

Database Management System

ITE1003

TITLE:

BLOOD DONATION SYSTEM

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ABSTRACT:

Despite the immense technological advancement, blood bank systems are either manual or valuable data is easily retrievable. Consequently, one of the major issues in blood bank systems is the lack of data security. People always doubt whether their personal information and medical records are safely stored and secured. Therefore, our project aims to develop an online blood donation system applying the concepts of database security and encryption.

Any new person who is willing to donate blood will have to register first, and the other users can directly login. Whenever they want to donate blood, a form will have to be filled. In the user account, the user will be able to view all the details and records of all earlier donations as well as information about upcoming blood donation events. There will be a link provided to find blood donors in the region of the users' choice. All this is related to the blood bank system. Apart from this, we will be using concepts of database encryption to make sure that the users' information is kept secure and confidential.

INTRODUCTION:

With blood being a universal requirement, it has become increasingly necessary for hospitals, clinics, and healthcare centers to have accessible measures aiding in the finding and acquiring of donors for recipients in urgent need of specific blood types. There is a lengthy process to accept blood from a potential donor and once the donor has been accepted, numerous personal details and information in regards to the donor are required. This information is generally stored in large databases that are often under-secured and easily hack-able, making it relatively simple to change, update, steal and misuse personal information of others. Moreover, in emergencies of blood requirements, the previous systems of accessing the database of donors is not efficient. Current manual mechanisms and vital sign documentations also have a number of inherent flaws, such as failure to document all appropriate observations, activities and inaccurate entry of data. It is time-consuming and costly. To organize blood donation campaigns, organizers need to go to the nearest blood bank to inform and get the necessary requirements to organize blood donation campaigns. It is more time consuming and difficult. Emergency patients, who need blood immediately, request blood through advertising on televisions or social media.

So, the need of automated and computerized blood bank management systems with the added benefit of database security is a major requirement. Adoption of big data in healthcare significantly increases security and patient privacy concerns. At the outset, patient information is stored in data centers with varying levels of security. Traditional security solutions cannot be directly applied to large and inherently diverse data sets.

Hence to provide safe and secure storage of personal information of the donor and even the users, we came up with an innovative idea to create a website (Blood Bank Management System). Blood Bank Information Management System is an information system which helps to manage the records of donors and patient at a blood bank. It is mainly designed to store, process, retrieve and analyze information concerned with the administrative and inventory management within a blood bank. Such kind of systems will allow the authorized blood bank officer to login using a secret password and easily manage the records of the blood donors and the patients in need of blood.

Data Used

- Donor
 - Donor Identification
 - Donor name
 - Donor contact information
 - Donor Date of birth
 - Donor blood type
- Recipient
 - Recipient Identification
 - Recipient name
 - Recipient contact information
 - Recipient Date of birth
 - Recipient blood type
- Medical Personnel
 - Medical Personnel Identification
 - Medical Personnel name
 - Medical Personnel contact information
 - Medical Personnel Date of birth
- Blood Donation
 - Blood identification
 - Date of donated blood
 - Donor ID
 - Quantity donated
- Blood Transaction
 - Transaction ID
 - Medical personnel ID
 - Blood ID
 - Recipient ID
 - Date of using the blood
 - Blood type
 - Quantity used

SOFTWARE REQUIRED:

- SQL

FUNCTIONAL REQUIREMENTS

1) Modification of Data

- Donor
 - Contact Information of Donor like address, email, phone number
- Recipient
 - Contact Information of Recipient like address, email, phone number
- Medical Personnel
 - Contact information like address, email, phone number
- Blood Donation
 - Quantity
 - date of donation
- Blood Transaction
 - Quantity
 - Date of using the blood

2) Removal of data

- Donor
 - Remove data if donor is deceased
- Recipient
 - Remove data if recipient is deceased
- Medical Personnel
 - remove data if the person has left their job

3)PL/SQL

ER Relation

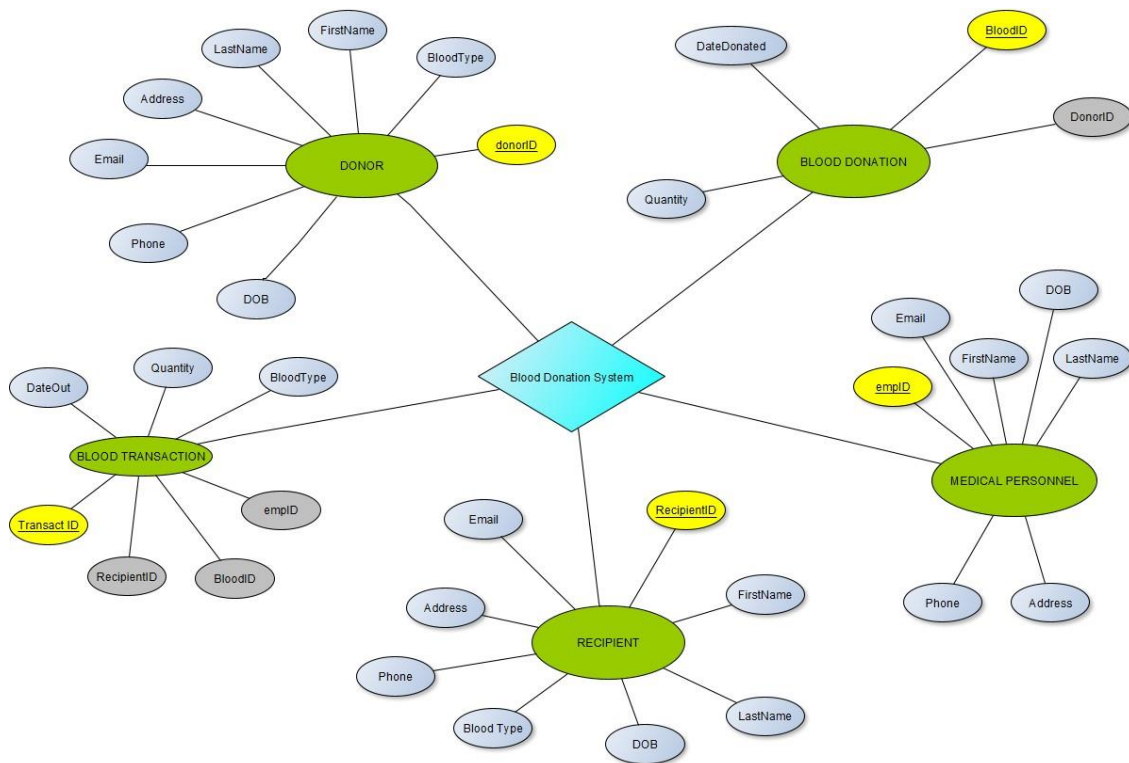
TABLE NAME	ATTRIBUTES	CONSTRAINT	TYPE		
Donor	donorID	pk	Int (11)	Auto_increment	Not null
	FirstName		Varchar (50)		Not null
	LastName		Varchar (50)		Not null
	Address		Varchar (60)		Not null
	Email		Varchar (90)		Not null
	Phone		Varchar (20)		Not null
	DOB		date		Not null
	Blood Type		Varchar (3)		Not null
Recipient	RecipientID	pk	Int (11)	Auto_increment	Not null
	FirstName		Varchar (50)		Not null

	LastName		Varchar (50)		Not null
	Address		Varchar (60)		Not null
	Email		Varchar (90)		Not null
	Phone		Varchar (20)		Not null
	DOB		date		Not null
	Blood Type		Varchar (3)		Not null
Blood Donation	bloodID	Pk	Int (11)	Auto_increment	Not null
	donorID	Fk to Donor	Int (11)		Not null
	dateDonated		Datetime		Not null
	quantity		Int(1)		Not null
MedicalPersonnel	EmpID	pk	Int (11)	Auto_increment	Not null

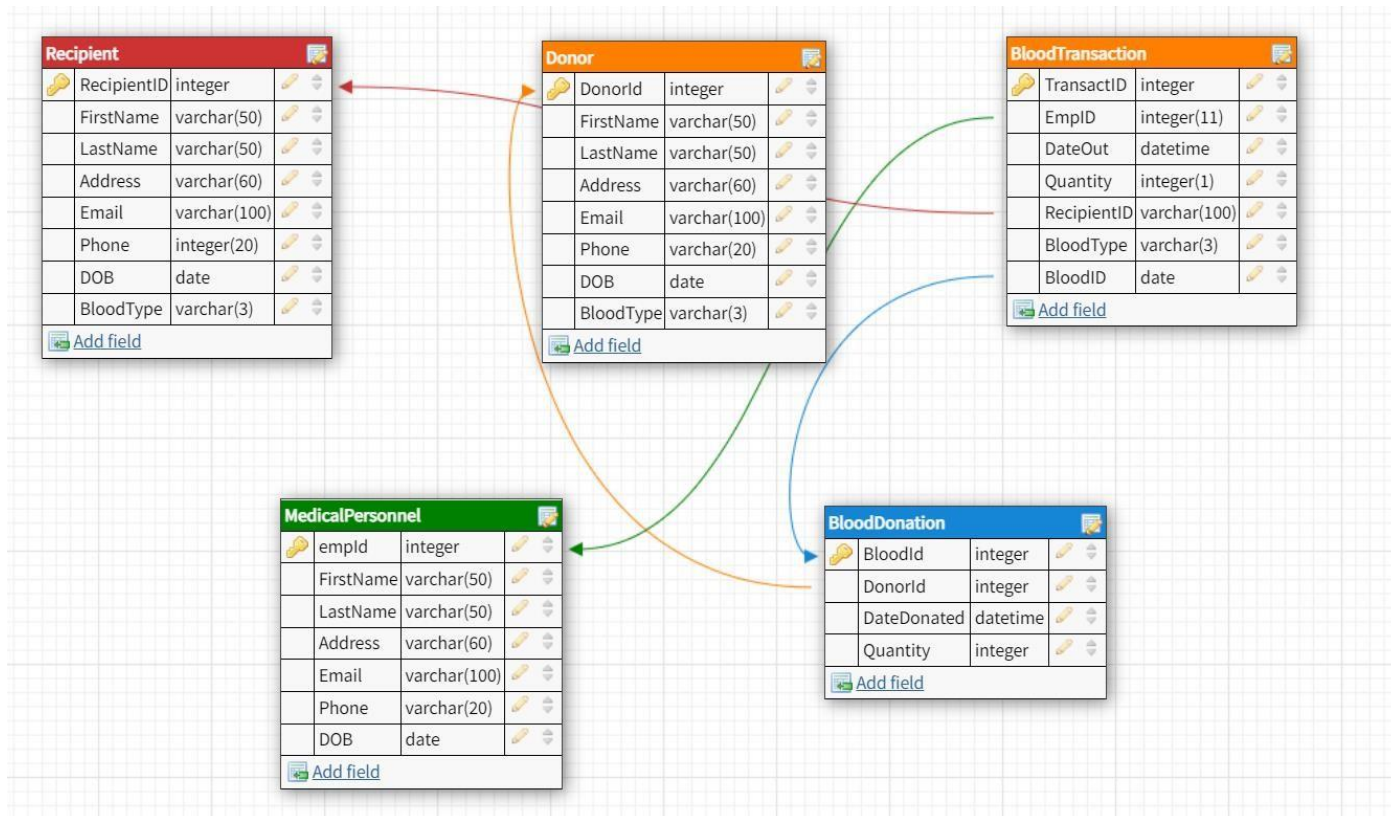
	FirstName		Varchar (50)		Not null
	LastName		Varchar (50)		Not null
	Address		Varchar (60)		Not null
	Email		Varchar (90)		Not null
	Phone		Varchar (20)		Not null
	DOB		date		Not null
BloodTransaction	TransactID	Pk	Int (11)	Auto_increment	Not null
	EmpID	Fk to MedPersonnel	Int (11)		Not null
	dateOut		Datetime		Not null
	Quantity		Int (1)		Not null
	RecipientID	Fk to recipient	Int(11)		Not null
	BloodType		Varchar (3)		Not null

	BloodID	Fk to BloodDonation	Int(11)		Not nul l
--	---------	---------------------	---------	--	-----------------

ER DIAGRAM



Database Schema



DATABASE CREATION

```
mysql> CREATE DATABASE Blood_Donation_System;
```

Query OK, 1 row affected (0.01 sec)

```
mysql> USE Blood_Donation_System;
```

Query OK, 1 row affected (0.01 sec)

Table Creation

DONOR TABLE:

```
mysql> CREATE TABLE Donor(donorID INT AUTO_INCREMENT NOT NULL ,firstName VARCHAR(50)
NOT NULL,lastname VARCHAR(50) not null, address VARCHAR( 60 ) not null, email VARCHAR( 100
)not null, phone VARCHAR( 20 ) not null, DOB DATE not null, bloodType varchar(3) NOT
NULL,PRIMARY KEY (donorID));
```

```
mysql> desc Donor;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra          |
+-----+-----+-----+-----+-----+-----+
| donorID    | int           | NO   | PRI | NULL    | auto_increment |
| firstName  | varchar(50)   | NO   |     | NULL    |                |
| lastname   | varchar(50)   | NO   |     | NULL    |                |
| address     | varchar(60)   | NO   |     | NULL    |                |
| email      | varchar(100)  | NO   |     | NULL    |                |
| phone      | varchar(20)   | NO   |     | NULL    |                |
| DOB        | date          | NO   |     | NULL    |                |
| bloodType  | varchar(3)    | NO   |     | NULL    |                |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

RECIPIENT TABLE:

```
mysql> CREATE TABLE Recipient(recipientID INT AUTO_INCREMENT NOT NULL ,firstName
VARCHAR(50) NOT NULL,lastname VARCHAR(50) not null, address VARCHAR(60) not null, email
VARCHAR(100) not null, phone VARCHAR(20) not null,DOB DATE not null, bloodType varchar(3)NOT
NULL ,PRIMARY KEY (recipientID));
```

```
mysql> desc Recipient;
```

Field	Type	Null	Key	Default	Extra
recipientID	int	NO	PRI	NULL	auto_increment
firstName	varchar(50)	NO		NULL	
lastname	varchar(50)	NO		NULL	
address	varchar(60)	NO		NULL	
email	varchar(100)	NO		NULL	
phone	varchar(20)	NO		NULL	
DOB	date	NO		NULL	
bloodType	varchar(3)	NO		NULL	

```
8 rows in set (0.00 sec)
```

MEDICALPERSONNEL TABLE:

```
mysql> CREATE TABLE MedicalPersonnel(empID INT AUTO_INCREMENT NOT NULL ,firstName  
VARCHAR(50) NOT NULL ,lastname VARCHAR(50) NOT NULL ,address VARCHAR(60) NOT NULL ,email  
VARCHAR(100) NOT NULL ,phone VARCHAR(20) NOT NULL ,DOB DATE NOT NULL ,PRIMARY KEY  
(empID ));
```

```
mysql> desc MedicalPersonnel;
```

Field	Type	Null	Key	Default	Extra
empID	int	NO	PRI	NULL	auto_increment
firstName	varchar(50)	NO		NULL	
lastname	varchar(50)	NO		NULL	
address	varchar(60)	NO		NULL	
email	varchar(100)	NO		NULL	
phone	varchar(20)	NO		NULL	
DOB	date	NO		NULL	

```
7 rows in set (0.01 sec)
```

BLOODDONATION TABLE:

```
mysql> CREATE TABLE BloodDonation(bloodID INT(11) AUTO_INCREMENT, donorID INT(11) NOT  
NULL , dateDonated DATETIME NOT NULL ,quantity INT(10) NOT NULL ,PRIMARY KEY (bloodID)  
,FOREIGN KEY (donorID) REFERENCES Donor(donorID));
```

```
mysql> desc BloodDonation;
```

Field	Type	Null	Key	Default	Extra
bloodID	int	NO	PRI	NULL	auto_increment
donorID	int	NO	MUL	NULL	
dateDonated	datetime	NO		NULL	
quantity	int	NO		NULL	

```
4 rows in set (0.07 sec)
```

BLOODTRANSACTION TABLE:

```
mysql> CREATE TABLE BloodTransaction(transactID INT(11) AUTO_INCREMENT ,empID INT(11) NOT NULL ,dateOut DATETIME NOT NULL ,quantity INT(10) NOT NULL ,recipientID INT(11) NOT NULL ,bloodID INT(11) NOT NULL ,PRIMARY KEY (transactID) ,FOREIGN KEY (empID) REFERENCES MedicalPersonnel(empID) ,FOREIGN KEY (recipientID) REFERENCES Recipient(recipientID) ,FOREIGN KEY (bloodID) REFERENCES BloodDonation(bloodID));
```

Query OK, 0 rows affected, 5 warnings (0.04 sec)

```
mysql> desc BloodTransaction;
```

Field	Type	Null	Key	Default	Extra
transactID	int	NO	PRI	NULL	auto_increment
empID	int	NO	MUL	NULL	
dateOut	datetime	NO		NULL	
quantity	int	NO		NULL	
recipientID	int	NO	MUL	NULL	
bloodID	int	NO	MUL	NULL	

6 rows in set (0.01 sec)

INSERTED VALUES AND VALIDATION

DONOR TABLE:

```
mysql> INSERT INTO Donor VALUES(1029,'Lavanya','Tabeck','2103 Allen Ave','lavanyatabeck@gmail.com','9012912012','2001-09-12','AB+');
mysql> INSERT INTO Donor VALUES(1234,'Megha','Saxena','Flat Number 310 , Prestige Apartment','meghasaxena@gmail.com','9281920192','2002-01-03','O-');
mysql> INSERT INTO Donor VALUES(1921,'Tanishq','Chaurasia','5102 Blue Ave','tanchaurasia@gmail.com','9182001227','2002-05-21','B-');
mysql> INSERT INTO Donor VALUES(2019,'Tirumalasetti','Vineet','3012 Aple Street','tirumalasettiVineet@gmail.com','98192120912','2001-10-02','A+');
mysql> INSERT INTO Donor VALUES(2910,'Madabhushi','Saaketh','Plot 21/A Ronan Road','madabhushipriyasaaketh@gmail.com','9281009201','2001-04-02','B+');
mysql> SELECT * FROM Donor;
```

donorID	firstName	lastname	address	email	phone	DOB	bloodType
1029	Lavanya	Tabeck	2103 Allen Ave	lavanyatabeck@gmail.com	9012912012	2001-09-12	AB+
1234	Megha	Saxena	Flat Number 310 , Prestige Apartment	meghasaxena@gmail.com	9281920192	2002-01-03	O-
1921	Tanishq	Chaurasia	5102 Blue Ave	tanchaurasia@gmail.com	9182001227	2002-05-21	B-
2019	Tirumalasetti	Vineet	3012 Aple Street	tirumalasettiVineet@gmail.com	98192120912	2001-10-02	A+
2910	Madabhushi	Saaketh	Plot 21/A Ronan Road	madabhushipriyasaaketh@gmail.com	9281009201	2001-04-02	B+

5 rows in set (0.00 sec)

RECIPIENT TABLE:

```
mysql> INSERT INTO Recipient VALUES(9012,'Anushka','Sharma','2130 Spring Ave','sharmaanu@gmail.com','9834776542','1986-10-10','A+');
mysql> INSERT INTO Recipient VALUES(9100,'Tim','Rogers','4687 Cole Ave','rogers@gmail.com','9210653251','1977-11-05','B+');
mysql> INSERT INTO Recipient VALUES(9111,'Celeste','Stark','2012 Mega
```



```

Lane','staklite@gmail.com','9457091265','1990-09-12','AB+');
mysql> INSERT INTO Recipient VALUES(9121,'Alice','Smith','8099 Rainbow
Drive','alicesmith@gmail.com','9100122197','1988-11-19','O-');
mysql> INSERT INTO Recipient VALUES(9122,'Holly','Miller','8909 Sona
Drive','millers@gmail.com','9823765412','1989-05-11','A+');
mysql> SELECT * FROM Recipient;

```

recipientID	firstName	lastname	address	email	phone	DOB	bloodType
9012	Anushka	Sharma	2130 Spring Ave	sharmaanu@gmail.com	9834776542	1986-10-10	A+
9100	Tim	Rogers	4687 Cole Ave	rogers@gmail.com	9210653251	1977-11-05	B+
9111	Celeste	Stark	2012 Mega Lane	staklite@gmail.com	9457091265	1990-09-12	AB+
9121	Alice	Smith	8099 Rainbow Drive	alicesmith@gmail.com	9100122197	1988-11-19	O-
9122	Holly	Miller	8909 Sona Drive	millers@gmail.com	9823765412	1989-05-11	A+

5 rows in set (0.00 sec)

MEDICALPERSONNEL TABLE:

```

mysql> INSERT INTO MedicalPersonnel VALUES(3011,'Miranda','August','1029 Green
Drive','augustus@gmail.com','9810119754','1966-10-09');
mysql> INSERT INTO MedicalPersonnel VALUES(3030,'Alex','Smith','9102 Star
Ave','smiths@gmail.com','9809357632','1976-10-21');
mysql> INSERT INTO MedicalPersonnel VALUES(3102,'Amelia','Scholars','9201 Lora
Lane','scholarsA@gmail.com','9102991021','1970-11-10');
mysql> INSERT INTO MedicalPersonnel VALUES(3111,'Simran','Agarwal','1091 Sear
Drive','agaarwals@gmail.com','9102206543','1988-03-10');
mysql> INSERT INTO MedicalPersonnel VALUES(3901,'Scout','Williams','1212 Rio
Street','williams@gmail.com','9102758493','1965-12-09');
mysql> SELECT * FROM MedicalPersonnel;

```

empID	firstName	lastname	address	email	phone	DOB
3011	Miranda	August	1029 Green Drive	augustus@gmail.com	9810119754	1966-10-09
3030	Alex	Smith	9102 Star Ave	smiths@gmail.com	9809357632	1976-10-21
3102	Amelia	Scholars	9201 Lora Lane	scholarsA@gmail.com	9102991021	1970-11-10
3111	Simran	Agarwal	1091 Sear Drive	agaarwals@gmail.com	9102206543	1988-03-10
3901	Scout	Williams	1212 Rio Street	williams@gmail.com	9102758493	1965-12-09

5 rows in set (0.00 sec)

BLOODDONATION TABLE:

```

mysql> INSERT INTO BloodDonation VALUES(7002,1029,'2021-10-10',1);
mysql> INSERT INTO BloodDonation VALUES(7129,1234,'2021-09-10',1);
mysql> INSERT INTO BloodDonation VALUES(7201,1921,'2021-07-10',1);
mysql> INSERT INTO BloodDonation VALUES(7301,2910,'2021-10-10',1);
mysql> INSERT INTO BloodDonation VALUES(7411,2019,'2021-11-11',1);
mysql> INSERT INTO BloodDonation VALUES(7566,1029,'2021-09-09',1);
mysql> SELECT * FROM BloodDonation;

```


bloodID	donorID	dateDonated	quantity
7002	1029	2021-10-10 00:00:00	1
7129	1234	2021-09-10 00:00:00	1
7201	1921	2021-07-10 00:00:00	1
7301	2910	2021-10-10 00:00:00	1
7411	2019	2021-11-11 00:00:00	1
7566	1029	2021-09-09 00:00:00	1

6 rows in set (0.00 sec)

BLOODTRANSACTION TABLE:

```
mysql>INSERT INTO BloodTransaction VALUES(6101,3011,'2021-10-10 10:10:00',1,9012,7002);
mysql>INSERT INTO BloodTransaction VALUES(6211,3030,'2021-09-10 10:10:00',1,9100,7129);
mysql> INSERT INTO BloodTransaction VALUES(6341,3102,'2021-07-10 10:10:00',1,9111,7201);
mysql> INSERT INTO BloodTransaction VALUES(6490,3111,'2021-10-10',1,9122,7301);
mysql> INSERT INTO BloodTransaction VALUES(6590,3901,'2021-09-09',1,9122,7411);
mysql> SELECT * FROM BloodTransaction;
```

transactID	empID	dateOut	quantity	recipientID	bloodID
6101	3011	2021-10-10 10:10:00	1	9012	7002
6211	3030	2021-09-10 10:10:00	1	9100	7129
6341	3102	2021-07-10 10:10:00	1	9111	7201
6490	3111	2021-10-10 00:00:00	1	9122	7301
6590	3901	2021-09-09 00:00:00	1	9122	7411

5 rows in set (0.00 sec)

SQL QUERIES

1)Update

- Change phone number of donor
mysql>Update Donor SET phone=9102841104 WHERE donorID=1029;

```
mysql> Update Donor SET phone=9102841104 WHERE donorID=1029;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> select * from donor;
```

donorID	firstName	lastName	address	email	phone	DOB	bloodType
1029	Lavanya	Tabeck	2103 Allen Ave	lavanyatabeck@gmail.com	9102841104	2001-09-12	AB+
1234	Megha	Saxena	Flat Number 310 , Prestige Apartment	meghasaxena@gmail.com	9281920192	2002-01-03	O-
1921	Tanishq	Chaurasia	5102 Blue Ave	tanchaurasia@gmail.com	9182001227	2002-05-21	B-
2019	Tirumalasetti	Vineet	3012 Aple Street	tirumalasettiVineet@gmail.com	98192120912	2001-10-02	A+
2910	Madabhushi	Saaketh	Plot 21/A Ronan Road	madabhushipriyasaaketh@gmail.com	9281009201	2001-04-02	B+

5 rows in set (0.00 sec)

- Change the quantity of blood donated

```
mysql> UPDATE BloodDonation SET quantity=3 WHERE bloodID=7002;
```

```
mysql> UPDATE BloodDonation SET quantity=3 WHERE bloodID=7002;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> SELECT * FROM BloodDonation;
```

bloodID	donorID	dateDonated	quantity
7002	1029	2021-10-10 00:00:00	3
7129	1234	2021-09-10 00:00:00	1
7201	1921	2021-07-10 00:00:00	1
7301	2910	2021-10-10 00:00:00	1
7411	2019	2021-11-11 00:00:00	1
7566	1029	2021-09-09 00:00:00	1

6 rows in set (0.00 sec)

- Change last name of medical personnel

```
mysql> UPDATE MedicalPersonnel SET lastname = "Williamson" WHERE empID=3011;
```

```
mysql> UPDATE MedicalPersonnel SET lastname = "Williamson" WHERE empID=3011;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> SELECT * FROM MedicalPersonnel;
```

empID	firstName	lastName	address	email	phone	DOB
3011	Miranda	Williamson	1029 Green Drive	augustus@gmail.com	9810119754	1966-10-09
3030	Alex	Smith	9102 Star Ave	smiths@gmail.com	9809357632	1976-10-21
3102	Amelia	Scholars	9201 Lora Lane	scholarsA@gmail.com	9102991021	1970-11-10
3111	Simran	Agarwal	1091 Sear Drive	agaarwals@gmail.com	9102206543	1988-03-10
3901	Scout	Williams	1212 Rio Street	williams@gmail.com	9102758493	1965-12-09

5 rows in set (0.00 sec)

2)select

- Select bloodID when the amount of blood donated is 3

```
mysql> SELECT bloodID FROM BloodDonation WHERE quantity=3;
```

```
mysql> SELECT bloodID FROM BloodDonation WHERE quantity=3;
+-----+
| bloodID |
+-----+
|    7002 |
+-----+
1 row in set (0.01 sec)
```

- Select name of recipients who have blood group A+

```
mysql> SELECT firstname, lastname FROM Recipient WHERE bloodType="A+";
mysql> SELECT firstname, lastname FROM Recipient WHERE bloodType="A+";
+-----+-----+
| firstname | lastname |
+-----+-----+
| Anushka   | Sharma   |
| Holly     | Miller   |
+-----+-----+
2 rows in set (0.00 sec)
```

- Select donorID who have bloodType=O-

```
mysql> SELECT donorID FROM Donor WHERE bloodType="O-";
mysql> SELECT donorID FROM Donor WHERE bloodType="O-";
+-----+
| donorID |
+-----+
|    1234 |
+-----+
1 row in set (0.00 sec)
```

3) Order by function

- Select details from medicalPersonnel table by using order by on empID

```
mysql> SELECT * FROM MedicalPersonnel ORDER BY empID;
mysql> SELECT * FROM MedicalPersonnel ORDER BY empID;
+-----+-----+-----+-----+-----+-----+
| empID | firstName | lastname | address | email | phone | DOB |
+-----+-----+-----+-----+-----+-----+
| 3011 | Miranda | Williamson | 1029 Green Drive | augustus@gmail.com | 9810119754 | 1966-10-09 |
| 3030 | Alex | Smith | 9102 Star Ave | smiths@gmail.com | 9809357632 | 1976-10-21 |
| 3102 | Amelia | Scholars | 9201 Lora Lane | scholarsA@gmail.com | 9102991021 | 1970-11-10 |
| 3111 | Simran | Agarwal | 1091 Sear Drive | agaarwals@gmail.com | 9102206543 | 1988-03-10 |
| 3901 | Scout | Williams | 1212 Rio Street | williams@gmail.com | 9102758493 | 1965-12-09 |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.09 sec)
```

- Select details from Recipient table with first names in ascending order
- ```
mysql> SELECT * FROM Recipient ORDER BY firstname ASC;
```

```
mysql> SELECT * FROM Recipient ORDER BY firstname ASC;
```

| recipientID | firstName | lastName | address            | email                | phone      | DOB        | bloodType |
|-------------|-----------|----------|--------------------|----------------------|------------|------------|-----------|
| 9121        | Alice     | Smith    | 8099 Rainbow Drive | alicesmith@gmail.com | 9100122197 | 1988-11-19 | O-        |
| 9012        | Anushka   | Sharma   | 2130 Spring Ave    | sharmaanu@gmail.com  | 9834776542 | 1986-10-10 | A+        |
| 9111        | Celeste   | Stark    | 2012 Mega Lane     | staklite@gmail.com   | 9457091265 | 1990-09-12 | AB+       |
| 9122        | Holly     | Miller   | 8909 Sona Drive    | millers@gmail.com    | 9823765412 | 1989-05-11 | A+        |
| 9100        | Tim       | Rogers   | 4687 Cole Ave      | rogers@gmail.com     | 9210653251 | 1977-11-05 | B+        |

5 rows in set (0.02 sec)

- Select donorID and blood type of donors with first names in ascending order  
mysql>SELECT donorID, BloodType FROM Donor ORDER BY firstname ASC;

```
mysql> SELECT donorID, BloodType FROM Donor ORDER BY firstname ASC;
```

| donorID | BloodType |
|---------|-----------|
| 1029    | AB+       |
| 2910    | B+        |
| 1234    | O-        |
| 1921    | B-        |
| 2019    | A+        |

5 rows in set (0.02 sec)

#### 4)Join Query

- Select firstname and last name of recipient who have same recipient ID on the blood Transaction table  
mysql>SELECT firstname, lastname FROM recipient INNER JOIN BloodTransaction ON recipientID.recipient=recipientID.BloodTransaction;

```
mysql> SELECT firstname, lastname FROM recipient INNER JOIN BloodTransaction ON recipientID.recipient=recipientID.BloodTransaction;
```

| firstname | lastname |
|-----------|----------|
| Anushka   | Sharma   |
| Tim       | Rogers   |
| Celeste   | Stark    |
| Alice     | Smith    |
| Holly     | Miller   |

5 rows in set (0.00 sec)

- Select firstname and last name of medical personnel who are the same personnels who have done blood transactions  
mysql> SELECT firstname, lastname FROM MedicalPersonnel INNER JOIN BloodTransaction ON empID.MedicalPersonnel=empID.BloodTransaction;

```
mysql> SELECT firstname, lastname FROM MedicalPersonnel INNER JOIN BloodTransaction ON empID.MedicalPersonnel=empID.BloodTransaction;
```

| firstname | lastname   |
|-----------|------------|
| Miranda   | Williamson |
| Alex      | Smith      |
| Amelia    | Scholars   |
| Simran    | Agarwal    |
| Scout     | Williams   |

5 rows in set (0.00 sec)

- Select first name and last name of donor who have donated blood  
mysql>SELECT firstname,lastname FROM donor INNER JOIN BloodDonation ON donorID.donor=donorID.BloodDonation;

```
mysql> SELECT firstname,lastname FROM donor INNER JOIN BloodDonation ON donorID.donor=donorID.BloodDonation;
+-----+-----+
| firstname | lastname |
+-----+-----+
Lavanya	Tabeck
Megha	Saxena
Tanishq	Chaurasia
Tirumalasetti	Vineet
Madabhushi	Saaketh
+-----+-----+
5 rows in set (0.00 sec)
```

## 5)Group query

- Group donor blood type and count of donor ID by last name

```
mysql>SELECT COUNT(donorID), BloodType FROM Donor GROUP BY lastname;
```

```
mysql> SELECT COUNT(donorID), BloodType FROM Donor GROUP BY lastname;
```

```
+-----+-----+
| COUNT(donorID) | BloodType |
+-----+-----+
1	AB+
1	O-
1	B-
1	A+
1	B+
+-----+-----+
5 rows in set (0.01 sec)
```

- Group count of first name and last name by first name and order first name to show the table in ascending first name order

```
mysql> SELECT COUNT(firstname), lastname FROM recipient GROUP BY firstname ORDER BY firstname ASC;
```

```
mysql> SELECT COUNT(firstname), lastname FROM recipient GROUP BY firstname ORDER BY firstname ASC;
```

```
+-----+-----+
| COUNT(firstname) | lastname |
+-----+-----+
1	Smith
1	Sharma
1	Stark
1	Miller
1	Rogers
+-----+-----+
5 rows in set (0.00 sec)
```

- Group count of quantity of blood donated , date of donation and bloodID by bloodID from blood donation table

```
mysql>SELECT COUNT(quantity),bloodID, datedonated FROM BloodDonation GROUP BY bloodID;
```

```
mysql> SELECT COUNT(quantity),bloodID, datedonated FROM BloodDonation GROUP BY bloodID;
```

```
+-----+-----+-----+
| COUNT(quantity) | bloodID | datedonated |
+-----+-----+-----+
1	7002	2021-10-10 00:00:00
1	7129	2021-09-10 00:00:00
1	7201	2021-07-10 00:00:00
1	7301	2021-10-10 00:00:00
1	7411	2021-11-11 00:00:00
1	7566	2021-09-09 00:00:00
+-----+-----+-----+
6 rows in set (0.00 sec)
```

## 6)Delete (done after performing PL/SQL queries)

- Delete first name of donors

```
mysql>ALTER TABLE donor DROP COLUMN firstname;
```

```
mysql> ALTER TABLE donor DROP COLUMN firstname;
Query OK, 0 rows affected (0.09 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> SELECT * FROM donor;
```

| donorID | lastname  | address                              | email                            | phone       | DOB        | bloodType |
|---------|-----------|--------------------------------------|----------------------------------|-------------|------------|-----------|
| 1029    | Tabeck    | 2103 Allen Ave                       | lavanyatabeck@gmail.com          | 9102841104  | 2001-09-12 | AB+       |
| 1234    | Saxena    | Flat Number 310 , Prestige Apartment | meghasaxena@gmail.com            | 9281920192  | 2002-01-03 | O-        |
| 1921    | Chaurasia | 5102 Blue Ave                        | tanchaurasia@gmail.com           | 9182001227  | 2002-05-21 | B-        |
| 2019    | Vineet    | 3012 Aple Street                     | tirumalasettiVineet@gmail.com    | 98192120912 | 2001-10-02 | A+        |
| 2910    | Saaketh   | Plot 21/A Ronan Road                 | madabhushipriyasaaketh@gmail.com | 9281009201  | 2001-04-02 | B+        |

```
5 rows in set (0.00 sec)
```

- Delete BloodTransaction table

```
mysql> DROP TABLE BloodTransaction;
```

```
mysql> DROP TABLE BloodTransaction;
Query OK, 0 rows affected (0.10 sec)
```

- Delete phone number from medical Personnel

```
mysql> ALTER TABLE MedicalPersonnel DROP phone;
```

```
mysql> ALTER TABLE MedicalPersonnel DROP phone;
Query OK, 0 rows affected (0.08 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> SELECT * FROM MedicalPersonnel;
```

| empID | firstName | lastname   | address          | email               | DOB        |
|-------|-----------|------------|------------------|---------------------|------------|
| 3011  | Miranda   | Williamson | 1029 Green Drive | augustus@gmail.com  | 1966-10-09 |
| 3030  | Alex      | Smith      | 9102 Star Ave    | smiths@gmail.com    | 1976-10-21 |
| 3102  | Amelia    | Scholars   | 9201 Lora Lane   | scholarsA@gmail.com | 1970-11-10 |
| 3111  | Simran    | Agarwal    | 1091 Sear Drive  | agaarwals@gmail.com | 1988-03-10 |
| 3901  | Scout     | Williams   | 1212 Rio Street  | williams@gmail.com  | 1965-12-09 |

```
5 rows in set (0.00 sec)
```

## PL/SQL Queries

- DECLARE  
donorID number;  
firstname varchar(50);  
BEGIN  
SELECT donorid,firstName INTO donorID, firstname FROM donor;  
END;  
/

```

+-----+-----+
| donorID | firstname |
+-----+-----+
1029	Lavanya
1234	Megha
1921	Tanishq
2019	Tirumalasetti
2910	Madabhushi
+-----+-----+
```

- DECLARE  
firstname varchar(50);  
lastname varchar(50)  
phone number;  
BEGIN  
SELECT firstname,lastname, phonenumber INTO  
firstname,lastname,phone FROM MedicalPersonnel;  
END  
/

| firstname | lastname   | phone      |
|-----------|------------|------------|
| Miranda   | Williamson | 9810119754 |
| Alex      | Smith      | 9809357632 |
| Amelia    | Scholars   | 9102991021 |
| Simran    | Agarwal    | 9102206543 |
| Scout     | Williams   | 9102758493 |

- DECLARE  
quantity number;  
empID number;  
BEGIN  
SELECT Quantity INTO quantity FROM BloodTransaction WHERE  
quantity=1;  
END  
/

| Quantity |
|----------|
| 1        |
| 1        |
| 1        |
| 1        |
| 1        |

## Conclusion

We all are aware that blood donation is one of the most crucial sectors consisting of a vast number of companies that provide medical services, manufacture medical equipment, provide insurance, etc. Digitization of blood donation management is driving the need for systems that help keep track of and organize such huge amounts of personal data. The project was a small scale attempt to implement a database storing all the information of the patients, donors and medical personnels.

The project was truly a great learning opportunity and a chance to implement in practice the concepts learned in the classroom and hence, last but not the least, we would like to sincerely thank our esteemed professor, Tapan Kumar Das for giving us the chance to work on the same.