SQL PROJECT

BLOOD BANK MANAGEMENT SYSTEM

Abstract:

- This project aims to develop a Blood Bank Management System. A Blood Bank Management System can be used in any clinic, hospital, labs or any emergency situation which requires blood units for survival. Our system can be used to find required type of blood in emergency situations from either blood bank or even blood donors.
- Current system uses a grapevine communication for finding blood in cases of emergency may it be by a donor or blood bank. The intentions of proposing such a system are to abolish the panic caused during an emergency due to unavailability of blood.

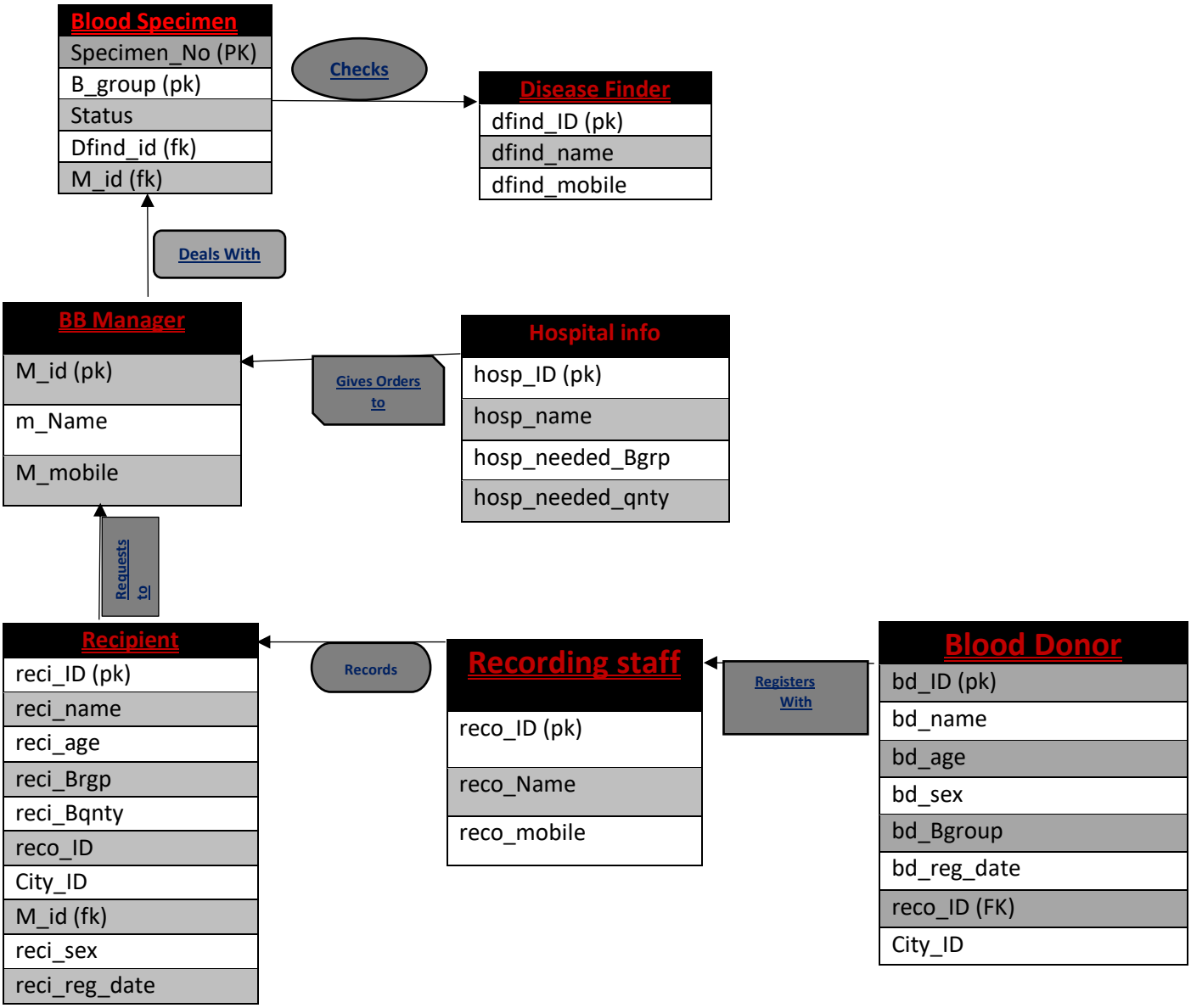
INTRODUCTION:

- Blood banks collect, store and provide collected blood to the patients who are in need of blood. The people who donate blood are called 'donors'. The banks then group the blood which they receive according to the blood groups. They also make sure that the blood is not contaminated. The main mission of the blood bank is to provide the blood to the hospitals and health care systems which saves the patient's life. No hospital can maintain the health care system without pure and adequate blood.
- The major concern each blood bank has is to monitor the quality of the blood and monitor the people who donates the blood, that is 'donors'. But this a tough job. The existing system will not satisfy the need of maintaining quality blood and keep track of donors. To overcome all these limitations, we introduced a new system called 'Blood Donation Management System'.
- The 'Blood Bank Management System' allows us to keep track of quality of blood and also keeps track of available blood when requested by the acceptor. The existing systems are Manual systems which are time consuming and not so effective. 'Blood Bank Management system' automates the distribution of blood. This database consists of thousands of records of each blood bank.
- By using this system searching the available blood becomes easy and saves lot of time than the manual system. It will hoard, operate, recover and analyse information concerned with the administrative and inventory management within a blood bank. This system is developed in a manner that it is manageable, time effective, cost effective, flexible and much man power is not required.

OBJECTIVE:

- Ensures hospitals have good supply or inventories of blood bags.
- List the availability of blood bags at any given time.
- Ability to manage the information of its blood donor.
- Alerts for blood requirement from registered donors.
- It eliminates costs associated with unnecessary transfusions as well as any associated adverse events.

ER DIAGRAM


Blood Specimen
Specimen_No (PK)
B_group (pk)
Status
Dfind_id (fk)
M_id (fk)
Checks
Disease Finder
dfind_ID (pk)
dfind_name
dfind_mobile
Deals With
BB Manager
M_id (pk)
m_Name
M_mobile
Gives Orders to
Hospital info
hosp_ID (pk)
hosp_name
hosp_needed_Bgrp
hosp_needed_qnty
Requests to
Recipient
reci_ID (pk)
reci_name
reci_age
reci_Brgp
reci_Bqnty
reco_ID
City_ID
M_id (fk)
reci_sex
reci_reg_date
Records
Recording staff
reco_ID (pk)
reco_Name
reco_mobile
Registers With
Blood Donor
bd_ID (pk)
bd_name
bd_age
bd_sex
bd_Bgroup
bd_reg_date
reco_ID (FK)
City_ID

INFORMATION OF ENTITIES

In total we have seven entities and information of each entity is mentioned below: -

```
+-----------------+
| Tables_in_donor |
+-----------------+
| bb_manager      |
| blood_donor     |
| bloodspecimen   |
| diseasefinder   |
| hospital_info   |
| recipient       |
| recording_staff |
+-----------------+
```

1.BB Manager: -

The blood bank manager is the person who takes care of the available blood samples in the blood bank, he is also responsible for handling blood requests from recipients and hospitals. Blood manager has a unique identification number (m_ID) used as primary key along with name and phone number of blood bank manager will be stored in data base under BB_Manager entity.

```
MariaDB [donor]> desc bb_manager;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| M_id     | int(11)     | NO   | PRI | NULL    |       |
| m_Name   | varchar(100)| NO   |     | NULL    |       |
| M_mobile | varchar(30) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
3 rows in set (0.113 sec)
```

2. Blood Donor: -

The donor is the person who donates blood, on donation a donor id (bd_ID) is generated and used as primary key to identify the donor information. Other than that name, age, sex, blood group, phone number and registration dates will be stored in database under Blood Donor entity.

```
MariaDB [donor]> desc blood_donor;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| bd_ID       | int(11)     | NO   | PRI | NULL    |       |
| bd_name     | varchar(100)| NO   |     | NULL    |       |
| bd_age      | varchar(100)| YES  |     | NULL    |       |
| bd_sex      | varchar(100)| YES  |     | NULL    |       |
| bd_Bgroup   | varchar(10) | YES  |     | NULL    |       |
| bd_reg_date | date        | YES  |     | NULL    |       |
| reco_ID     | int(11)     | NO   | MUL | NULL    |       |
| City_ID     | int(11)     | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
```

3. Blood Specimen: -

In data base, under Blood Specimen entity we will store the information of blood samples which are available in the blood bank. In this entity specimen_number and b_group together will be primary key along with status attribute which will show if the blood is contaminated on not.

```
MariaDB [donor]> desc bloodspecimen;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| specimen_number | int(11)     | NO   | PRI | NULL    |       |
| b_group         | varchar(10) | NO   | PRI | NULL    |       |
| status          | int(11)     | YES  |     | NULL    |       |
| dfind_ID        | int(11)     | NO   | MUL | NULL    |       |
| M_id            | int(11)     | NO   | MUL | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
```

4. Disease Finder: -

In data base, under Disease Finder entity we will store the information of the doctor who checks the blood for any kind of contaminations. To store that information, we have unique identification number (dfind_ID) as primary key. Along with name and phone number of the doctor will also be stored under same entity.

```
MariaDB [donor]> desc diseasefinder;
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| dfind_ID     | int(11)      | NO   | PRI | NULL    |       |
| dfind_name   | varchar(100) | NO   |     | NULL    |       |
| dfind_mobile | varchar(20)  | YES  |     | NULL    |       |
+--------------+--------------+------+-----+---------+-------+
```

5. Hospital Info: -

In the data base, under Hospital Info entity we will store the information of hospitals. In this hosp_ID and hosp_needed_Bgrp together makes the primary key. We will store hospital name and the blood quantity required at the hospital.

```
MariaDB [donor]> desc hospital_info;
+------------------+--------------+------+-----+---------+-------+
| Field            | Type         | Null | Key | Default | Extra |
+------------------+--------------+------+-----+---------+-------+
| hosp_ID          | int(11)      | NO   | PRI | NULL    |       |
| hosp_name        | varchar(100) | NO   |     | NULL    |       |
| hosp_needed_Bgrp | varchar(10)  | NO   | PRI | NULL    |       |
| hosp_needed_qnty | int(11)      | YES  |     | NULL    |       |
+------------------+--------------+------+-----+---------+-------+
```

6. Recipient: -

The Recipient is the person who receives blood from blood bank, when blood is given to a recipient a recipient ID (reci_ID) is generated and used as primary key for the recipient entity to identify blood recipients' information. Along with it name, age, sex, blood group (needed), blood quantity(needed), phone number, and registration dates are also stored in the data base under recipient entity.

```
MariaDB [donor]> desc recipient;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| reci_ID      | int(11)     | NO   | PRI | NULL    |       |
| reci_name    | varchar(100)| NO   |     | NULL    |       |
| reci_age     | varchar(10) | YES  |     | NULL    |       |
| reci_Brgp    | varchar(100)| YES  |     | NULL    |       |
| reci_Bqnty   | float       | YES  |     | NULL    |       |
| reco_ID      | int(11)     | NO   |     | NULL    |       |
| City_ID      | int(11)     | NO   |     | NULL    |       |
| M_id         | int(11)     | NO   | MUL | NULL    |       |
| reci_sex     | varchar(100)| YES  |     | NULL    |       |
| reci_reg_date| date        | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
10 rows in set (0.019 sec)
```

7. Recording Staff: -

The recording staff is a person who registers the blood donor and recipients and the Recording Staff entity has reco_ID which is primary key along with recorder's name and recorder's phone number will also be stored in the data base under Recording Staff entity.

```
MariaDB [donor]> desc recording_staff;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| reco_ID     | int(11)     | NO   | PRI | NULL    |       |
| reco_Name   | varchar(100)| NO   |     | NULL    |       |
| reco_mobile | varchar(20) | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
```

CONTENTS OF TABLES

1.BB Manager: -

```
MariaDB [donor]> select * from bb_manager;
+------+------------+------------+
| M_id | m_Name     | M_mobile   |
+------+------------+------------+
|  101 | shivank    | 9693959671 |
|  102 | shwetanshu | 9693959672 |
|  103 | singh      | 9693959673 |
|  104 | yusuf      | 9693959674 |
|  105 | jackson    | 9693959675 |
|  106 | akhil      | 9693959676 |
|  107 | jojo       | 9693959677 |
|  108 | stella     | 9693959678 |
|  109 | monika     | 9693959679 |
|  110 | himanshi   | 9693959680 |
+------+------------+------------+
```

2. Blood Donor: -

```
MariaDB [donor]> select * from blood_donor;
+--------+----------+--------+--------+-----------+-------------+---------+---------+
| bd_ID  | bd_name  | bd_age | bd_sex | bd_Bgroup | bd_reg_date | reco_ID | City_ID |
+--------+----------+--------+--------+-----------+-------------+---------+---------+
| 150011 | Mark     | 25     | M      | O+        | 2015-07-19  |  101412 |    1100 |
| 150012 | Abdul    | 35     | M      | A-        | 2015-12-24  |  101412 |    1100 |
| 150013 | Shivank  | 22     | M      | AB+       | 2015-08-28  |  101212 |    1200 |
| 150014 | shweta   | 29     | M      | B+        | 2015-12-17  |  101212 |    1300 |
| 150015 | Shyam    | 42     | M      | A+        | 2016-11-22  |  101212 |    1300 |
| 150016 | Dan      | 44     | F      | AB-       | 2016-02-06  |  101212 |    1200 |
| 150017 | Mike     | 33     | M      | B-        | 2016-10-15  |  101312 |    1400 |
| 150018 | Elisa    | 31     | F      | O+        | 2016-01-04  |  101312 |    1200 |
| 150019 | Carrol   | 24     | F      | AB+       | 2016-09-10  |  101312 |    1500 |
| 150020 | shivansh | 29     | M      | O-        | 2016-12-17  |  101212 |    1200 |
+--------+----------+--------+--------+-----------+-------------+---------+---------+
```

3. Blood Specimen: -

```
MariaDB [donor]> select * from bloodspecimen;
+-----------------+---------+--------+----------+------+
| specimen_number | b_group | status | dfind_ID | M_id |
+-----------------+---------+--------+----------+------+
|            1001 | B+      |      1 |       11 |  101 |
|            1002 | O+      |      1 |       12 |  102 |
|            1003 | AB+     |      1 |       11 |  102 |
|            1004 | O-      |      1 |       13 |  103 |
|            1005 | A+      |      0 |       14 |  101 |
|            1006 | A-      |      1 |       13 |  104 |
|            1007 | AB-     |      1 |       15 |  104 |
|            1008 | AB-     |      0 |       11 |  105 |
|            1009 | B+      |      1 |       13 |  105 |
|            1010 | O+      |      0 |       12 |  105 |
|            1011 | O+      |      1 |       13 |  103 |
|            1012 | O-      |      1 |       14 |  102 |
|            1013 | B-      |      1 |       14 |  102 |
|            1014 | AB+     |      0 |       15 |  101 |
+-----------------+---------+--------+----------+------+
```

4. Disease Finder: -

```
MariaDB [donor]> select * from diseasefinder;
+----------+------------+--------------+
| dfind_ID | dfind_name | dfind_mobile |
+----------+------------+--------------+
|       11 | Peter      | 9693959681   |
|       12 | Park       | 9693959682   |
|       13 | Jerry      | 9693959683   |
|       14 | shivam     | 9693959672   |
|       15 | Monika     | 9693959679   |
|       16 | Ram        | 9693959684   |
|       17 | Swathi     | 9693959685   |
|       18 | Gautham    | 9693959686   |
|       19 | Ashwin     | 9693959687   |
|       20 | Yash       | 9693959688   |
+----------+------------+--------------+
```

5. Hospital Info: -

```
MariaDB [donor]> select * from hospital_info;
+---------+-----------------+-----------------+-----------------+
| hosp_ID | hosp_name       | hosp_needed_Bgrp | hosp_needed_qnty |
+---------+-----------------+-----------------+-----------------+
|       1 | MayoClinic      | A+              |              20 |
|       1 | MayoClinic      | A-              |               0 |
|       1 | MayoClinic      | AB+             |              40 |
|       1 | MayoClinic      | AB-             |              10 |
|       1 | MayoClinic      | B-              |              20 |
|       2 | CleavelandClinic | A+              |              40 |
|       2 | CleavelandClinic | A-              |              10 |
|       2 | CleavelandClinic | AB+             |              20 |
|       2 | CleavelandClinic | AB-             |              10 |
|       2 | CleavelandClinic | B+              |               0 |
|       2 | CleavelandClinic | B-              |              30 |
|       3 | NYU             | AB-             |               0 |
|       3 | NYU             | B+              |              10 |
+---------+-----------------+-----------------+-----------------+
```

6. Recipient: -

```
MariaDB [donor]> select * from recipient;
+---------+-----------+----------+-----------+-----------+---------+---------+------+----------+---------------+
| reci_ID | reci_name | reci_age | reci_Brgp | reci_Bqnty | reco_ID | City_ID | M_id | reci_sex | reci_reg_date |
+---------+-----------+----------+-----------+-----------+---------+---------+------+----------+---------------+
|   10001 | Peter     | 25       | B+        |       1.5 |  101212 |    1100 |  101 | M        | 2015-12-17    |
|   10002 | shivank   | 60       | A+        |         1 |  101312 |    1100 |  102 | M        | 2015-12-16    |
|   10003 | akhil     | 35       | AB+       |       0.5 |  101312 |    1200 |  102 | M        | 2015-10-17    |
|   10004 | Parker    | 66       | B+        |         1 |  101212 |    1300 |  104 | M        | 2016-11-17    |
|   10005 | jojo      | 53       | B-        |         1 |  101412 |    1400 |  105 | M        | 2015-04-17    |
|   10006 | Preetham  | 45       | O+        |       1.5 |  101512 |    1500 |  105 | M        | 2015-12-17    |
|   10007 | Swetha    | 22       | AB-       |         1 |  101212 |    1500 |  101 | F        | 2015-05-17    |
|   10008 | Swathi    | 25       | B+        |         2 |  101412 |    1300 |  103 | F        | 2015-12-14    |
|   10009 | Lance     | 30       | A+        |       1.5 |  101312 |    1100 |  104 | M        | 2015-02-16    |
|   10010 | Marsh     | 25       | AB+       |       3.5 |  101212 |    1200 |  107 | M        | 2016-10-17    |
+---------+-----------+----------+-----------+-----------+---------+---------+------+----------+---------------+
```

7. Recording Staff: -

```
MariaDB [donor]> select * from recording_staff;
+---------+-----------+-------------+
| reco_ID | reco_Name | reco_mobile |
+---------+-----------+-------------+
|  101012 | Lekha     | 4044846553  |
|  101112 | shivam    | 4045856553  |
|  101212 | Walcot    | 4045806553  |
|  101312 | jackson   | 4045806553  |
|  101412 | Silva     | 4045806553  |
|  101512 | Adrian    | 4045806553  |
|  101612 | shivam    | 4045806553  |
|  101712 | shyam     | 4045816553  |
|  101812 | Jerry     | 4045826553  |
|  101912 | Tim       | 4045836553  |
+---------+-----------+-------------+
```

QUERIES

1.Display all the details of all the Blood Donor where Blood is O+ :

Queries:

MariaDB [donor]> select * from blood_donor where bd_Bgroup=(select bd_Bgroup blood_donor where bd_Bgroup="O+");

```
MariaDB [donor]> select * from blood_donor where bd_Bgroup=(select bd_Bgroup blood_donor where bd_Bgroup="O+");
+--------+---------+--------+--------+-----------+-------------+---------+---------+
| bd_ID  | bd_name | bd_age | bd_sex | bd_Bgroup | bd_reg_date | reco_ID | City_ID |
+--------+---------+--------+--------+-----------+-------------+---------+---------+
| 150011 | Mark    | 25     | M      | O+        | 2015-07-19  |  101412 |    1100 |
| 150018 | Elisa   | 31     | F      | O+        | 2016-01-04  |  101312 |    1200 |
+--------+---------+--------+--------+-----------+-------------+---------+---------+
2 rows in set (0.011 sec)
```

2.Where

Queries:

MariaDB [donor]> select * from bloodspecimen where dfind_ID=(select dfind_id from diseasefinder where dfind_id=11);

```
MariaDB [donor]> select * from bloodspecimen where dfind_ID=(select dfind_id from diseasefinder where dfind_id=11);
+-----------------+---------+--------+----------+------+
| specimen_number | b_group | status | dfind_ID | M_id |
+-----------------+---------+--------+----------+------+
|            1001 | B+      |      1 |       11 |  101 |
|            1003 | AB+     |      1 |       11 |  102 |
|            1008 | AB-     |      0 |       11 |  105 |
+-----------------+---------+--------+----------+------+
3 rows in set (0.004 sec)
```

3.Show all the details of bb manager and raw recipient associated with reci age having grate than 21

Queries:

MariaDB [donor]> select * from bb_manager where m_id in (select M_id from recipient where reci_age>21);

```
MariaDB [donor]> select * from bb_manager where m_id in (select M_id from recipient where reci_age>21);
+------+------------+------------+
| M_id | m_Name     | M_mobile   |
+------+------------+------------+
|  101 | shivank    | 9693959671 |
|  102 | shwetanshu | 9693959672 |
|  103 | singh      | 9693959673 |
|  104 | yusuf      | 9693959674 |
|  105 | jackson    | 9693959675 |
|  107 | jojo       | 9693959677 |
+------+------------+------------+
6 rows in set (0.001 sec)
```

4. Create a View of recipients and donor's names having the same blood group registered on the same date and the name of recording staff name.

Queries:

MariaDB [donor]> CREATE VIEW Blood_Recipient_SameBGrp AS select Blood_Donor.bd_name,Recipient.reci_name,reco_Name from Recording_Staff inner join Blood_Donor on Recording_Staff.reco_ID = Blood_Donor.reco_ID inner join Recipient on Recording_Staff.reco_ID = Recipient.reco_ID where Blood_Donor.bd_Bgroup = Recipient.reci_Brgp and Blood_Donor.bd_reg_date = Recipient.reci_reg_date; select* from Blood_Recipient_SameBGrp;

```
+---------+-----------+-----------+
| bd_name | reci_name | reco_Name |
+---------+-----------+-----------+
| shweta  | Peter     | Walcot    |
+---------+-----------+-----------+
1 row in set (0.034 sec)
```

5. Show the blood specimen verified by disease finder shivam which are pure (status=1).

Queries:

MariaDB [donor]> Select specimen_number,b_group from BloodSpecimen,DiseaseFinder WHERE BloodSpecimen.dfind_ID= DiseaseFinder.dfind_ID AND dfind_name='shivam' AND status=1;

```
+-----------------+---------+
| specimen_number | b_group |
+-----------------+---------+
|            1012 | O-      |
|            1013 | B-      |
+-----------------+---------+
2 rows in set (0.013 sec)
```

6. Show the pure blood specimen handled by BB_Manager who also handles a recipient needing the same blood group along with the details of the BB_Manager and Recipient.

Queries:

MariaDB [donor]> select BB_Manager.M_id,m_Name,Recipient.reci_name, Recipient.reci_Brgp,BloodSpecimen.b_group from BB_Manager,Recipient,BloodSpecimen where Recipient.M_id = BloodSpecimen.M_id and Recipient.reci_Brgp = BloodSpecimen.b_group and Recipient.M_id = BB_Manager.M_id and status = 1;

```
+------+------------+-----------+-----------+---------+
| M_id | m_Name     | reci_name | reci_Brgp | b_group |
+------+------------+-----------+-----------+---------+
|  101 | shivank    | Peter     | B+        | B+      |
|  102 | shwetanshu | akhil     | AB+       | AB+     |
+------+------------+-----------+-----------+---------+
2 rows in set (0.006 sec)
```

7. Show the donors having the same blood groups required by the recipient staying in the same city along with recipient details.

Queries:

MariaDB [donor]> Select bd_ID,bd_name,reci_ID,reci_name FROM Blood_Donor,Recipient WHERE bd_Bgroup=reci_Brgp AND Blood_Donor.City_ID= Recipient.City_ID;

```
+--------+---------+---------+-----------+
| bd_ID  | bd_name | reci_ID | reci_name |
+--------+---------+---------+-----------+
| 150013 | Shivank |   10003 | akhil     |
| 150014 | shweta  |   10004 | Parker    |
| 150017 | Mike    |   10005 | jojo      |
| 150014 | shweta  |   10008 | Swathi    |
| 150013 | Shivank |   10010 | Marsh     |
+--------+---------+---------+-----------+
5 rows in set (0.001 sec)
```

8. view

Queries:

MariaDB [donor]> create view doctor as select hosp_name,hosp_needed_bgrp from hospital_info;

```
MariaDB [donor]> select * from doctor;
+-----------------+------------------+
| hosp_name       | hosp_needed_bgrp |
+-----------------+------------------+
| MayoClinic      | A+               |
| MayoClinic      | A-               |
| MayoClinic      | AB+              |
| MayoClinic      | AB-              |
| MayoClinic      | B-               |
| CleavelandClinic | A+              |
| CleavelandClinic | A-              |
| CleavelandClinic | AB+             |
| CleavelandClinic | AB-             |
| CleavelandClinic | B+              |
| CleavelandClinic | B-              |
| NYU             | AB-              |
| NYU             | B+               |
+-----------------+------------------+
13 rows in set (0.004 sec)
```

9.join

Queries

select * from bb_manager left join bloodspecimen on bb_manager.m_id=bloodspecimen.m_id;

```
MariaDB [donor]> select * from bb_manager left join bloodspecimen on bb_manager.m_id=bloodspecimen.m_id;
+------+-----------+-----------+----------------+---------+--------+----------+------+
| M_id | m_Name    | M_mobile  | specimen_number | b_group | status | dfind_ID | M_id |
+------+-----------+-----------+----------------+---------+--------+----------+------+
|  101 | shivank   | 9693959671 |           1001 | B+      |      1 |       11 |  101 |
|  101 | shivank   | 9693959671 |           1005 | A+      |      0 |       14 |  101 |
|  101 | shivank   | 9693959671 |           1014 | AB+     |      0 |       15 |  101 |
|  102 | shwetanshu | 9693959672 |           1002 | O+      |      1 |       12 |  102 |
|  102 | shwetanshu | 9693959672 |           1003 | AB+     |      1 |       11 |  102 |
|  102 | shwetanshu | 9693959672 |           1012 | O-      |      1 |       14 |  102 |
|  102 | shwetanshu | 9693959672 |           1013 | B-      |      1 |       14 |  102 |
|  103 | singh     | 9693959673 |           1004 | O-      |      1 |       13 |  103 |
|  103 | singh     | 9693959673 |           1011 | O+      |      1 |       13 |  103 |
|  104 | yusuf     | 9693959674 |           1006 | A-      |      1 |       13 |  104 |
|  104 | yusuf     | 9693959674 |           1007 | AB-     |      1 |       15 |  104 |
|  105 | jackson   | 9693959675 |           1008 | AB-     |      0 |       11 |  105 |
|  105 | jackson   | 9693959675 |           1009 | B+      |      1 |       13 |  105 |
|  105 | jackson   | 9693959675 |           1010 | O+      |      0 |       12 |  105 |
|  106 | akhil     | 9693959676 |           NULL | NULL    |   NULL |     NULL | NULL |
|  107 | jojo      | 9693959677 |           NULL | NULL    |   NULL |     NULL | NULL |
|  108 | stella    | 9693959678 |           NULL | NULL    |   NULL |     NULL | NULL |
|  109 | monika    | 9693959679 |           NULL | NULL    |   NULL |     NULL | NULL |
|  110 | himanshi  | 9693959680 |           NULL | NULL    |   NULL |     NULL | NULL |
+------+-----------+-----------+----------------+---------+--------+----------+------+
```

10. Finds any value that starts with 's'.

Queries:

select * from recording_staff where reco_name like "s%";

```
MariaDB [donor]> select * from recording_staff where reco_name like "s%";
+---------+-----------+-------------+
| reco_ID | reco_Name | reco_mobile |
+---------+-----------+-------------+
|  101112 | shivam    | 4045856553  |
|  101412 | Silva     | 4045806553  |
|  101612 | shivam    | 4045806553  |
|  101712 | shyam     | 4045816553  |
+---------+-----------+-------------+
4 rows in set (0.006 sec)
```

11.limit and offset.

Queries:

MariaDB [donor]> select * from bloodspecimen limit 6 offset 9;

```
MariaDB [donor]> select * from bloodspecimen limit 6 offset 9;
+-----------------+---------+--------+----------+------+
| specimen_number | b_group | status | dfind_ID | M_id |
+-----------------+---------+--------+----------+------+
|            1010 | O+      |      0 |       12 |  105 |
|            1011 | O+      |      1 |       13 |  103 |
|            1012 | O-      |      1 |       14 |  102 |
|            1013 | B-      |      1 |       14 |  102 |
|            1014 | AB+     |      0 |       15 |  101 |
+-----------------+---------+--------+----------+------+
5 rows in set (0.001 sec)
```

CONCLUSION

Prior to this project, a general study of blood bank management system was conducted from recent researches of various authors and facts were gathered in which helped to uncover the misfits that the system was facing. After proper analysation of these problems, a solution was then developed in order to meet up the needs of a more advanced system. This system is known as the centralized blood bank repository which helped in eliminating all the problems that the previous systems were facing. With this system, Blood banks/ Centers, Hospitals, Patients and Blood donors will be brought together to enjoy a large number of functionalities and access a vast amount of information, thereby making blood donation and reception a lot easier and faster.

Before implementing the database, in the design phase, We have explored various features, operations of a blood bank to figure out required entities, attributes and the relationship among entities to make an efficient Entity Relationship Diagram(ERD). After analyzing all the requirements, I have created our ERD and then converted the ERD to relational model and normalized the tables.

Using SQL Server I have created the tables for my database and inserted some sample values in the tables. Finally, I have executed sample queries on the database to check its performance to retrieve useful information accurately and speedily.