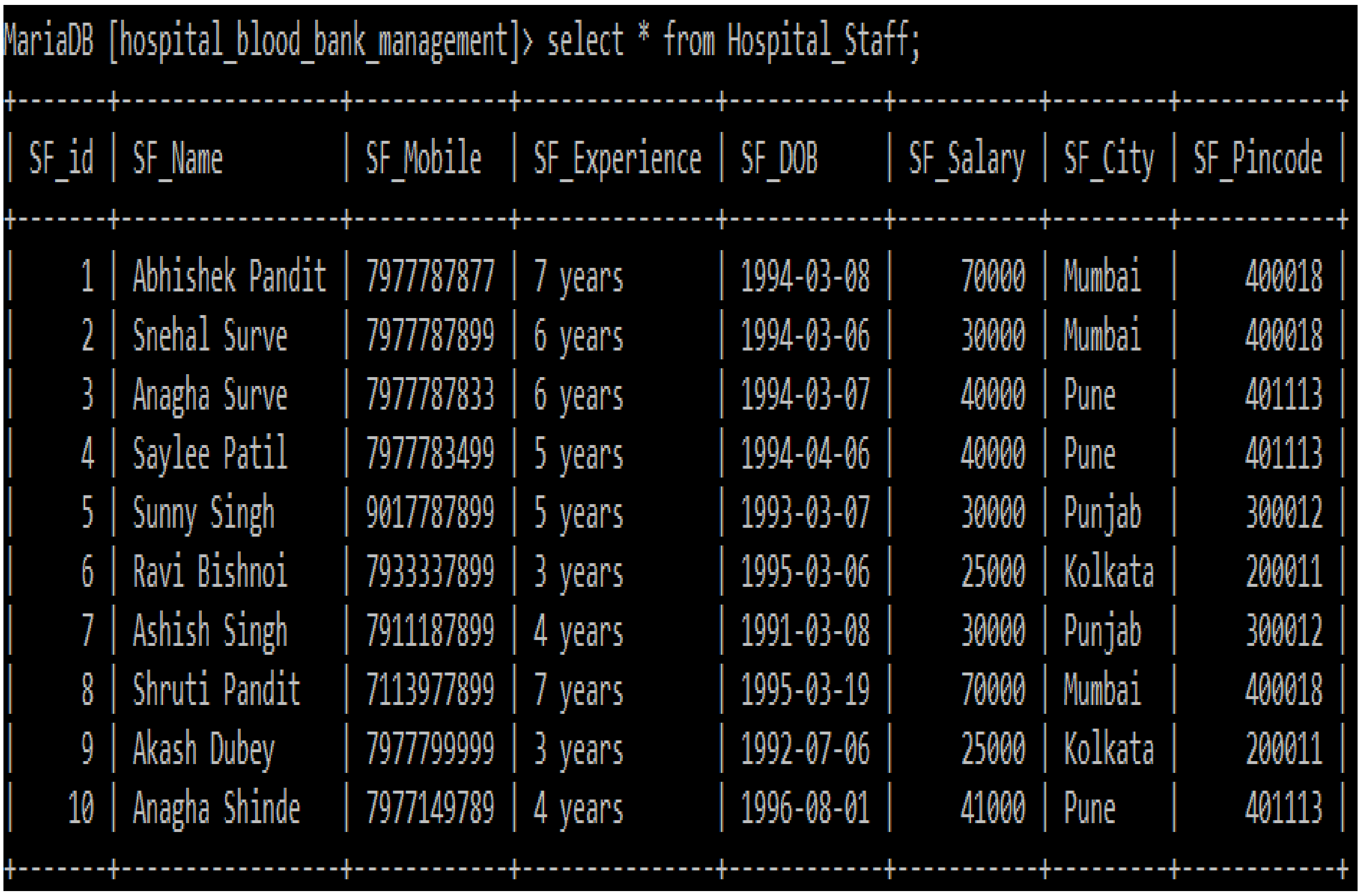


```
MariaDB [Hospital_Blood_Bank_Management]> Select * from Hospital_Staff;
+-------+-----------------+------------+---------------+------------+-----------+---------+------------+
| SF_id | ST_Name         | SF_Mobile  | SF_Experience | SF_DOB     | SF_Salary | SF_City | SF_Pincode |
+-------+-----------------+------------+---------------+------------+-----------+---------+------------+
|     1 | Abhishek Pandit | 7977787877 | 7 years       | 1994-03-08 |     70000 | Mumbai  |     400018 |
+-------+-----------------+------------+---------------+------------+-----------+---------+------------+
1 row in set (0.000 sec)
```

How to insert multiple row of values into table Hospital_Staff

Insert into Hospital_Staff (ST_Name, SF_Mobile, SF_Experience,SF_DOB, SF_Salary, SF_City, SF_Pincode) values ('Snehal Surve',7977787899,'6 years',"1994-03-06",30000,'Mumbai',400018), ('Anagha Surve',7977787833,'6 years',"1994-03-07",40000,'Pune',401113), ('Saylee Patil',7977783499,'5 years',"1994-04-06",40000,'Pune',401111), ('Sunny Singh',9017787899,'5 years',"1993-03-07",30000,'Punjab',300012), ('Ravi Bishnoi',7933337899,'3 years',"1995-03-06",25000,'Kolkata',200011), ('Ashish Singh',7911187899,'4 years',"1991-03-08",30000,'Punjab',300012), ('Shruti Pandit',7113977899,'7 years',"1995-03-19",70000,'Mumbai',400018), ('Akash Dubey',7977799999,'3 years',"1992-07-06",25000,'Kolkata',200011), ('Anagha Shinde',7977149789,'4 years',"1996-08-01",41000,'Pune',401113);

Select * from Hospital_Staff;



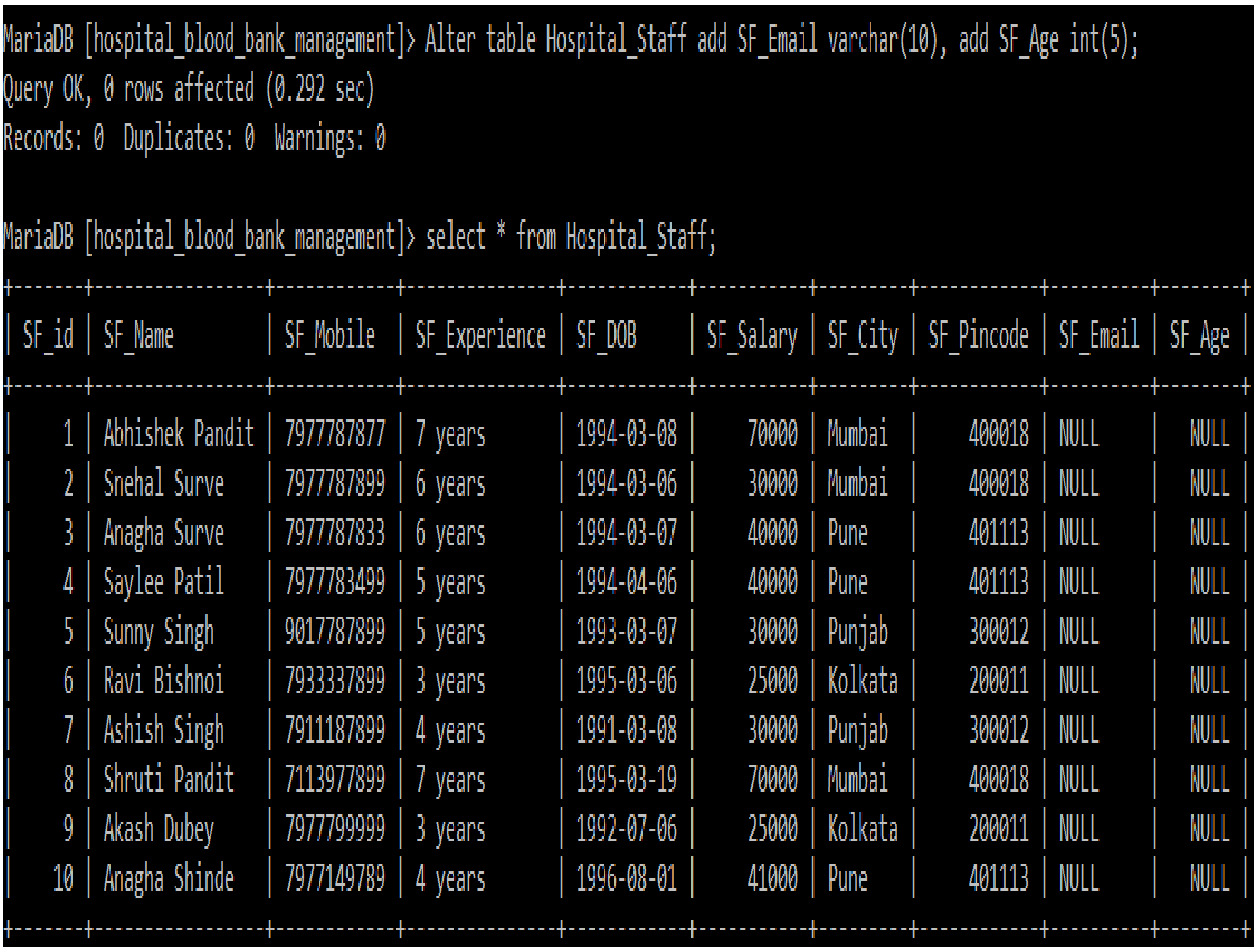
```
MariaDB [hospital_blood_bank_management]> select * from Hospital_Staff;
+-------+-----------------+------------+---------------+------------+-----------+---------+------------+
| SF_id | SF_Name         | SF_Mobile  | SF_Experience | SF_DOB     | SF_Salary | SF_City | SF_Pincode |
+-------+-----------------+------------+---------------+------------+-----------+---------+------------+
|     1 | Abhishek Pandit | 7977787877 | 7 years       | 1994-03-08 |     70000 | Mumbai  |     400018 |
|     2 | Snehal Surve    | 7977787899 | 6 years       | 1994-03-06 |     30000 | Mumbai  |     400018 |
|     3 | Anagha Surve    | 7977787833 | 6 years       | 1994-03-07 |     40000 | Pune    |     401113 |
|     4 | Saylee Patil    | 7977783499 | 5 years       | 1994-04-06 |     40000 | Pune    |     401113 |
|     5 | Sunny Singh     | 9017787899 | 5 years       | 1993-03-07 |     30000 | Punjab  |     300012 |
|     6 | Ravi Bishnoi    | 7933337899 | 3 years       | 1995-03-06 |     25000 | Kolkata |     200011 |
|     7 | Ashish Singh    | 7911187899 | 4 years       | 1991-03-08 |     30000 | Punjab  |     300012 |
|     8 | Shruti Pandit   | 7113977899 | 7 years       | 1995-03-19 |     70000 | Mumbai  |     400018 |
|     9 | Akash Dubey     | 7977799999 | 3 years       | 1992-07-06 |     25000 | Kolkata |     200011 |
|    10 | Anagha Shinde   | 7977149789 | 4 years       | 1996-08-01 |     41000 | Pune    |     401113 |
+-------+-----------------+------------+---------------+------------+-----------+---------+------------+
```

❖ ALTER STATEMENT

The ALTER TABLE statement is used to add, delete, or modify columns in an existing table. The ALTER TABLE statement is also used to add and drop various constraints on an existing table. Below are the examples of ALTER statements to add, delete, or modify columns in an existing table.

1. **Query to add column in an existing Hospital_Staff table**.

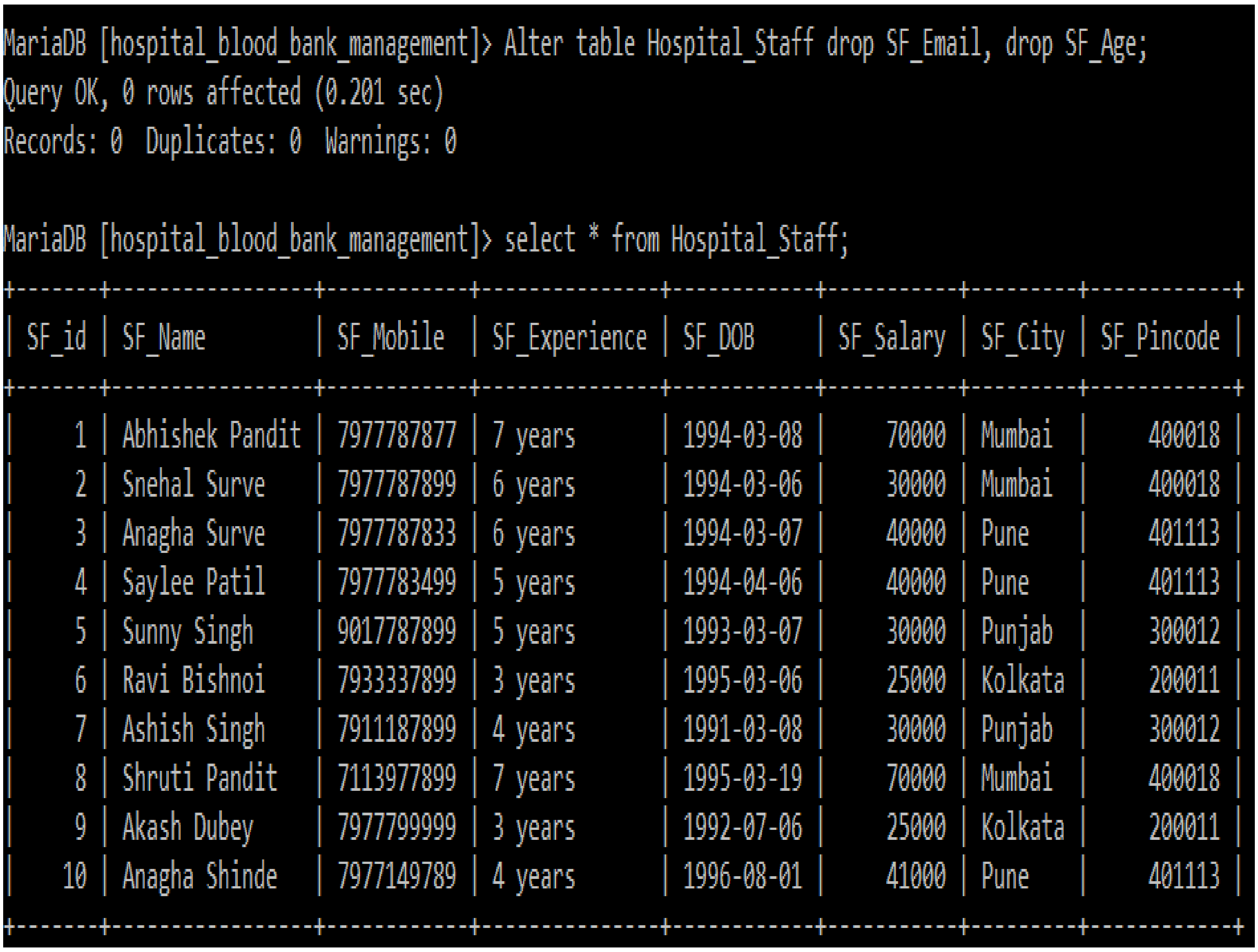
Alter table Hospital_Staff add SF_Email varchar(10), add SF_Age int(5);



```
MariaDB [hospital_blood_bank_management]> Alter table Hospital_Staff add SF_Email varchar(10), add SF_Age int(5);
Query OK, 0 rows affected (0.292 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [hospital_blood_bank_management]> select * from Hospital_Staff;
+-------+----------------+------------+---------------+------------+-----------+---------+------------+----------+--------+
| SF_id | SF_Name        | SF_Mobile  | SF_Experience | SF_DOB     | SF_Salary | SF_City | SF_Pincode | SF_Email | SF_Age |
+-------+----------------+------------+---------------+------------+-----------+---------+------------+----------+--------+
|     1 | Abhishek Pandit| 7977787877 | 7 years       | 1994-03-08 |     70000 | Mumbai  |     400018 | NULL     |   NULL |
|     2 | Snehal Surve   | 7977787899 | 6 years       | 1994-03-06 |     30000 | Mumbai  |     400018 | NULL     |   NULL |
|     3 | Anagha Surve   | 7977787833 | 6 years       | 1994-03-07 |     40000 | Pune    |     401113 | NULL     |   NULL |
|     4 | Saylee Patil   | 7977783499 | 5 years       | 1994-04-06 |     40000 | Pune    |     401113 | NULL     |   NULL |
|     5 | Sunny Singh    | 9017787899 | 5 years       | 1993-03-07 |     30000 | Punjab  |     300012 | NULL     |   NULL |
|     6 | Ravi Bishnoi   | 7933337899 | 3 years       | 1995-03-06 |     25000 | Kolkata |     200011 | NULL     |   NULL |
|     7 | Ashish Singh   | 7911187899 | 4 years       | 1991-03-08 |     30000 | Punjab  |     300012 | NULL     |   NULL |
|     8 | Shruti Pandit  | 7113977899 | 7 years       | 1995-03-19 |     70000 | Mumbai  |     400018 | NULL     |   NULL |
|     9 | Akash Dubey    | 7977799999 | 3 years       | 1992-07-06 |     25000 | Kolkata |     200011 | NULL     |   NULL |
|    10 | Anagha Shinde  | 7977149789 | 4 years       | 1996-08-01 |     41000 | Pune    |     401113 | NULL     |   NULL |
+-------+----------------+------------+---------------+------------+-----------+---------+------------+----------+--------+
```

2. **Query to drop column in an existing Hospital_Staff table**.

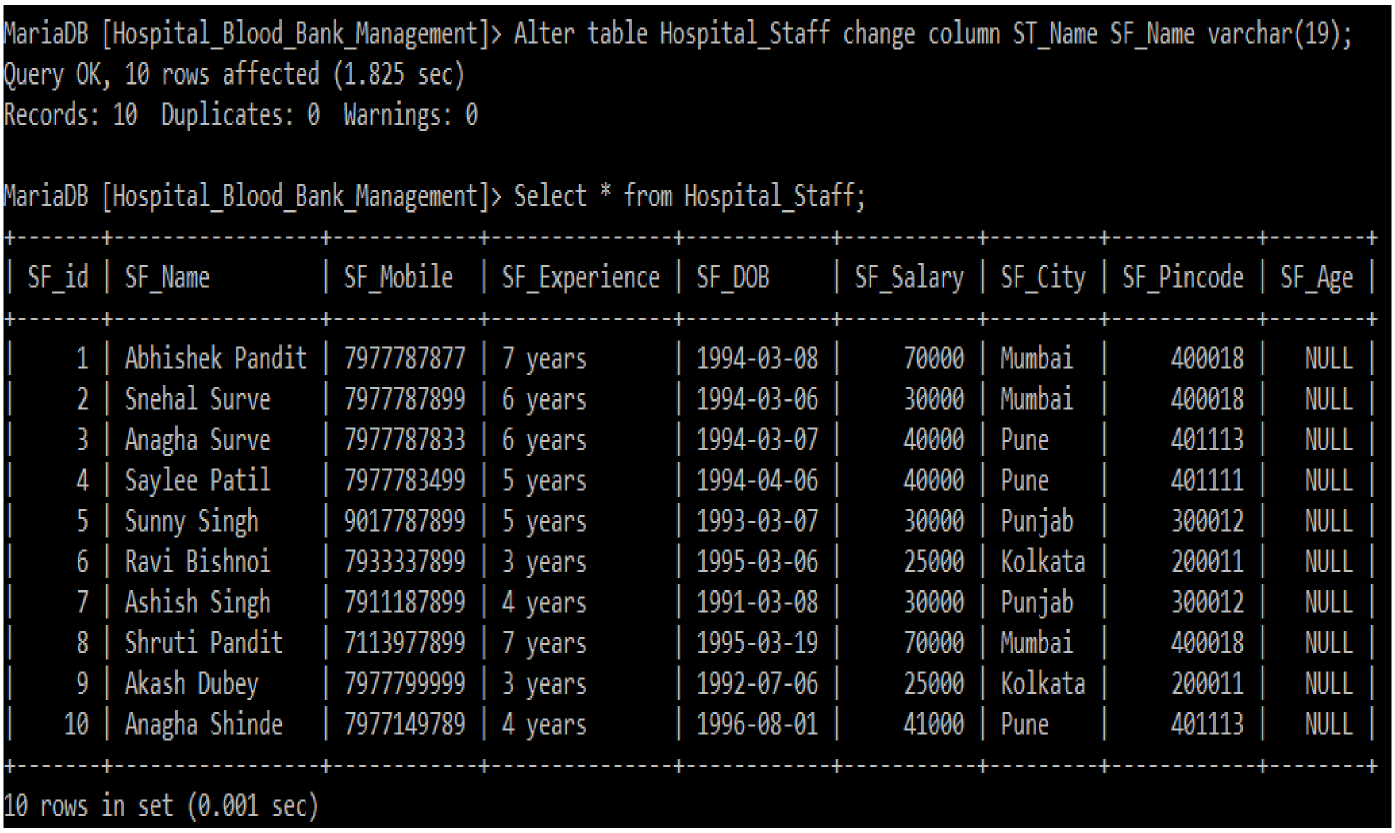
Alter table Hospital_Staff drop SF_Email, drop SF_Age;



```
MariaDB [hospital_blood_bank_management]> Alter table Hospital_Staff drop SF_Email, drop SF_Age;
Query OK, 0 rows affected (0.201 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [hospital_blood_bank_management]> select * from Hospital_Staff;
+-------+-----------------+------------+---------------+------------+-----------+---------+------------+
| SF_id | SF_Name         | SF_Mobile  | SF_Experience | SF_DOB     | SF_Salary | SF_City | SF_Pincode |
+-------+-----------------+------------+---------------+------------+-----------+---------+------------+
|     1 | Abhishek Pandit | 7977787877 | 7 years       | 1994-03-08 |     70000 | Mumbai  |     400018 |
|     2 | Snehal Surve    | 7977787899 | 6 years       | 1994-03-06 |     30000 | Mumbai  |     400018 |
|     3 | Anagha Surve    | 7977787833 | 6 years       | 1994-03-07 |     40000 | Pune    |     401113 |
|     4 | Saylee Patil    | 7977783499 | 5 years       | 1994-04-06 |     40000 | Pune    |     401113 |
|     5 | Sunny Singh     | 9017787899 | 5 years       | 1993-03-07 |     30000 | Punjab  |     300012 |
|     6 | Ravi Bishnoi    | 7933337899 | 3 years       | 1995-03-06 |     25000 | Kolkata |     200011 |
|     7 | Ashish Singh    | 7911187899 | 4 years       | 1991-03-08 |     30000 | Punjab  |     300012 |
|     8 | Shruti Pandit   | 7113977899 | 7 years       | 1995-03-19 |     70000 | Mumbai  |     400018 |
|     9 | Akash Dubey     | 7977799999 | 3 years       | 1992-07-06 |     25000 | Kolkata |     200011 |
|    10 | Anagha Shinde   | 7977149789 | 4 years       | 1996-08-01 |     41000 | Pune    |     401113 |
+-------+-----------------+------------+---------------+------------+-----------+---------+------------+
```

3. **Query to change column name in an existing Hospital_Staff table**.

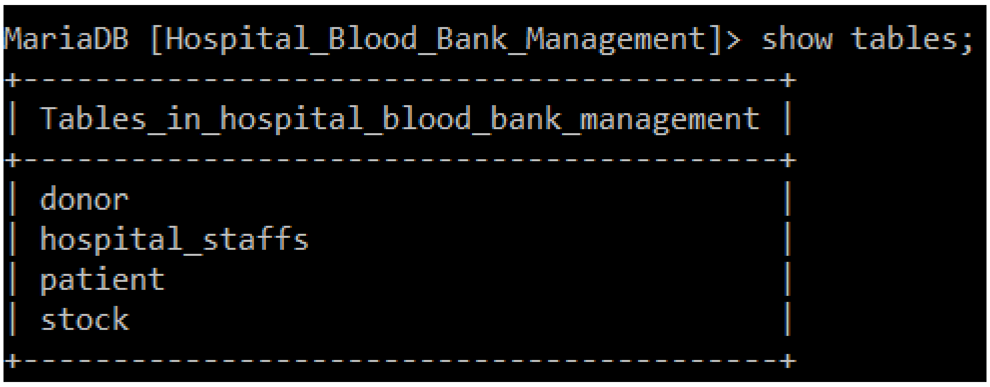
Alter table Hospital_Staff change column ST_Name SF_Name varchar(19);



```
MariaDB [Hospital_Blood_Bank_Management]> Alter table Hospital_Staff change column ST_Name SF_Name varchar(19);
Query OK, 10 rows affected (1.825 sec)
Records: 10  Duplicates: 0  Warnings: 0

MariaDB [Hospital_Blood_Bank_Management]> Select * from Hospital_Staff;
+-------+-----------------+------------+---------------+------------+-----------+---------+------------+--------+
| SF_id | SF_Name         | SF_Mobile  | SF_Experience | SF_DOB     | SF_Salary | SF_City | SF_Pincode | SF_Age |
+-------+-----------------+------------+---------------+------------+-----------+---------+------------+--------+
|     1 | Abhishek Pandit | 7977787877 | 7 years       | 1994-03-08 |     70000 | Mumbai  |     400018 |   NULL |
|     2 | Snehal Surve    | 7977787899 | 6 years       | 1994-03-06 |     30000 | Mumbai  |     400018 |   NULL |
|     3 | Anagha Surve    | 7977787833 | 6 years       | 1994-03-07 |     40000 | Pune    |     401113 |   NULL |
|     4 | Saylee Patil    | 7977783499 | 5 years       | 1994-04-06 |     40000 | Pune    |     401111 |   NULL |
|     5 | Sunny Singh     | 9017787899 | 5 years       | 1993-03-07 |     30000 | Punjab  |     300012 |   NULL |
|     6 | Ravi Bishnoi    | 7933337899 | 3 years       | 1995-03-06 |     25000 | Kolkata |     200011 |   NULL |
|     7 | Ashish Singh    | 7911187899 | 4 years       | 1991-03-08 |     30000 | Punjab  |     300012 |   NULL |
|     8 | Shruti Pandit   | 7113977899 | 7 years       | 1995-03-19 |     70000 | Mumbai  |     400018 |   NULL |
|     9 | Akash Dubey     | 7977799999 | 3 years       | 1992-07-06 |     25000 | Kolkata |     200011 |   NULL |
|    10 | Anagha Shinde   | 7977149789 | 4 years       | 1996-08-01 |     41000 | Pune    |     401113 |   NULL |
+-------+-----------------+------------+---------------+------------+-----------+---------+------------+--------+
10 rows in set (0.001 sec)
```

4. **Query to change existing table name**

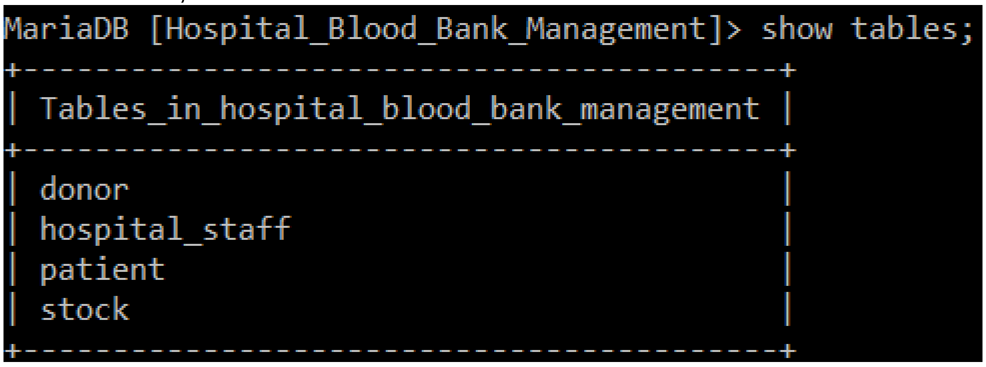
Alter table Hospital_Staff rename to Hospital_Staffs;
Show tables;



```
MariaDB [Hospital_Blood_Bank_Management]> show tables;
+-----------------------------------------+
| Tables_in_hospital_blood_bank_management |
+-----------------------------------------+
| donor                                   |
| hospital_staffs                         |
| patient                                 |
| stock                                   |
+-----------------------------------------+
```

Changing the table name back to its previous name which is Hospital Staff

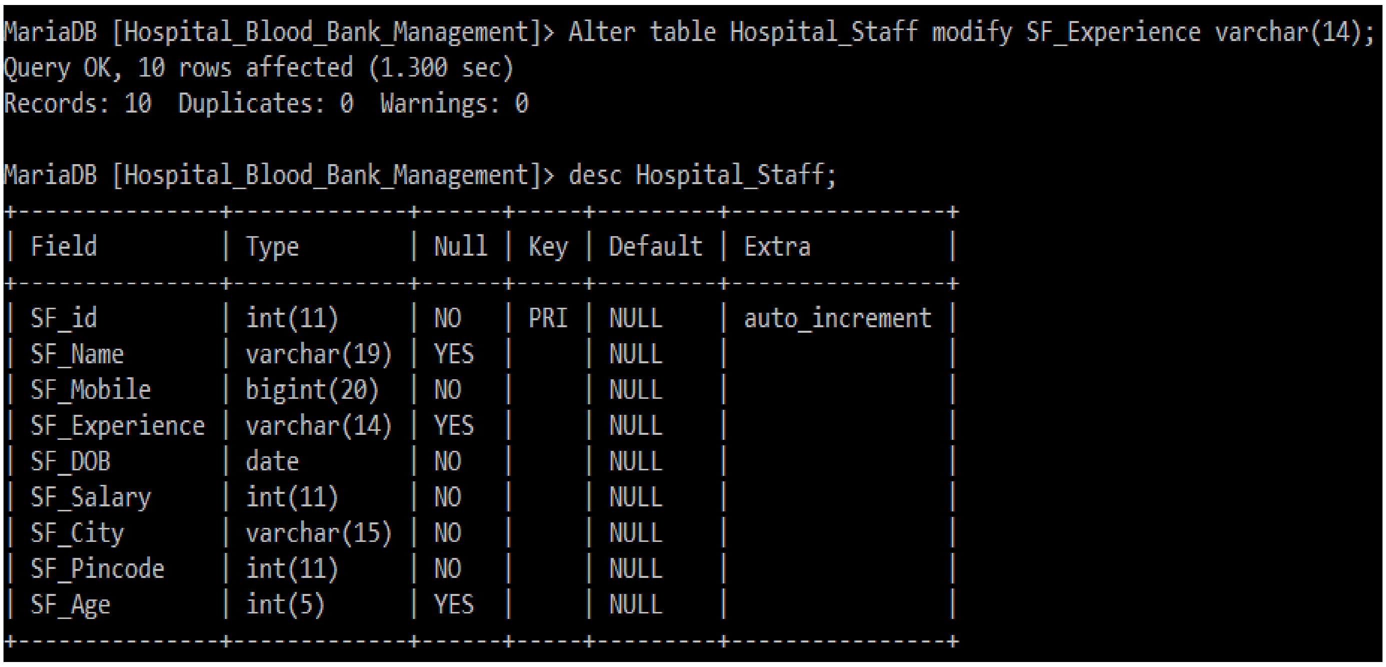
Alter table Hospital_Staffs rename to Hospital_Staff;
Show tables;



```
MariaDB [Hospital_Blood_Bank_Management]> show tables;
+----------------------------------------+
| Tables_in_hospital_blood_bank_management |
+----------------------------------------+
| donor                                  |
| hospital_staff                         |
| patient                                |
| stock                                  |
+----------------------------------------+
```

5. **Query to change column constraint in an existing Hospital_Staff table**.

Alter table Hospital_Staff modify SF_Experience varchar(14);



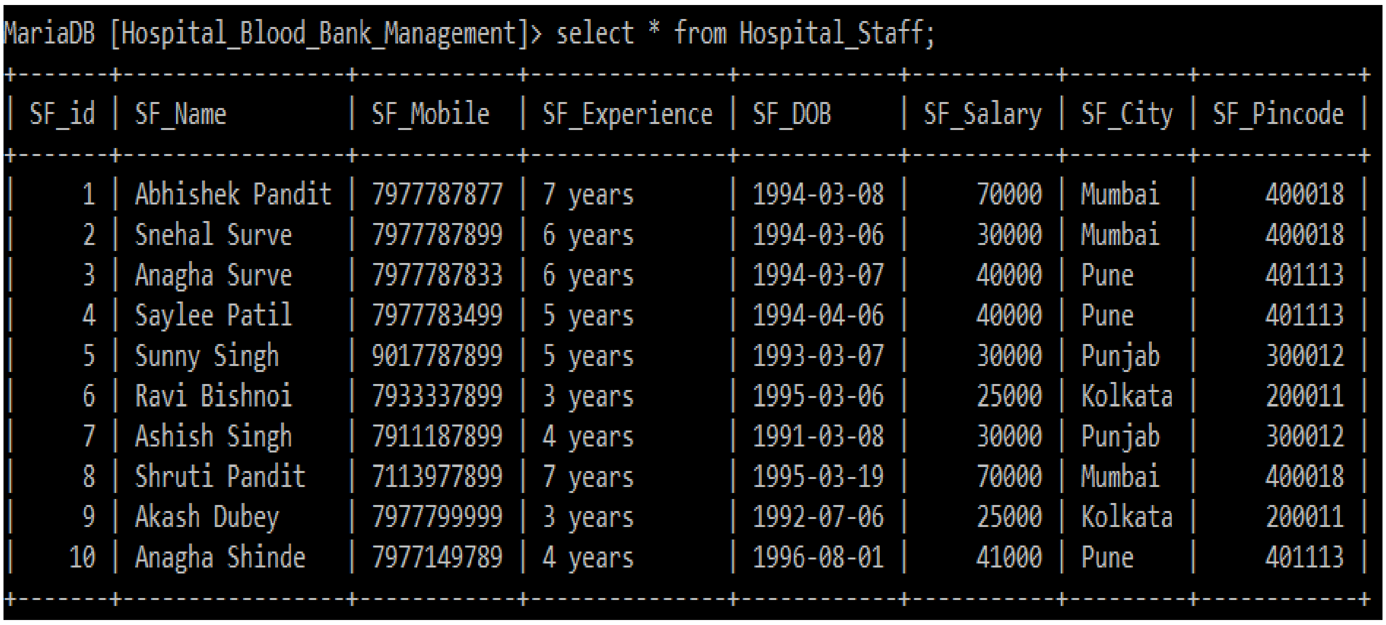
```
MariaDB [Hospital_Blood_Bank_Management]> Alter table Hospital_Staff modify SF_Experience varchar(14);
Query OK, 10 rows affected (1.300 sec)
Records: 10  Duplicates: 0  Warnings: 0

MariaDB [Hospital_Blood_Bank_Management]> desc Hospital_Staff;
+---------------+-------------+------+-----+---------+----------------+
| Field         | Type        | Null | Key | Default | Extra          |
+---------------+-------------+------+-----+---------+----------------+
| SF_id         | int(11)     | NO   | PRI | NULL    | auto_increment |
| SF_Name       | varchar(19) | YES  |     | NULL    |                |
| SF_Mobile     | bigint(20)  | NO   |     | NULL    |                |
| SF_Experience | varchar(14) | YES  |     | NULL    |                |
| SF_DOB        | date        | NO   |     | NULL    |                |
| SF_Salary     | int(11)     | NO   |     | NULL    |                |
| SF_City       | varchar(15) | NO   |     | NULL    |                |
| SF_Pincode    | int(11)     | NO   |     | NULL    |                |
| SF_Age        | int(5)      | YES  |     | NULL    |                |
+---------------+-------------+------+-----+---------+----------------+
```

❖ UPDATE STATEMENT

The UPDATE command is used to update existing rows in a table.

1. **Query to update existing in an existing Hospital_Staff table**.

Update Hospital_Staff set SF_Pincode=401113 where SF_id=4;



```
MariaDB [Hospital_Blood_Bank_Management]> select * from Hospital_Staff;
+-------+----------------+------------+---------------+------------+-----------+---------+------------+
| SF_id | SF_Name        | SF_Mobile  | SF_Experience | SF_DOB     | SF_Salary | SF_City | SF_Pincode |
+-------+----------------+------------+---------------+------------+-----------+---------+------------+
|     1 | Abhishek Pandit | 7977787877 | 7 years       | 1994-03-08 |     70000 | Mumbai  |     400018 |
|     2 | Snehal Surve   | 7977787899 | 6 years       | 1994-03-06 |     30000 | Mumbai  |     400018 |
|     3 | Anagha Surve   | 7977787833 | 6 years       | 1994-03-07 |     40000 | Pune    |     401113 |
|     4 | Saylee Patil   | 7977783499 | 5 years       | 1994-04-06 |     40000 | Pune    |     401113 |
|     5 | Sunny Singh    | 9017787899 | 5 years       | 1993-03-07 |     30000 | Punjab  |     300012 |
|     6 | Ravi Bishnoi   | 7933337899 | 3 years       | 1995-03-06 |     25000 | Kolkata |     200011 |
|     7 | Ashish Singh   | 7911187899 | 4 years       | 1991-03-08 |     30000 | Punjab  |     300012 |
|     8 | Shruti Pandit  | 7113977899 | 7 years       | 1995-03-19 |     70000 | Mumbai  |     400018 |
|     9 | Akash Dubey    | 7977799999 | 3 years       | 1992-07-06 |     25000 | Kolkata |     200011 |
|    10 | Anagha Shinde  | 7977149789 | 4 years       | 1996-08-01 |     41000 | Pune    |     401113 |
+-------+----------------+------------+---------------+------------+-----------+---------+------------+
```

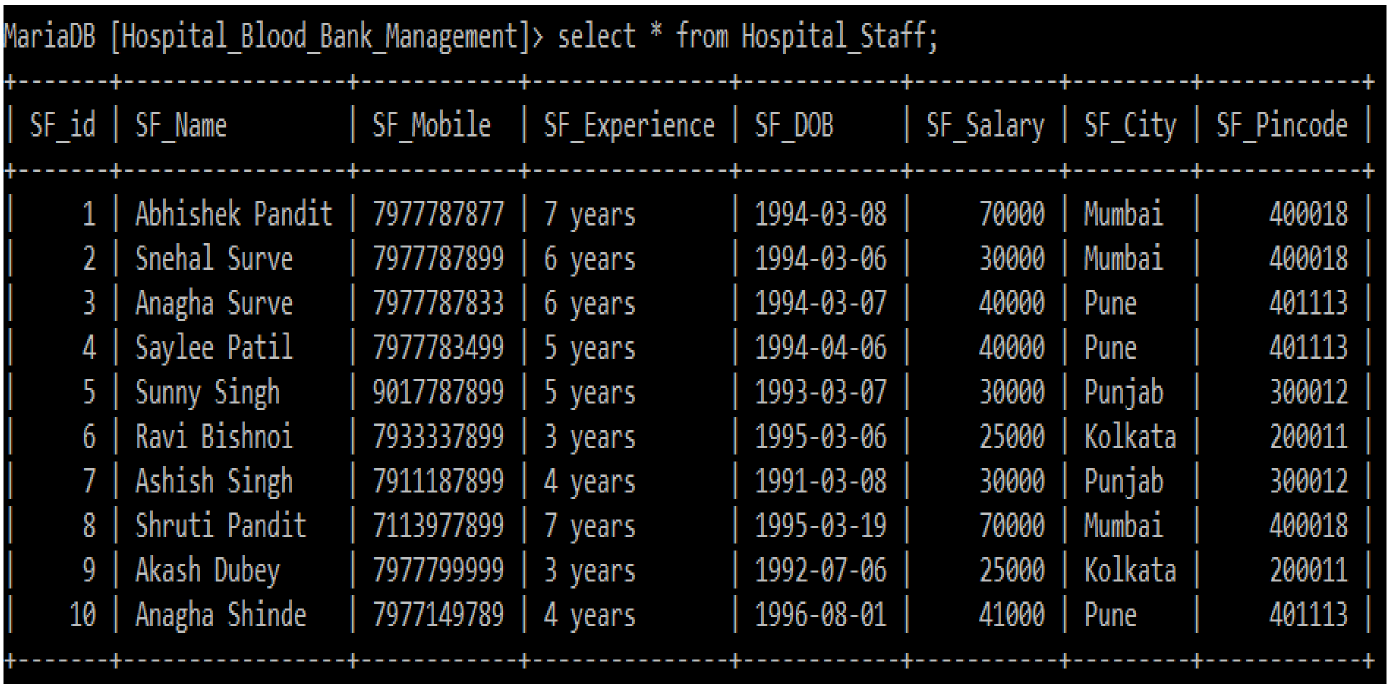
❖ SELECT STATEMENT

The SELECT command is used to retrieve data from the database as per the required condition.

We will see some examples of the SELECT command which is used to retrieve data from the table Hospital_Staff as per the required condition.

1. **Query to retrieve all the data from the Hospital_Staff table .**

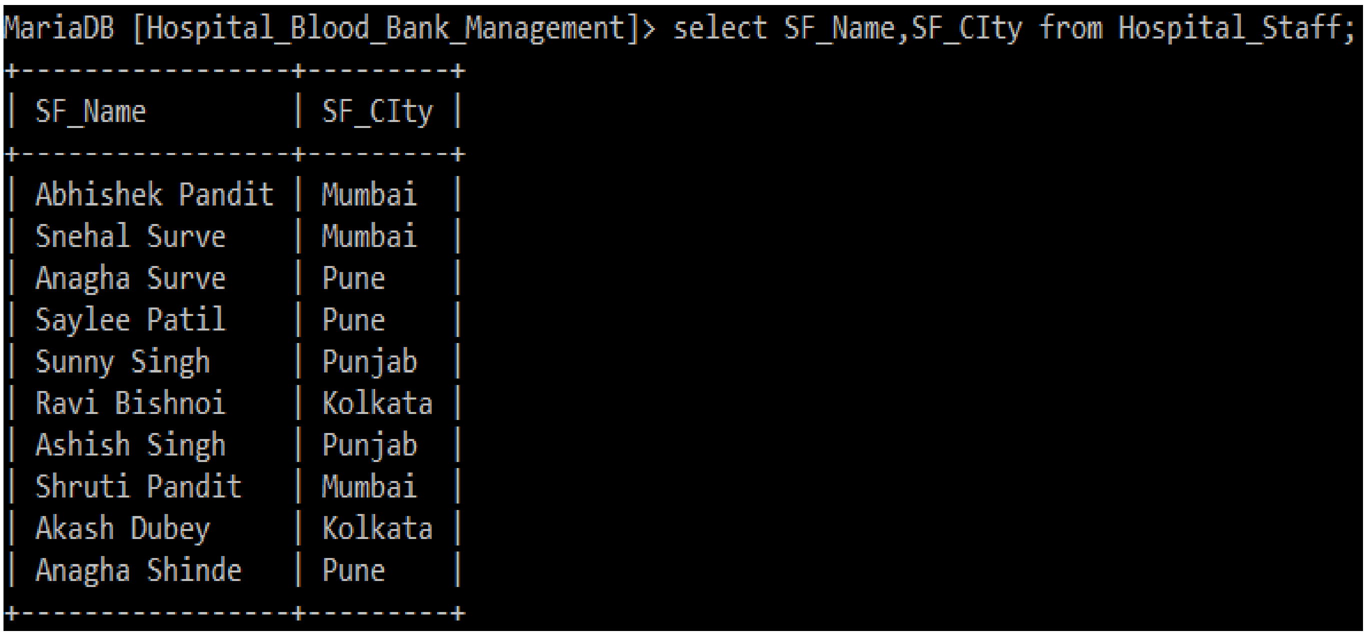
Select * from Hospital_STAFF table;



```
MariaDB [Hospital_Blood_Bank_Management]> select * from Hospital_Staff;
+-------+----------------+------------+---------------+------------+-----------+---------+------------+
| SF_id | SF_Name        | SF_Mobile  | SF_Experience | SF_DOB     | SF_Salary | SF_City | SF_Pincode |
+-------+----------------+------------+---------------+------------+-----------+---------+------------+
|     1 | Abhishek Pandit | 7977787877 | 7 years       | 1994-03-08 |     70000 | Mumbai  |     400018 |
|     2 | Snehal Surve   | 7977787899 | 6 years       | 1994-03-06 |     30000 | Mumbai  |     400018 |
|     3 | Anagha Surve   | 7977787833 | 6 years       | 1994-03-07 |     40000 | Pune    |     401113 |
|     4 | Saylee Patil   | 7977783499 | 5 years       | 1994-04-06 |     40000 | Pune    |     401113 |
|     5 | Sunny Singh    | 9017787899 | 5 years       | 1993-03-07 |     30000 | Punjab  |     300012 |
|     6 | Ravi Bishnoi   | 7933337899 | 3 years       | 1995-03-06 |     25000 | Kolkata |     200011 |
|     7 | Ashish Singh   | 7911187899 | 4 years       | 1991-03-08 |     30000 | Punjab  |     300012 |
|     8 | Shruti Pandit  | 7113977899 | 7 years       | 1995-03-19 |     70000 | Mumbai  |     400018 |
|     9 | Akash Dubey    | 7977799999 | 3 years       | 1992-07-06 |     25000 | Kolkata |     200011 |
|    10 | Anagha Shinde  | 7977149789 | 4 years       | 1996-08-01 |     41000 | Pune    |     401113 |
+-------+----------------+------------+---------------+------------+-----------+---------+------------+
```

2 : Query to find specific columns from Hospital_Staff table.

Select SF_Name,SF_CIty from Hospital_Staff;



```
MariaDB [Hospital_Blood_Bank_Management]> select SF_Name,SF_CIty from Hospital_Staff;
+-----------------+---------+
| SF_Name         | SF_CIty |
+-----------------+---------+
| Abhishek Pandit | Mumbai  |
| Snehal Surve    | Mumbai  |
| Anagha Surve    | Pune    |
| Saylee Patil    | Pune    |
| Sunny Singh     | Punjab  |
| Ravi Bishnoi    | Kolkata |
| Ashish Singh    | Punjab  |
| Shruti Pandit   | Mumbai  |
| Akash Dubey     | Kolkata |
| Anagha Shinde   | Pune    |
+-----------------+---------+
```

❖ AGGREGATE FUNCTIONS

In database management, an aggregate function or aggregation function is a function where the values of multiple rows are grouped together to form a single summary value.

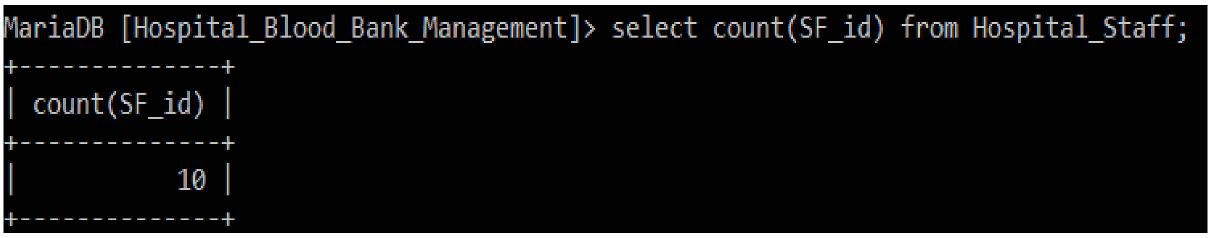
Types of aggregate functions are:

- COUNT
- SUM
- MAX
- MIN
- AVG

Below are some examples in which we have retrieved the data from the Hospital_Staff table using the aggregate functions with the SELECT clause.

1: Query to count number of Staff ID from Hospital_Staff table.

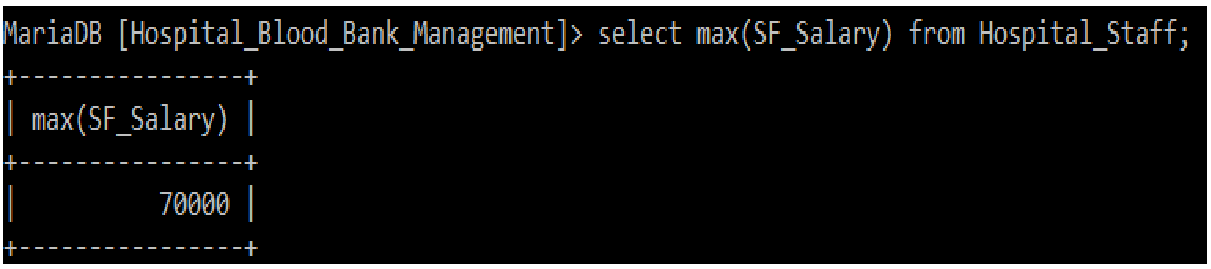
Syntax : Select count (column name) from table_name ;
 i.e Select count(SF_id) from Hospital_Staff;



```
MariaDB [Hospital_Blood_Bank_Management]> select count(SF_id) from Hospital_Staff;
+--------------+
| count(SF_id) |
+--------------+
|           10 |
+--------------+
```

2: Query to maximum salary of Staff from Hospital_Staff table.

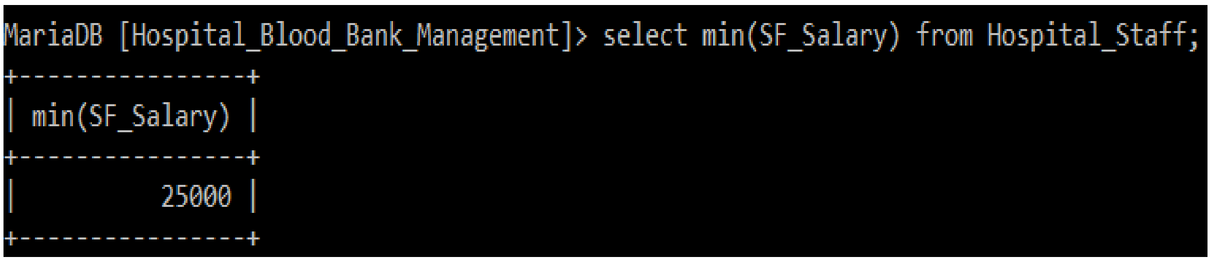
Syntax : Select max (column name) from table_name ;
Select max(SF_Salary) from Hospital_Staff;



```
MariaDB [Hospital_Blood_Bank_Management]> select max(SF_Salary) from Hospital_Staff;
+----------------+
| max(SF_Salary) |
+----------------+
|          70000 |
+----------------+
```

3: Query to minimum salary of Staff from Hospital_Staff table.

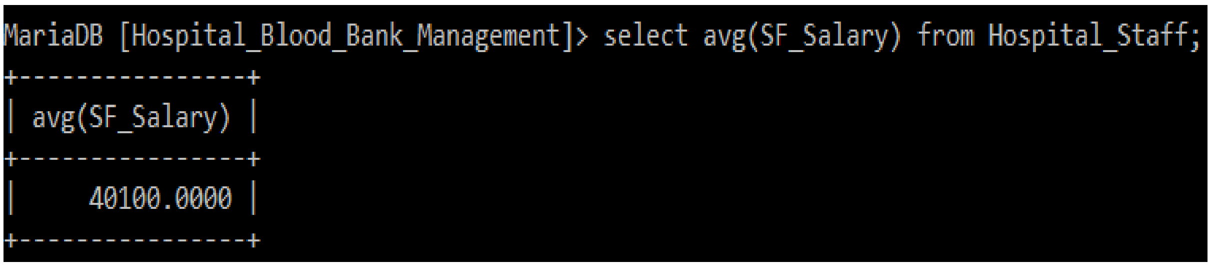
Syntax : Select min (column name) from table_name ;
Select min(SF_Salary) from Hospital_Staff;



```
MariaDB [Hospital_Blood_Bank_Management]> select min(SF_Salary) from Hospital_Staff;
+----------------+
| min(SF_Salary) |
+----------------+
|          25000 |
+----------------+
```

4: Query to average salary of Staff from Hospital_Staff table.

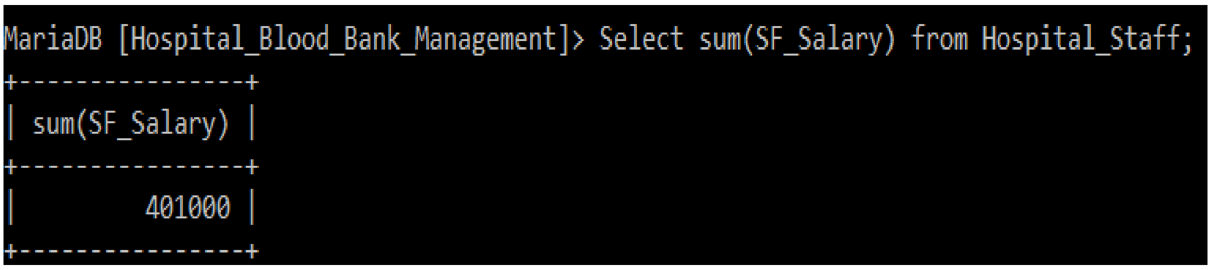
Syntax : Select avg (column name) from table_name ;
Select avg(SF_Salary) from Hospital_Staff;



```
MariaDB [Hospital_Blood_Bank_Management]> select avg(SF_Salary) from Hospital_Staff;
+----------------+
| avg(SF_Salary) |
+----------------+
|     40100.0000 |
+----------------+
```

5: Query to add all the salaries of Staff from Hospital_Staff table.

Syntax : Select sum (column name) from table_name;
Select sum(SF_Salary) from Hospital_Staff;



```
MariaDB [Hospital_Blood_Bank_Management]> Select sum(SF_Salary) from Hospital_Staff;
+----------------+
| sum(SF_Salary) |
+----------------+
|         401000 |
+----------------+
```

❖ JOINS

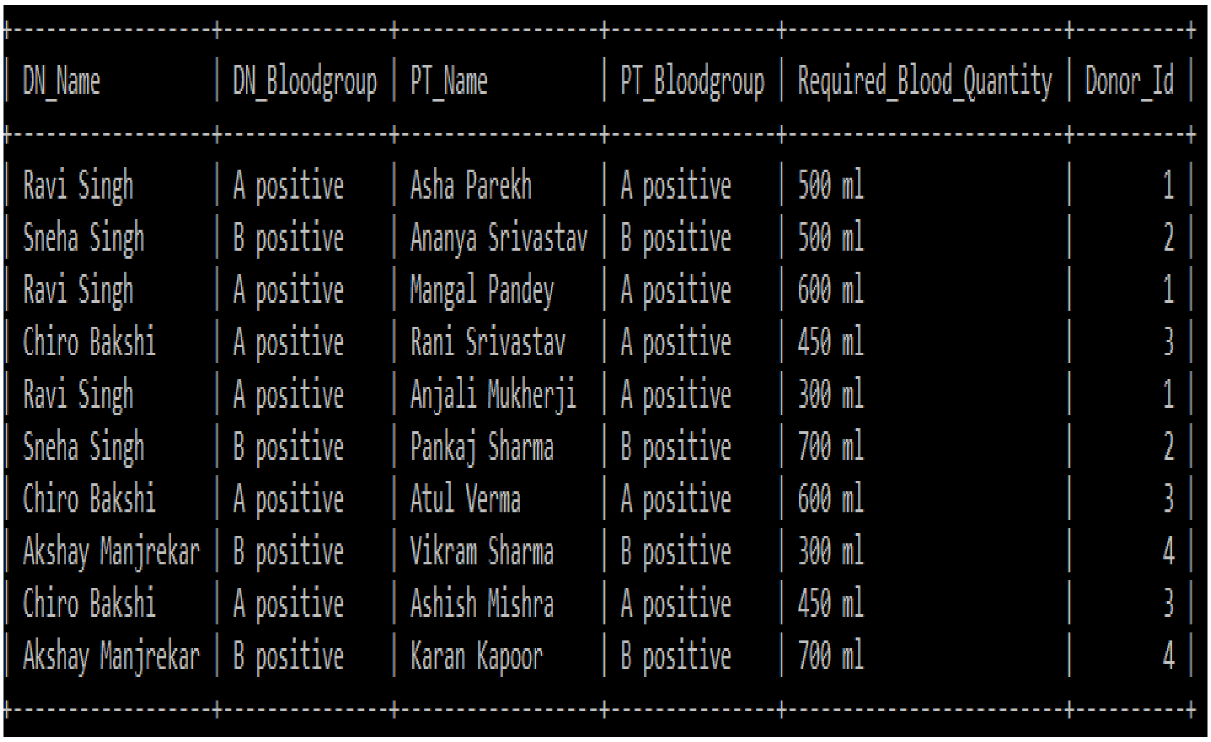
SQL Join statement is used to combine data or rows from two or more tables based on a common field between them. Below are some examples to retrieve date from two tables using joins.Below are the types of Joins:

INNER JOIN

An INNER JOIN is such type of join that returns all rows from both the participating tables where the key record of one table is equal to the key records of another table.

1: Create join from table patient and table donor to show columns DN_Name, DN_Bloodgroup, PT_Name, PT_Bloodgroup, Required_Blood_Quantity, Donor_Id.

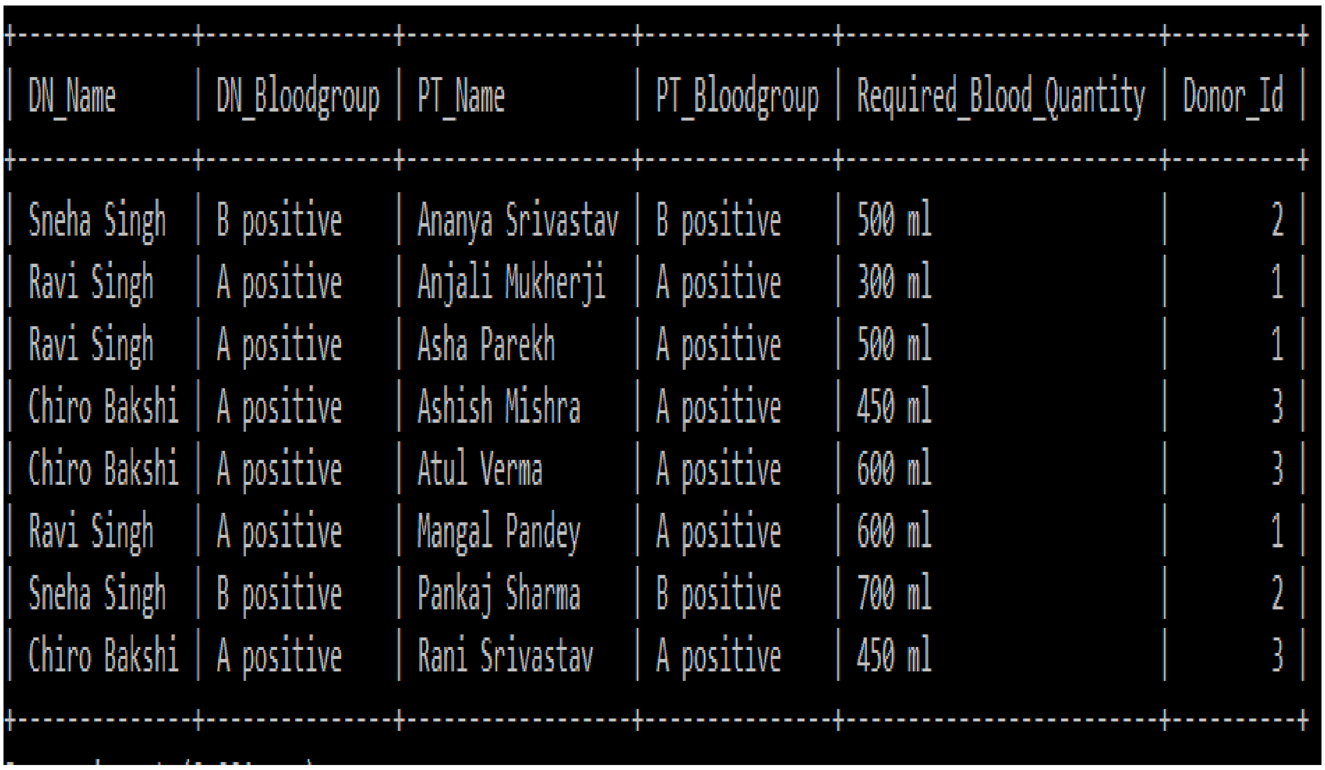
Select DN_Name, DN_Bloodgroup, PT_Name, PT_Bloodgroup, Required_Blood_Quantity, Donor_Id from Donor inner join Patient on DN_Id=Donor_ID;



```
+-----------------+--------------+-----------------+--------------+-------------------------+----------+
| DN_Name         | DN_Bloodgroup | PT_Name         | PT_Bloodgroup | Required_Blood_Quantity | Donor_Id |
+-----------------+--------------+-----------------+--------------+-------------------------+----------+
| Ravi Singh      | A positive   | Asha Parekh     | A positive   | 500 ml                  |        1 |
| Sneha Singh     | B positive   | Ananya Srivastav | B positive  | 500 ml                  |        2 |
| Ravi Singh      | A positive   | Mangal Pandey   | A positive   | 600 ml                  |        1 |
| Chiro Bakshi    | A positive   | Rani Srivastav  | A positive   | 450 ml                  |        3 |
| Ravi Singh      | A positive   | Anjali Mukherji | A positive   | 300 ml                  |        1 |
| Sneha Singh     | B positive   | Pankaj Sharma   | B positive   | 700 ml                  |        2 |
| Chiro Bakshi    | A positive   | Atul Verma      | A positive   | 600 ml                  |        3 |
| Akshay Manjrekar | B positive  | Vikram Sharma   | B positive   | 300 ml                  |        4 |
| Chiro Bakshi    | A positive   | Ashish Mishra   | A positive   | 450 ml                  |        3 |
| Akshay Manjrekar | B positive  | Karan Kapoor    | B positive   | 700 ml                  |        4 |
+-----------------+--------------+-----------------+--------------+-------------------------+----------+
```

2: Create join from table patient and table donor to show columns DN_Name, DN_Bloodgroup, PT_Name, PT_Bloodgroup, Required_Blood_Quantity, Donor_Id where Donor_ID between 1 and 3 and PT_Name in ascending order.

Select DN_Name, DN_Bloodgroup, PT_Name, PT_Bloodgroup, Required_Blood_Quantity, Donor_Id from Donor inner join Patient on DN_Id=Donor_ID where Donor_Id between 1 and 3 group by PT_Name asc;



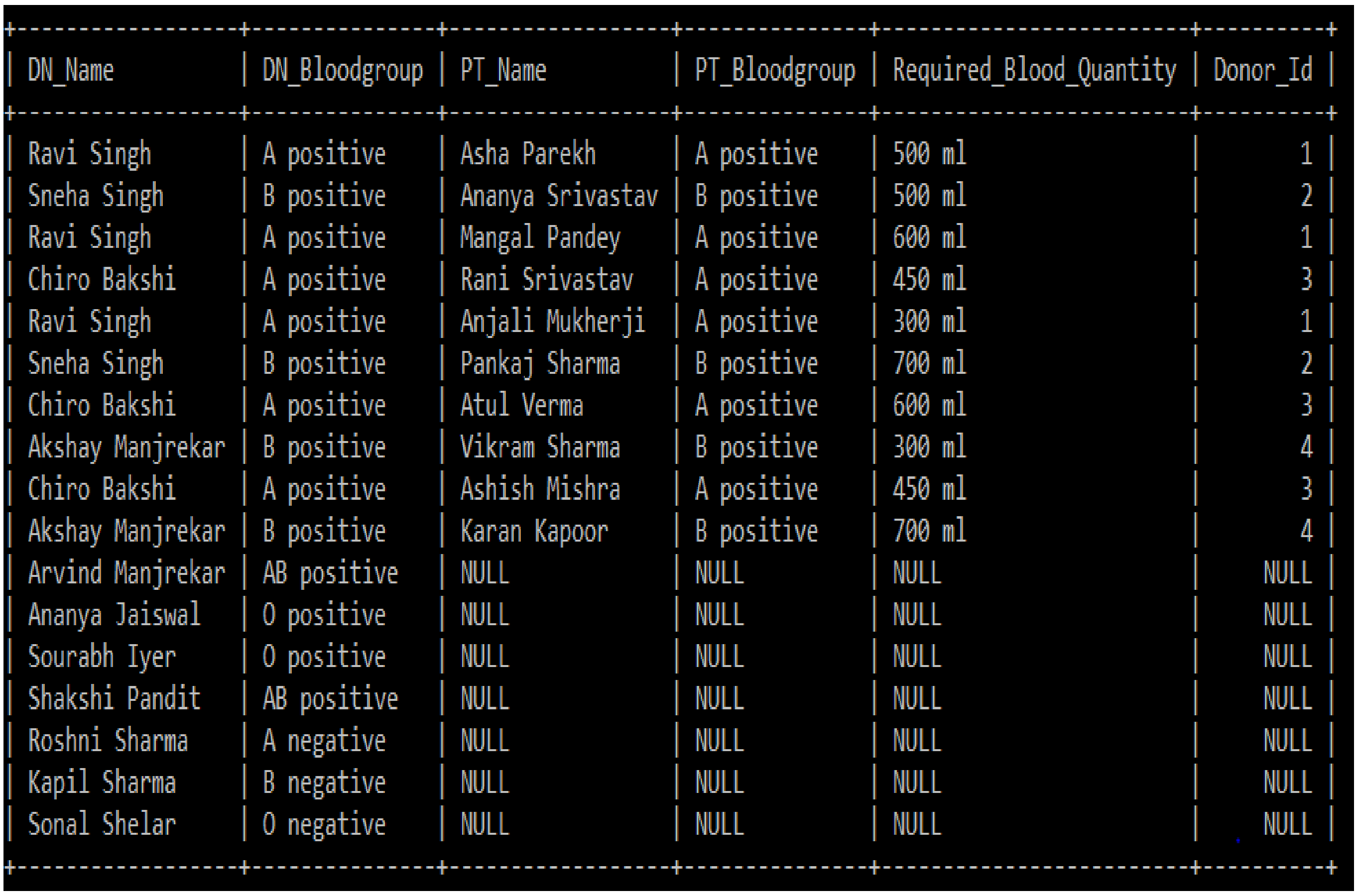
```
+-------------+--------------+-----------------+-------------+-------------------------+----------+
| DN_Name     | DN_Bloodgroup | PT_Name         | PT_Bloodgroup | Required_Blood_Quantity | Donor_Id |
+-------------+--------------+-----------------+-------------+-------------------------+----------+
| Sneha Singh | B positive   | Ananya Srivastav | B positive  | 500 ml                  |        2 |
| Ravi Singh  | A positive   | Anjali Mukherji | A positive  | 300 ml                  |        1 |
| Ravi Singh  | A positive   | Asha Parekh     | A positive  | 500 ml                  |        1 |
| Chiro Bakshi | A positive  | Ashish Mishra   | A positive  | 450 ml                  |        3 |
| Chiro Bakshi | A positive  | Atul Verma      | A positive  | 600 ml                  |        3 |
| Ravi Singh  | A positive   | Mangal Pandey   | A positive  | 600 ml                  |        1 |
| Sneha Singh | B positive   | Pankaj Sharma   | B positive  | 700 ml                  |        2 |
| Chiro Bakshi | A positive  | Rani Srivastav  | A positive  | 450 ml                  |        3 |
+-------------+--------------+-----------------+-------------+-------------------------+----------+
```

LEFT JOIN

The LEFT JOIN returns all rows from the left table and the matching rows from the right table. If no matching rows are found in the right table then NULL are used in that columns..

1: Create left join from table patient and table donor to show columns DN_Name, DN_Bloodgroup, PT_Name, PT_Bloodgroup, Required_Blood_Quantity, Donor_Id.

Select DN_Name, DN_Bloodgroup, PT_Name, PT_Bloodgroup, Required_Blood_Quantity, Donor_Id from Donor left join Patient on DN_Id=Donor_ID;



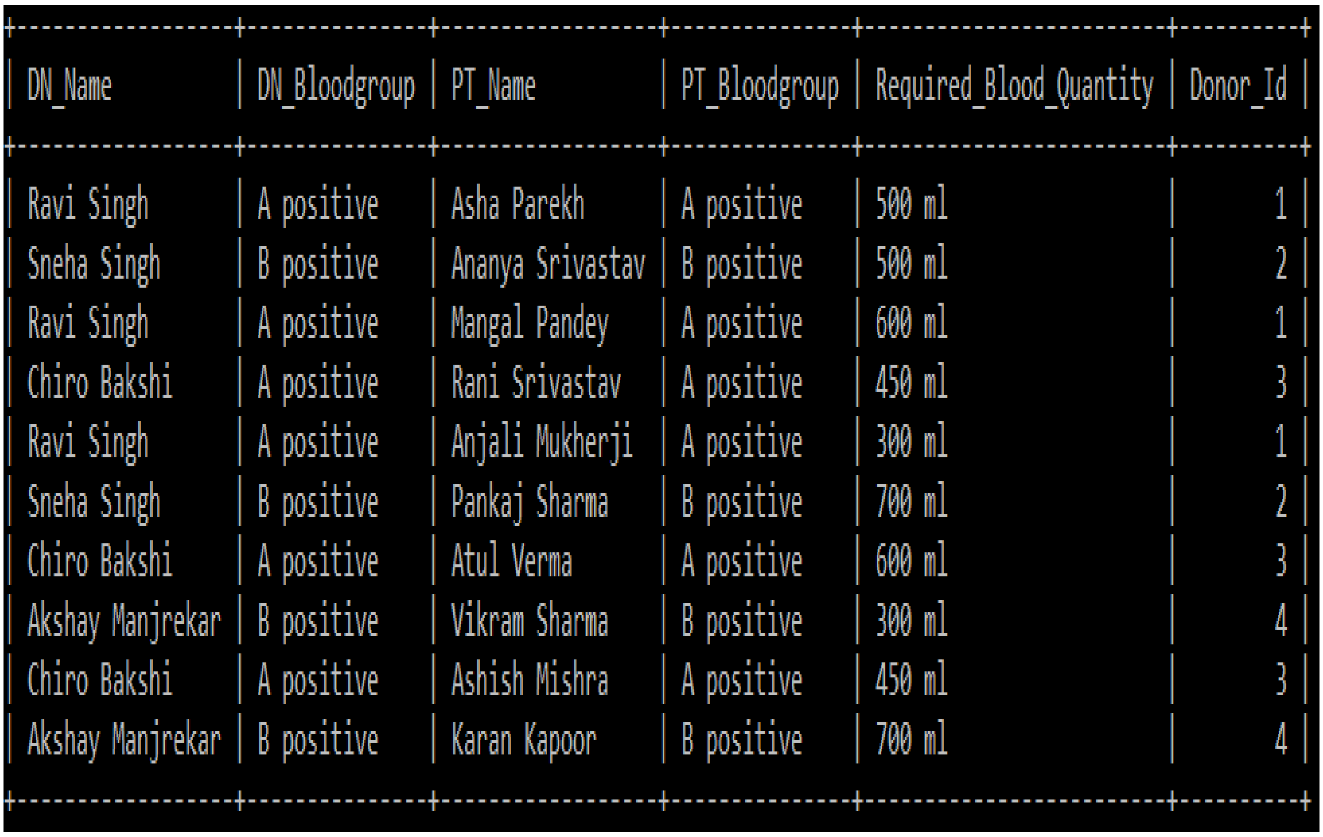
```
+-----------------+--------------+-----------------+--------------+-------------------------+----------+
| DN_Name         | DN_Bloodgroup | PT_Name         | PT_Bloodgroup | Required_Blood_Quantity | Donor_Id |
+-----------------+--------------+-----------------+--------------+-------------------------+----------+
| Ravi Singh      | A positive   | Asha Parekh     | A positive   | 500 ml                  |        1 |
| Sneha Singh     | B positive   | Ananya Srivastav | B positive   | 500 ml                  |        2 |
| Ravi Singh      | A positive   | Mangal Pandey   | A positive   | 600 ml                  |        1 |
| Chiro Bakshi    | A positive   | Rani Srivastav  | A positive   | 450 ml                  |        3 |
| Ravi Singh      | A positive   | Anjali Mukherji | A positive   | 300 ml                  |        1 |
| Sneha Singh     | B positive   | Pankaj Sharma   | B positive   | 700 ml                  |        2 |
| Chiro Bakshi    | A positive   | Atul Verma      | A positive   | 600 ml                  |        3 |
| Akshay Manjrekar | B positive   | Vikram Sharma   | B positive   | 300 ml                  |        4 |
| Chiro Bakshi    | A positive   | Ashish Mishra   | A positive   | 450 ml                  |        3 |
| Akshay Manjrekar | B positive   | Karan Kapoor    | B positive   | 700 ml                  |        4 |
| Arvind Manjrekar | AB positive  | NULL            | NULL         | NULL                    |     NULL |
| Ananya Jaiswal  | O positive   | NULL            | NULL         | NULL                    |     NULL |
| Sourabh Iyer    | O positive   | NULL            | NULL         | NULL                    |     NULL |
| Shakshi Pandit  | AB positive  | NULL            | NULL         | NULL                    |     NULL |
| Roshni Sharma   | A negative   | NULL            | NULL         | NULL                    |     NULL |
| Kapil Sharma    | B negative   | NULL            | NULL         | NULL                    |     NULL |
| Sonal Shelar    | O negative   | NULL            | NULL         | NULL                    |     NULL |
+-----------------+--------------+-----------------+--------------+-------------------------+----------+
```

RIGHT JOIN

The RIGHT JOIN keyword returns all records from the right table (table2), and the matching records from the left table (table1). The result is 0 records from the left side, if there is no match.

1: Create left join from table patient and table donor to show columns DN_Name, DN_Bloodgroup, PT_Name, PT_Bloodgroup, Required_Blood_Quantity, Donor_Id.

Select DN_Name, DN_Bloodgroup, PT_Name, PT_Bloodgroup, Required_Blood_Quantity, Donor_Id from Donor right join Patient on DN_Id=Donor_ID;



```
+-----------------+-------------+-----------------+-------------+-------------------------+----------+
| DN_Name         | DN_Bloodgroup | PT_Name         | PT_Bloodgroup | Required_Blood_Quantity | Donor_Id |
+-----------------+-------------+-----------------+-------------+-------------------------+----------+
| Ravi Singh      | A positive  | Asha Parekh     | A positive  | 500 ml                  |        1 |
| Sneha Singh     | B positive  | Ananya Srivastav | B positive  | 500 ml                  |        2 |
| Ravi Singh      | A positive  | Mangal Pandey   | A positive  | 600 ml                  |        1 |
| Chiro Bakshi    | A positive  | Rani Srivastav  | A positive  | 450 ml                  |        3 |
| Ravi Singh      | A positive  | Anjali Mukherji | A positive  | 300 ml                  |        1 |
| Sneha Singh     | B positive  | Pankaj Sharma   | B positive  | 700 ml                  |        2 |
| Chiro Bakshi    | A positive  | Atul Verma      | A positive  | 600 ml                  |        3 |
| Akshay Manjrekar | B positive  | Vikram Sharma   | B positive  | 300 ml                  |        4 |
| Chiro Bakshi    | A positive  | Ashish Mishra   | A positive  | 450 ml                  |        3 |
| Akshay Manjrekar | B positive  | Karan Kapoor    | B positive  | 700 ml                  |        4 |
+-----------------+-------------+-----------------+-------------+-------------------------+----------+
```

❖ SUB QUERY

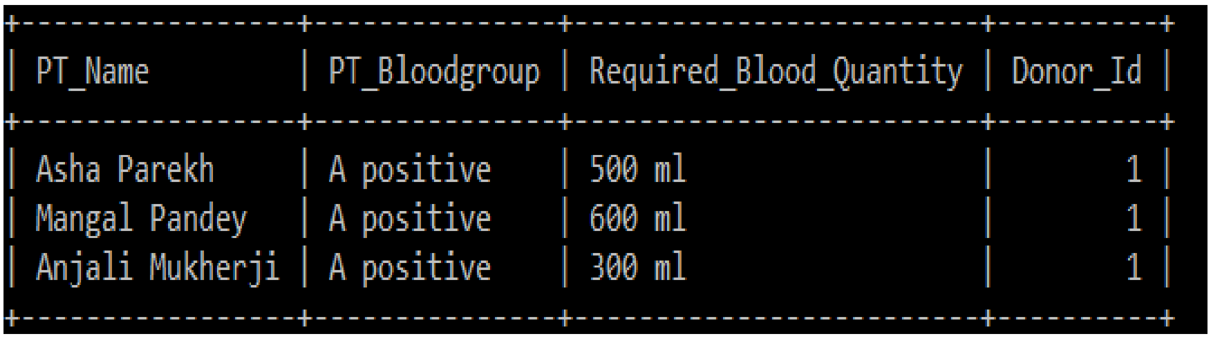
A Subquery or Inner query or a Nested query is a query within another SQL query and embedded within the WHERE clause.

Subqueries can be used with the SELECT, INSERT, UPDATE, and DELETE statements along with the operators like =, <, >, >=, <=, IN, BETWEEN, etc.

Below are few examples of Sub Query.

1: Using Subquery to display PT_Name, PT_Bloodgroup, Required_Blood_Quantity from Patient table where Donor_Id is 1.

select PT_Name, PT_Bloodgroup, Required_Blood_Quantity,Donor_Id from Patient where PT_Id in (select PT_Id from patient where Donor_Id =1);

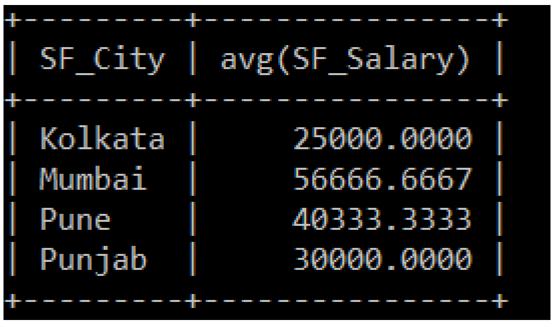


```
+-----------------+---------------+-------------------------+----------+
| PT_Name         | PT_Bloodgroup | Required_Blood_Quantity | Donor_Id |
+-----------------+---------------+-------------------------+----------+
| Asha Parekh     | A positive    | 500 ml                  |        1 |
| Mangal Pandey   | A positive    | 600 ml                  |        1 |
| Anjali Mukherji | A positive    | 300 ml                  |        1 |
+-----------------+---------------+-------------------------+----------+
```

2: Using Subquery in table Hospital_Staff to display city with maximum average staff salary.

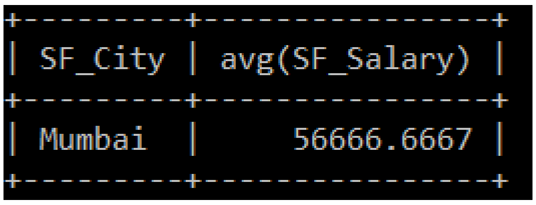
Inner query

select SF_City, avg(SF_Salary) from Hospital_Staff group by SF_City);



```
+---------+----------------+
| SF_City | avg(SF_Salary) |
+---------+----------------+
| Kolkata |     25000.0000 |
| Mumbai  |     56666.6667 |
| Pune    |     40333.3333 |
| Punjab  |     30000.0000 |
+---------+----------------+
```

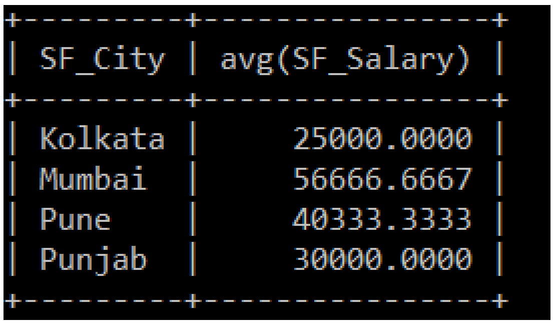
Subquery
select SF_City, avg(SF_Salary) from Hospital_Staff group by SF_City having avg(SF_Salary)>=all(select avg(SF_Salary) from Hospital_Staff group by SF_City);


```
+---------+----------------+
| SF_City | avg(SF_Salary) |
+---------+----------------+
| Mumbai  |     56666.6667 |
+---------+----------------+
```

3: Using Subquery in table Hospital_Staff to display city with minimum average staff salary.

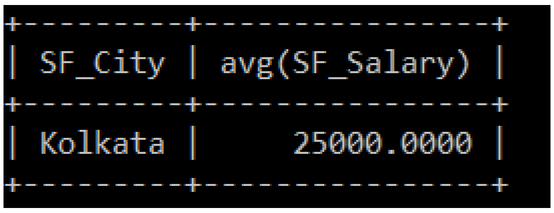
Inner query

select SF_City, avg(SF_Salary) from Hospital_Staff group by SF_City);


```
+---------+----------------+
| SF_City | avg(SF_Salary) |
+---------+----------------+
| Kolkata |     25000.0000 |
| Mumbai  |     56666.6667 |
| Pune    |     40333.3333 |
| Punjab  |     30000.0000 |
+---------+----------------+
```

Subquery

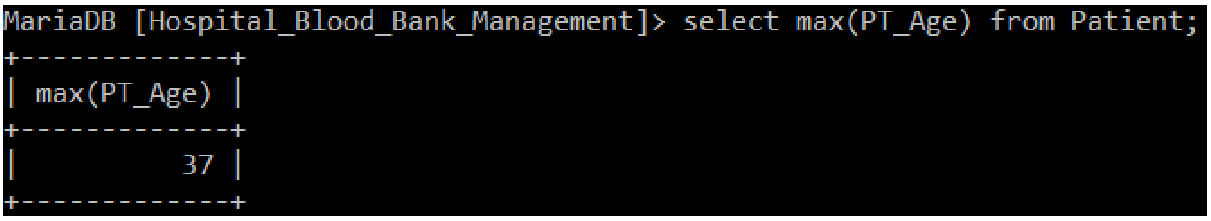
select SF_City, avg(SF_Salary) from Hospital_Staff group by SF_City having avg(SF_Salary)<=all(select avg(SF_Salary) from Hospital_Staff group by SF_City);


```
+---------+----------------+
| SF_City | avg(SF_Salary) |
+---------+----------------+
| Kolkata |     25000.0000 |
+---------+----------------+
```

4: Using Subquery in table Patient to display PT_Name, Required_Blood_Quantity, PT_Age details of the patient's who's age are less than the patient with maximum age.

Inner query

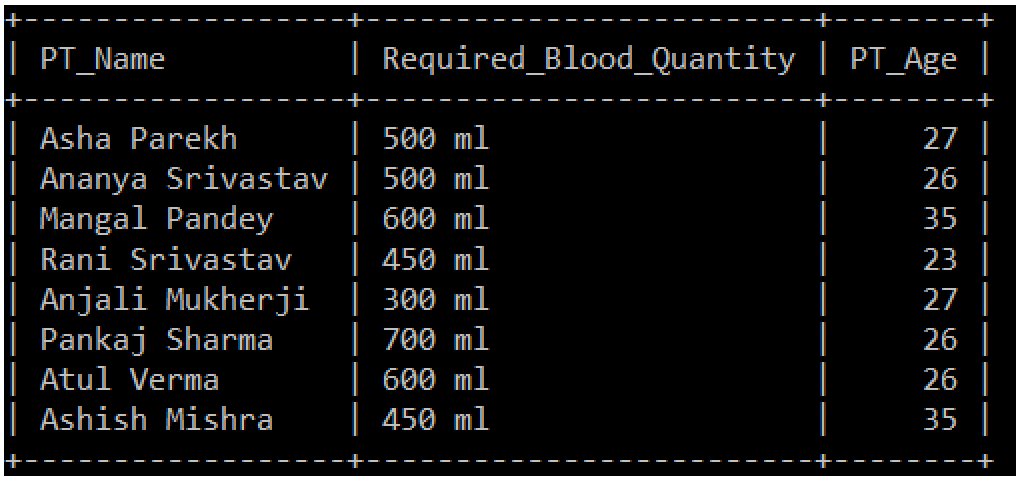
select max(PT_Age) from Patient;



```
MariaDB [Hospital_Blood_Bank_Management]> select max(PT_Age) from Patient;
+-------------+
| max(PT_Age) |
+-------------+
|          37 |
+-------------+
```

Subquery

select PT_Name, Required_Blood_Quantity, PT_Age from Patient where (PT_Age) <(select max(PT_Age) from Patient);



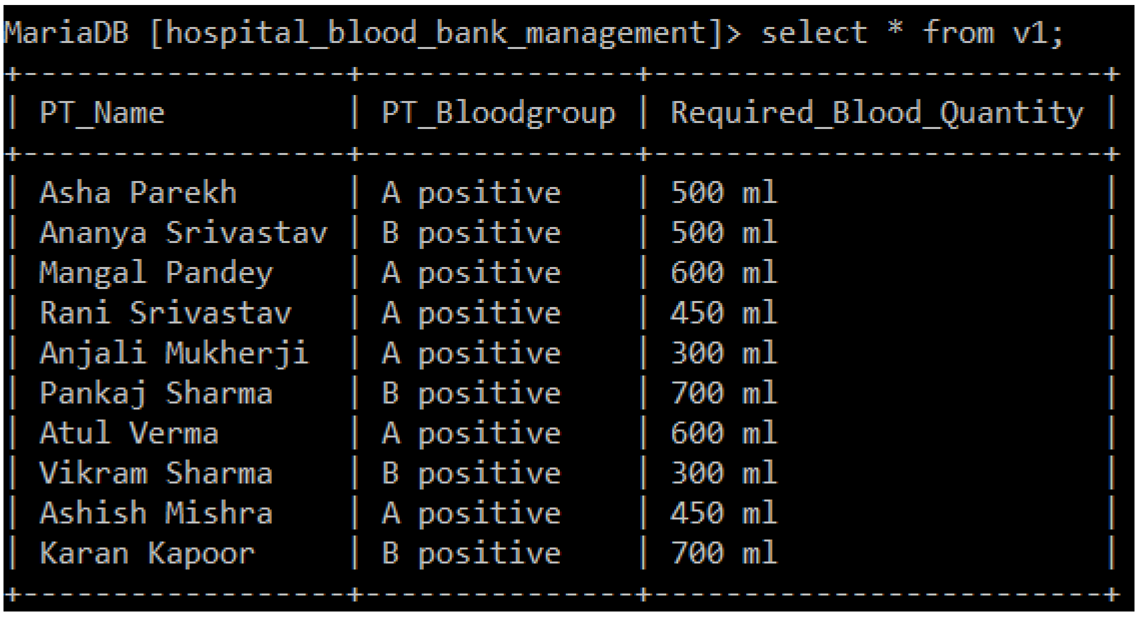
```
+-----------------+-------------------------+--------+
| PT_Name         | Required_Blood_Quantity | PT_Age |
+-----------------+-------------------------+--------+
| Asha Parekh     | 500 ml                  |     27 |
| Ananya Srivastav | 500 ml                 |     26 |
| Mangal Pandey   | 600 ml                  |     35 |
| Rani Srivastav  | 450 ml                  |     23 |
| Anjali Mukherji | 300 ml                  |     27 |
| Pankaj Sharma   | 700 ml                  |     26 |
| Atul Verma      | 600 ml                  |     26 |
| Ashish Mishra   | 450 ml                  |     35 |
+-----------------+-------------------------+--------+
```

❖ VIEWS

A view is a virtual table based on the result-set of an SQL statement. A view contains rows and columns, just like a real table. The fields in a view are fields from one or more real tables in the database.

1. **Created view using one table Patient to show PT_Name, PT_Bloodgroup, Required_Blood_Quantity.**

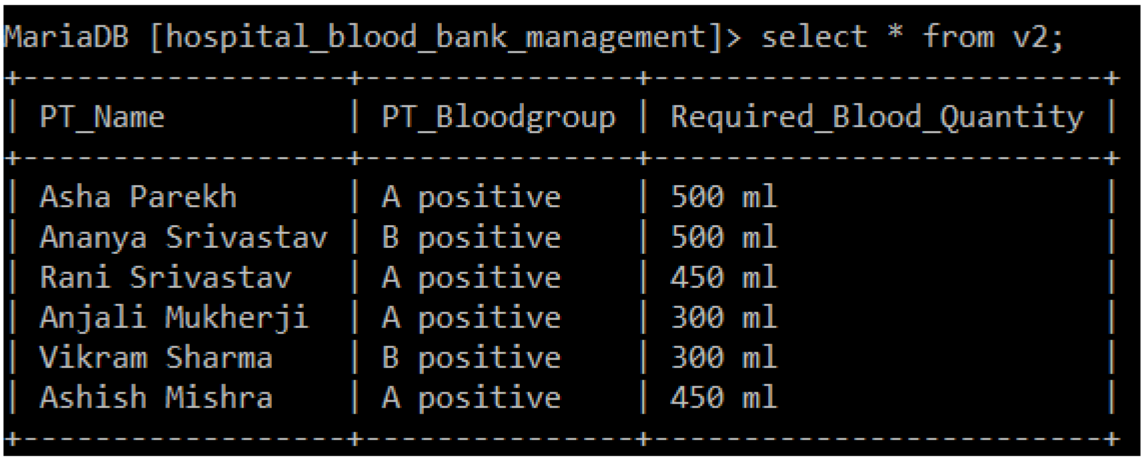
Create view v1 as select PT_Name, PT_Bloodgroup, Required_Blood_Quantity from Patient;
Select * from v1;



```
MariaDB [hospital_blood_bank_management]> select * from v1;
+-------------------+---------------+-------------------------+
| PT_Name           | PT_Bloodgroup | Required_Blood_Quantity |
+-------------------+---------------+-------------------------+
| Asha Parekh       | A positive    | 500 ml                  |
| Ananya Srivastav  | B positive    | 500 ml                  |
| Mangal Pandey     | A positive    | 600 ml                  |
| Rani Srivastav    | A positive    | 450 ml                  |
| Anjali Mukherji   | A positive    | 300 ml                  |
| Pankaj Sharma     | B positive    | 700 ml                  |
| Atul Verma        | A positive    | 600 ml                  |
| Vikram Sharma     | B positive    | 300 ml                  |
| Ashish Mishra     | A positive    | 450 ml                  |
| Karan Kapoor      | B positive    | 700 ml                  |
+-------------------+---------------+-------------------------+
```

2. **Created view using one table Patient to show PT_Name, PT_Bloodgroup, Required_Blood_Quantity where required blood quantity is less than or equal to 500ml.**

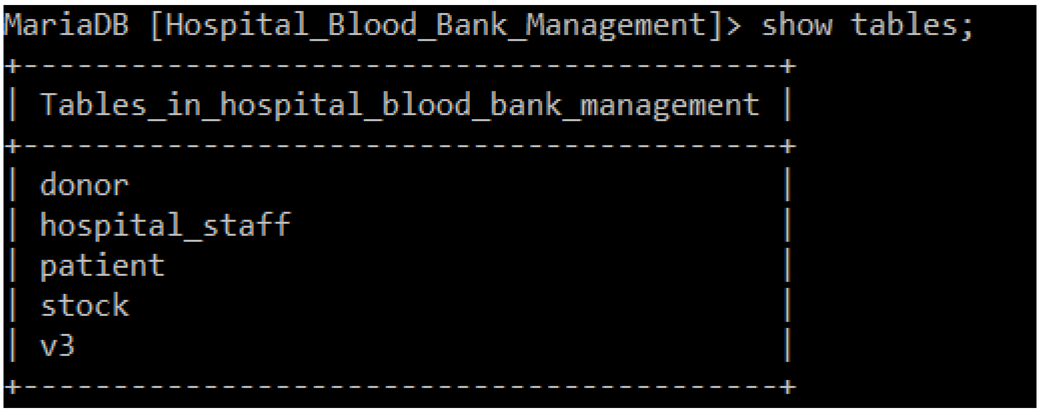
Create view v2 as select PT_Name, PT_Bloodgroup, Required_Blood_Quantity from Patient where Required_Blood_Quantity<='500ml';



```
MariaDB [hospital_blood_bank_management]> select * from v2;
+------------------+--------------+-------------------------+
| PT_Name          | PT_Bloodgroup | Required_Blood_Quantity |
+------------------+--------------+-------------------------+
| Asha Parekh      | A positive   | 500 ml                  |
| Ananya Srivastav | B positive   | 500 ml                  |
| Rani Srivastav   | A positive   | 450 ml                  |
| Anjali Mukherji  | A positive   | 300 ml                  |
| Vikram Sharma    | B positive   | 300 ml                  |
| Ashish Mishra    | A positive   | 450 ml                  |
+------------------+--------------+-------------------------+
```

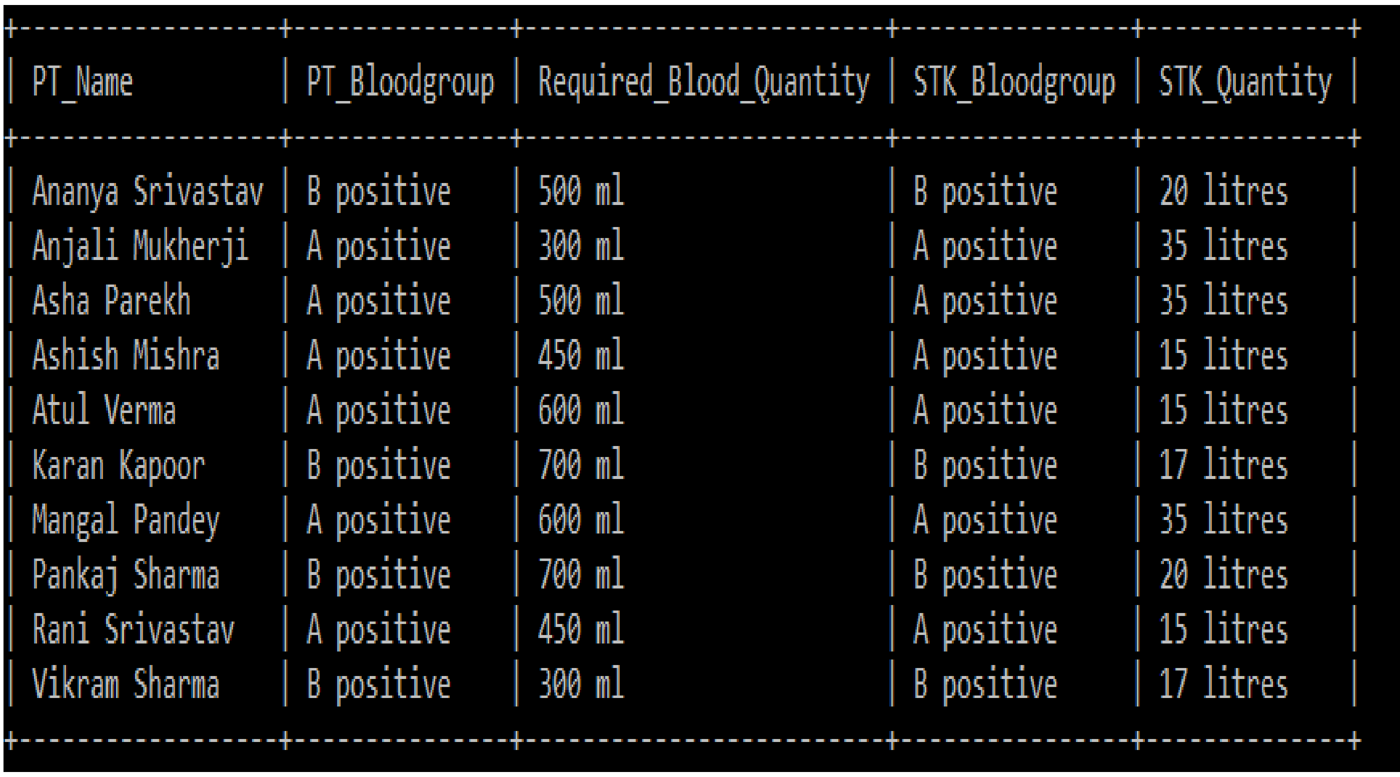
3. **Created view using two tables to show PT_Name, PT_Bloodgroup, Required_Blood_Quantity, Donor_Id, STK_Bloodgroup, STK_Quantity from Patient table and Stock table.**

Create view v3 as select PT_Name, PT_Bloodgroup, Required_Blood_Quantity,STK_Bloodgroup, STK_Quantity from Patient, Stock where Donor_Id= STK_Location_ID group by PT_Name;
Show tables;



```
MariaDB [Hospital_Blood_Bank_Management]> show tables;
+-----------------------------------------+
| Tables_in_hospital_blood_bank_management |
+-----------------------------------------+
| donor                                   |
| hospital_staff                          |
| patient                                 |
| stock                                   |
| v3                                      |
+-----------------------------------------+
```

Select * from v3;



```
+------------------+--------------+-------------------------+----------------+---------------+
| PT_Name          | PT_Bloodgroup | Required_Blood_Quantity | STK_Bloodgroup | STK_Quantity |
+------------------+--------------+-------------------------+----------------+---------------+
| Ananya Srivastav | B positive   | 500 ml                  | B positive     | 20 litres     |
| Anjali Mukherji  | A positive   | 300 ml                  | A positive     | 35 litres     |
| Asha Parekh      | A positive   | 500 ml                  | A positive     | 35 litres     |
| Ashish Mishra    | A positive   | 450 ml                  | A positive     | 15 litres     |
| Atul Verma       | A positive   | 600 ml                  | A positive     | 15 litres     |
| Karan Kapoor     | B positive   | 700 ml                  | B positive     | 17 litres     |
| Mangal Pandey    | A positive   | 600 ml                  | A positive     | 35 litres     |
| Pankaj Sharma    | B positive   | 700 ml                  | B positive     | 20 litres     |
| Rani Srivastav   | A positive   | 450 ml                  | A positive     | 15 litres     |
| Vikram Sharma    | B positive   | 300 ml                  | B positive     | 17 litres     |
+------------------+--------------+-------------------------+----------------+---------------+
```