BLOOD BANK MANAGEMENT SYSTEM.

BLOOD BANK DATABASE:

BLOOD (BGType)

BLOODBANK (BBID, BBName)

BLOODBANK_AVAILABILITY (BGType, BBID, Availability)

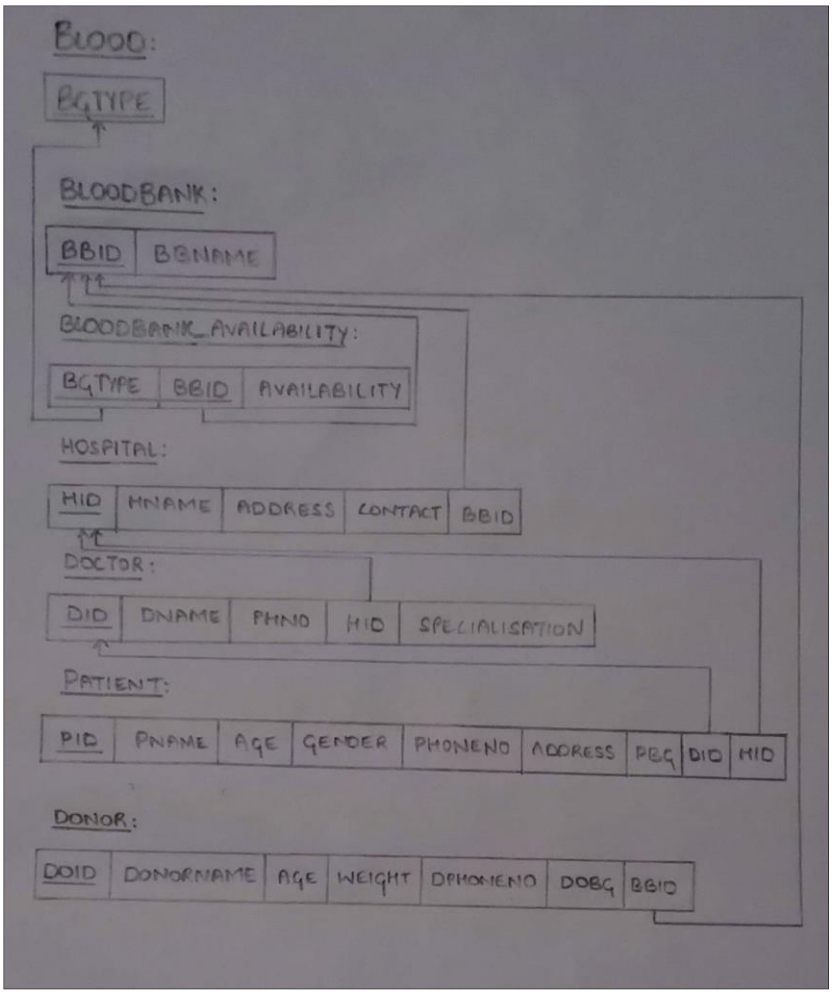
HOSPITAL (HID, HName, Address, Contact, BBID)

DOCTOR (DID, DName, Phno, HID, Specialisation)

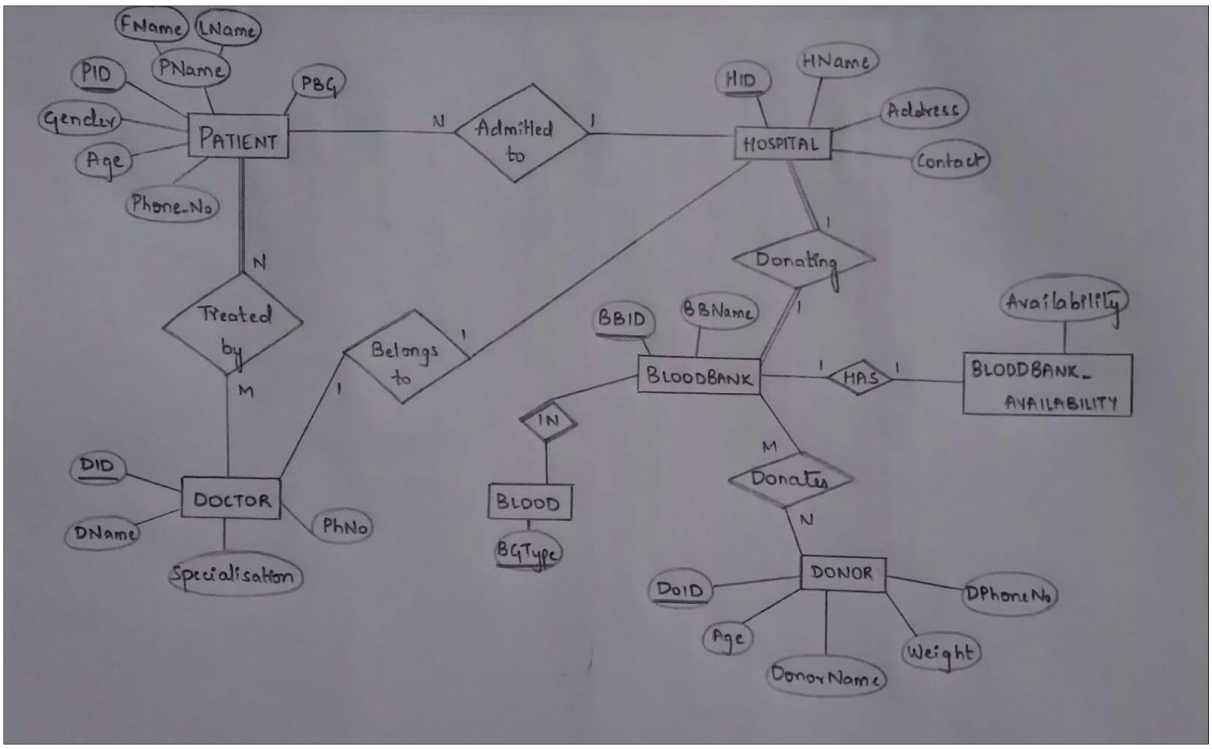
PATIENT (PID, PName, Age, Gender, Phoneno, Address, PBG, DID, HID)

DONOR (DOID, DonorName, Age, Weight, DPhoneno, DOBG, BBID)

SCHEMA:



ENTITY-RELATION DIAGRAM:



CREATION TO TABLES:

1) create table blood(

bgtype varchar(20) primary key);

2) create table bloodbank(

bbid varchar(10) primary key,

bbname varchar(20));

3) create table hospital(

hid varchar(10) primary key,

hname varchar(20),

address varchar(20),

contact varchar(10),

bbid varchar(10),

foreign key(bbid) references bloodbank(bbid) on delete set null);

4) create table doctor(

did varchar(10) primary key,

dname varchar(20),

phno varchar(10),

hid varchar(10),

specialisation varchar(25),

foreign key (hid) references hospital(hid) on delete set null);

5) create table bb_availablity(

bgtype varchar(10),

bbid varchar(10),

availability int,

primary key(bgtype, bbid),

foreign key(bgtype) references blood(bgtype),

foreign key(bbid) references bloodbank(bbid));

6) create table donor(

doid varchar(10) primary key,

donorname varchar(20),

age int,

weight varchar(10),

check(weight > 50),

dphno varchar(10),

dobg varchar(10),

bbid varchar(10),

foreign key(bbid) references bloodbank(bbid) on delete set null);

7) create table patient(

pid varchar(10) primary key,

```
pname varchar(20),
age int,
gender varchar(5),
pphno varchar(10),
address varchar(20),
pbg varchar(10),
did varchar(10),
hid varchar(10),
foreign key (did) references doctor (did) on delete set null,
foreign key (hid) references hospital(hid) on delete set null);
```

USE OF DEFAULT CONSTRAINT:

```
alter table donor
modify donorname varchar(20) default null;
```

INSERTION OF VALUES TO TABLE:

```
1) insert into blood values('0+');
   insert into blood values('0-');
   insert into blood values('A+');
   insert into blood values('A-');
   insert into blood values('B+');
   insert into blood values('B-');
   insert into blood values('AB+');
   insert into blood values('AB+');

2) insert into bloodbank values('BB1','Victoria');
   insert into bloodbank values('BB2','Lion');
   insert into bloodbank values('BB3','BGS');

3) insert into bb_availablity values('AB+','BB1','4440');
```

insert into bb_availablity values('A+','BB1','5760');
insert into bb_availablity values('A-','BB1','7860');
insert into bb_availablity values('O+','BB1','3680');
insert into bb_availablity values('O-','BB1','2280');
insert into bb_availablity values('B+','BB1','2780');
insert into bb_availablity values('B-','BB1','3980');
insert into bb_availablity values('AB-','BB1','7640');
insert into bb_availablity values('B+','BB2','2900');
insert into bb_availablity values('O-','BB3','500');
insert into bb_availablity values('A-','BB2','5050');

4) insert into hospital values('H1','Victoria','Bangalore','6252121444','BB1');
insert into hospital values('H2','BGS','Bangalore','6468365735','BB2');
insert into hospital values('H3','Lotus','Hubli','5375297364','BB1');
insert into hospital values('H4','Ramaiah','Mangalore','5343745385','BB3');
insert into hospital values('H5','Sparse','Mysuru','4753797946','BB2');

5) insert into doctor values('D1','Udhay','3556643487','H2','Cardiologist');
insert into doctor values('D2','Akshara','7547534685','H5','Gynecologist');
insert into doctor values('D3','Vinay','5375873464','H3','Orthopedic');
insert into doctor values('D4','Vishwas','5353756527','H4','Neurologist');
insert into doctor values('D5','Chirag','5358570987','H1','Cardiologist');

6) insert into donor values('DO1','Keerthana','40','52','4357974537','AB+','BB1');
insert into donor values('DO2','Sowmya','20','59','5765893290','B+','BB2');
insert into donor values('DO3','Pallavi','38','68','4357832686','B+','BB2');
insert into donor values('DO4','Puneet','24','69','3568743567','O+','BB1');
insert into donor values('DO5','Praveen','32','72','4532665564','B+','BB1');

7) insert into patient values('P1','Akshay','21','M','4376983567','Bengaluru','O+','D5','H1');

insert into patient values('P2','Akash','34','M','5467586853','Bengaluru','A+','D5','H1');

insert into patient values('P3','Abhay','48','M','4735798635','Mangalore','AB-','D3','H4');

insert into patient values('P4','Sunil','27','M','4736580897','Mysuru','O-','D4','H5');

insert into patient values('P5','Sudha','17','F','4625788696','Hubli','B-','D2','H3');

CREATION OF VIEW:

```
create view v_bloodavailable as
    (select availability, bgtype
     from bloodbank);
```

DESCRIPTION OF A TABLE:

- desc patient;

```
mysql> desc patient;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| pid     | varchar(10) | NO   | PRI | NULL    |       |
| pname   | varchar(20) | YES  |     | NULL    |       |
| age     | int         | YES  |     | NULL    |       |
| gender  | varchar(5)  | YES  |     | NULL    |       |
| pphno   | varchar(10) | YES  |     | NULL    |       |
| address | varchar(20) | YES  |     | NULL    |       |
| pbg     | varchar(10) | YES  |     | NULL    |       |
| did     | varchar(10) | YES  | MUL | NULL    |       |
| hid     | varchar(10) | YES  | MUL | NULL    |       |
+---------+-------------+------+-----+---------+-------+
9 rows in set (0.04 sec)
```

- desc donor;

```
mysql> desc donor;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| doid      | varchar(10) | NO   | PRI | NULL    |       |
| donorname | varchar(20) | YES  |     | NULL    |       |
| age       | int         | YES  |     | NULL    |       |
| weight    | varchar(10) | YES  |     | NULL    |       |
| dphno     | varchar(10) | YES  |     | NULL    |       |
| dobg      | varchar(10) | YES  |     | NULL    |       |
| bbid      | varchar(10) | YES  | MUL | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
7 rows in set (0.01 sec)
```

- desc bb_availablity;

```
mysql> desc bb_availablity;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| bgtype       | varchar(20) | NO   | PRI | NULL    |       |
| bbid         | varchar(10) | NO   | PRI | NULL    |       |
| availability | int         | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

- desc blood;

```
mysql> desc blood;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| bgtype | varchar(20) | NO   | PRI | NULL    |       |
+--------+-------------+------+-----+---------+-------+
1 row in set (0.00 sec)
```

- desc bloodbank;

```
mysql> desc bloodbank;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| bbid   | varchar(10) | NO   | PRI | NULL    |       |
| bbname | varchar(20) | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

- desc doctor;

```
mysql> desc doctor;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| did            | varchar(10) | NO   | PRI | NULL    |       |
| dname          | varchar(20) | YES  |     | NULL    |       |
| phno           | varchar(10) | YES  |     | NULL    |       |
| hid            | varchar(10) | YES  | MUL | NULL    |       |
| specialisation | varchar(25) | YES  |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

- desc hospital;

```
mysql> desc hospital;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| hid     | varchar(10) | NO   | PRI | NULL    |       |
| hname   | varchar(20) | YES  |     | NULL    |       |
| address | varchar(20) | YES  |     | NULL    |       |
| contact | varchar(10) | YES  |     | NULL    |       |
| bbid    | varchar(10) | YES  | MUL | NULL    |       |
+---------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

TABLES WITH TUPLE VALUES:

- select * from patient;

```
mysql> select * from patient;
+-----+--------+------+--------+------------+-----------+------+------+------+
| pid | pname  | age  | gender | pphno      | address   | pbg  | did  | hid  |
+-----+--------+------+--------+------------+-----------+------+------+------+
| P1  | Akshay |   21 | M      | 4376983567 | Bengaluru | O+   | D5   | H1   |
| P2  | Akash  |   34 | M      | 5467586853 | Bengaluru | A+   | D5   | H1   |
| P3  | Abhay  |   48 | M      | 4735798635 | Mangalore | AB-  | D3   | H4   |
| P4  | Sunil  |   27 | M      | 4736580897 | Mysuru    | O-   | D4   | H5   |
| P5  | Sudha  |   17 | F      | 4625788696 | Hubli     | B-   | D2   | H3   |
+-----+--------+------+--------+------------+-----------+------+------+------+
5 rows in set (0.03 sec)
```

- select * from doctor;

```
mysql> select * from doctor;
+-----+---------+------------+------+----------------+
| did | dname   | phno       | hid  | specialisation |
+-----+---------+------------+------+----------------+
| D1  | Udhay   | 3556643487 | H2   | Cardiologist   |
| D2  | Akshara | 7547534685 | H5   | Gynecologist   |
| D3  | Vinay   | 5375873464 | H3   | Orthopedic     |
| D4  | Vishwas | 5353756527 | H4   | Neurologist    |
| D5  | Chirag  | 5358570987 | H1   | Cardiologist   |
+-----+---------+------------+------+----------------+
5 rows in set (0.02 sec)
```

- select * from hospital;

```
mysql> select * from hospital;
+-----+----------+-----------+------------+------+
| hid | hname    | address   | contact    | bbid |
+-----+----------+-----------+------------+------+
| H1  | Victoria | Bangalore | 6252121444 | BB1  |
| H2  | BGS      | Bangalore | 6468365735 | BB2  |
| H3  | Lotus    | Hubli     | 5375297364 | BB1  |
| H4  | Ramaiah  | Mangalore | 5343745385 | BB3  |
| H5  | Sparse   | Mysuru    | 4753797946 | BB2  |
+-----+----------+-----------+------------+------+
5 rows in set (0.01 sec)
```

- select * from blood;

```
mysql> select * from blood;
+--------+
| bgtype |
+--------+
| A-     |
| A+     |
| AB-    |
| AB+    |
| B-     |
| B+     |
| O-     |
| O+     |
+--------+
8 rows in set (0.01 sec)
```

- select * from bloodbank;

```
mysql> select * from bloodbank;
+------+----------+
| bbid | bbname   |
+------+----------+
| BB1  | Victoria |
| BB2  | Lion     |
| BB3  | BGS      |
+------+----------+
3 rows in set (0.02 sec)
```

- select * from bb_availablity;

```
mysql> select * from bb_availablity;
+--------+------+--------------+
| bgtype | bbid | availability |
+--------+------+--------------+
| A-     | BB1  |         7860 |
| A-     | BB2  |         5050 |
| A+     | BB1  |         5760 |
| AB-    | BB1  |         7640 |
| AB+    | BB1  |         4440 |
| B-     | BB1  |         3980 |
| B+     | BB1  |         2780 |
| B+     | BB2  |         2900 |
| O-     | BB1  |         2280 |
| O-     | BB3  |          500 |
| O+     | BB1  |         3680 |
+--------+------+--------------+
11 rows in set (0.02 sec)
```

- select * from donor;

```
mysql> select * from donor;
+------+-----------+------+--------+------------+------+------+
| doid | donorname | age  | weight | dphno      | dobg | bbid |
+------+-----------+------+--------+------------+------+------+
| DO1  | Keerthana |   40 | 52     | 4357974537 | AB+  | BB1  |
| DO2  | Sowmya    |   20 | 59     | 5765893290 | B+   | BB2  |
| DO3  | Pallavi   |   38 | 68     | 4357832686 | B+   | BB2  |
| DO4  | Puneet    |   24 | 69     | 3568743567 | O+   | BB1  |
| DO5  | Praveen   |   32 | 72     | 4532665564 | B+   | BB1  |
+------+-----------+------+--------+------------+------+------+
5 rows in set (0.01 sec)
```

QUERIES:

1) Write a query to retrieve patient details whose blood is available in the blood bank.

```
select *
from patient
where pbg in(select p.pbg
            from bb_availablity b, bloodbank bb, patient p, hospital h
            where p.hid = h.hid
            and h.bbid = bb.bbid
            and bb.bbid = b.bbid
            and p.pbg = b.bgtype);
```

```
+-----+--------+------+--------+------------+-----------+------+------+------+
| pid | pname  | age  | gender | pphno      | address   | pbg  | did  | hid  |
+-----+--------+------+--------+------------+-----------+------+------+------+
| P1  | Akshay |   21 | M      | 4376983567 | Bengaluru | O+   | D5   | H1   |
| P2  | Akash  |   34 | M      | 5467586853 | Bengaluru | A+   | D5   | H1   |
| P5  | Sudha  |   17 | F      | 4625788696 | Hubli     | B-   | D2   | H3   |
+-----+--------+------+--------+------------+-----------+------+------+------+
3 rows in set (0.01 sec)
```

2) Create an assertion to check if blood availability is less than 2000 units.

```
create assertion bloodavailcnd
check(not exists (select *
                  from bb_availablity
                  where availability > 2000));
```

```
+--------+------+--------------+
| bgtype | bbid | availability |
+--------+------+--------------+
| O-     | BB3  |          500 |
+--------+------+--------------+
1 row in set (0.00 sec)
```

3) Write a query to list the doctor details who treats more than one patient.

```
select d.dname,count(distinct hid)
from doctor d
where 1<(select count(*)
from patient p
where p.did=d.did);
```

```
+--------+---------------------+
| dname  | count(distinct hid) |
+--------+---------------------+
| Chirag |                   1 |
+--------+---------------------+
1 row in set (0.02 sec)
```

4) Write a query to retrieve donor details whose age is above 20years.

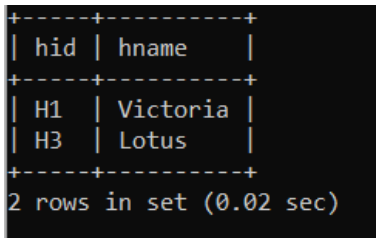
```
select doid, donorname, age
from donor
where age>20;
```

```
+------+-----------+------+
| doid | donorname | age  |
+------+-----------+------+
| DO1  | Keerthana |   40 |
| DO3  | Pallavi   |   38 |
| DO4  | Puneet    |   24 |
| DO5  | Praveen   |   32 |
+------+-----------+------+
4 rows in set (0.00 sec)
```

5) Write a query to list the hospital where all blood types are available.

```
select hid, hname
from hospital h
where h.bbid in (select ba.bbid
from bb_availablity ba, blood b, bloodbank bb
where bb.bbid = ba.bbid
and ba.bgtype = b.bgtype
and ba.bbid not in(select bbid
                   from bb_availablity
```

```
group by bbid
having count(bbid) < (select count(bgtype)
                      from blood)));
```



```
+-----+----------+
| hid | hname    |
+-----+----------+
| H1  | Victoria |
| H3  | Lotus    |
+-----+----------+
2 rows in set (0.02 sec)
```