BLOOD BANK MANAGEMENT

A database management project

TEAM MEMBERS(AI&DS)

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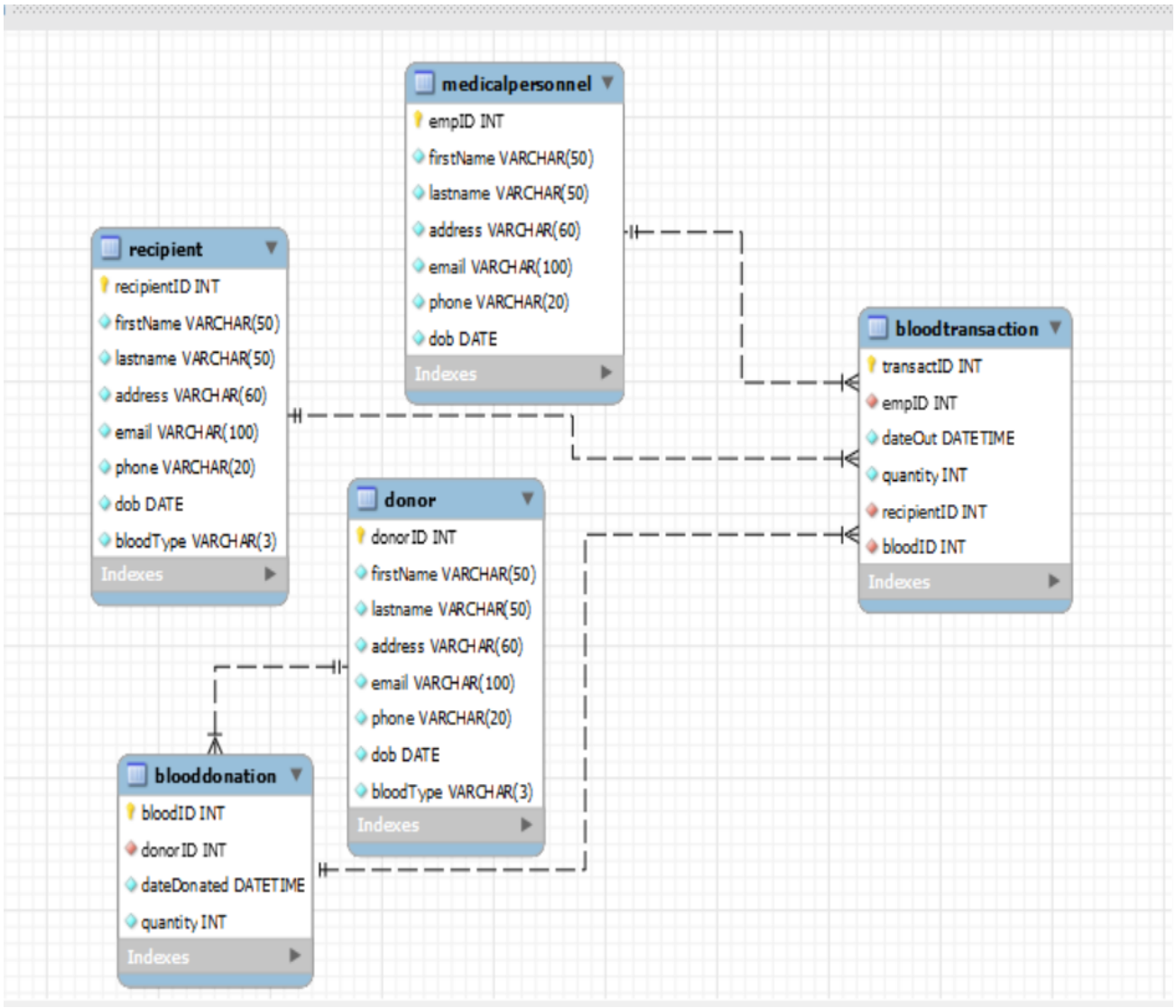
INTRODUCTION:

Our project is based on a Blood Bank Donation System Database. In our project we created multiple tables with multiple attributes each.
Our purpose was to be able to have a database that stored information about the Donor, the Recipient, Medical personnel, how much and when the blood was donated, and whenever there was a transaction made between the donor, the medical personnel, and the recipient. All tables are linked together using foreign keys to enforce relationships.

ER DIAGRAM:


medicalpersonnel
empID INT
firstName VARCHAR(50)
lastname VARCHAR(50)
address VARCHAR(60)
email VARCHAR(100)
phone VARCHAR(20)
dob DATE
Indexes
recipient
recipientID INT
firstName VARCHAR(50)
lastname VARCHAR(50)
address VARCHAR(60)
email VARCHAR(100)
phone VARCHAR(20)
dob DATE
bloodType VARCHAR(3)
Indexes
bloodtransaction
transactID INT
empID INT
dateOut DATETIME
quantity INT
recipientID INT
bloodID INT
Indexes
donor
donorID INT
firstName VARCHAR(50)
lastname VARCHAR(50)
address VARCHAR(60)
email VARCHAR(100)
phone VARCHAR(20)
dob DATE
bloodType VARCHAR(3)
Indexes
blooddonation
bloodID INT
donorID INT
dateDonated DATETIME
quantity INT
Indexes

DDL COMMANDS

SYNTAX

CREAT DATABASE:

```
create database bloodBank;
use bloodBank;
```

CREATING TABLE 1

```
CREATE TABLE Donor(
donorID INT  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 )
);
```

CREATE TABLE 2

```
CREATE TABLE Recipient(
recipientID INT 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 )
);
```

CREATE TABLE 3

```
CREATE TABLE MedicalPersonnel(
empID INT  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 )
);
```

CREATE TABLE 4

```
CREATE TABLE BloodDonation(
bloodID INT( 11 ) ,
donorID INT( 11 ) NOT NULL ,
dateDonated DATETIME NOT NULL ,
quantity INT NOT NULL ,
PRIMARY KEY ( bloodID ) ,
FOREIGN KEY ( donorID ) REFERENCES
```

```
Donor( donorID )
);
```

CREATE TABLE 5

```
CREATE TABLE BloodTransaction(
transactID INT( 11 ) ,
empID INT( 11 ) NOT NULL ,
dateOut DATETIME NOT NULL ,
quantity INT 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 )
);
```

DML COMMANDS

INSERTING VALUES INTO TABLES:

```
insert  into Donor  values(1,"Ram","Smith","Apple ave","ram@gmail.com
",8790234,'1967-12-14',"B-");

insert  into Donor  values(2,"Tim","Rogers"," Alen ave","trogres@gmail.com
",4867891,'1965-11-10',"O-");

insert  into Donor  values(3,"Divina","Gorospe","Blue
ave","dgorospe@gmail.com ", 8566578,'1999-04-08',"A-");

insert  into Donor  values(4,"Tm","Rogers"," Alen ave","trogres@gmail.com
",7890123,'1985-11-10',"AB+");

Insert into donor values(5,"James","bond","green road",
"jamesbond@gmail.com", 9867890,'1986-12-09',"O+");

Insert into donor values(6,"John","hary","yellow road", "john@gmail.com",
90987890,'1996-04-14',"O+");

Insert into donor values(7,"Gita","Sharma","John road", "gita@gmail.com",
98671234,'1996-04-02',"AB+");

Insert into donor values(8,"Olivia","Goros","Theodore Lowe",
"olivia@gmail.com", 6757890,'1999-12-14',"B-");


insert into Recipient values(1,'Melissa','Sone','6216 Ash
Ave','msone@gmail.com','368-478-3652','1935-03-15','AB-');

insert into Recipient values(2,'Chris','Cole','5465 Cherry
Ave','ccole@gmail.com','516-141-5165','1936-02-27','B+');

insert into Recipient values(3,'Aspen','Holland','5447 Crew
Ln','aholland@gmail.com','545-599-5465','1936-02-28','O-');

insert into Recipient values(4,'Sia','Ai','8441 Rym Ave','sai@gmail.com','236-
144-3655','2000-02-17','A-');

insert into Recipient values(5,'Deanna','Riza','3654 Sierra
Drive','driza@gmail.com','232-447-2622','1984-02-17','AB+');
```

```
insert into Recipient values(6,'Amelia','Williams','4567 Azusa','williams@gmail.com','142-255-1256','1998-11-17','O+');

insert into Recipient values(7,'Deanna','Riza','3654 Sierra Drive','driza@gmail.com','132-347-4622','1984-02-17','AB+');

insert into Recipient values(8,'Lev','Jhonsomn','1230 Olive Drive','Lev@gmail.com','113-307-1023','1988-05-15','O+');


insert into MedicalPersonnel values(1,"Sam","George","Red Ave","sgeorge@gmail.com",'9753142860','1955-03-05');

insert into MedicalPersonnel values(2,"Ella","Graham","Cora Ln","egraham@gmail.com",'785394025261','1968-04-02');

insert into MedicalPersonnel values(3,"Alice","Holland","6th Ave","aholland@gmail.com",'8290815432','1925-04-07');

insert into MedicalPersonnel values(4,"Kate","Kim","Cina Ave","kkim@gmail.com",'9948562301','1963-08-03');

insert into MedicalPersonnel values(5,"Deanna","Mane","Lime Drive","dmane@gmail.com",'8964201657','1942-03-09');

insert into MedicalPersonnel values(6,"Sofia","Williams"," Azusa Drive","sofia@gmail.com",'896421234','1990-08-19');

insert into MedicalPersonnel values(7,"Sofia","Williams"," Azusa Drive","sofia@gmail.com",'896421234','1990-08-19');


insert into BloodDonation values(3,1,'2016-01-01',1);

insert into BloodDonation values(2,2,'2018-02-02',1);

Insert into BloodDonation values(4,3,'2018-11-14',1);

Insert into BloodDonation values(5,4,'2018-04-22',1);

Insert into BloodDonation values(1,5,'2018-08-25',1);


insert into BloodTransaction values(20,1,'2018-01-01',1,1,3);

insert into BloodTransaction values(21,1,'2018-01-02',1,2,2);

insert into BloodTransaction values(22,3,'2018-01-03',1,3,4);
```

insert into BloodTransaction values(23,2,'2018-01-04',1,4,5);

insert into BloodTransaction values(24,2,'2018-01-05',1,5,1);

SUB QUERIES:

check constraint

##select

select * from Donor

where bloodType="O+";

select * from Donor

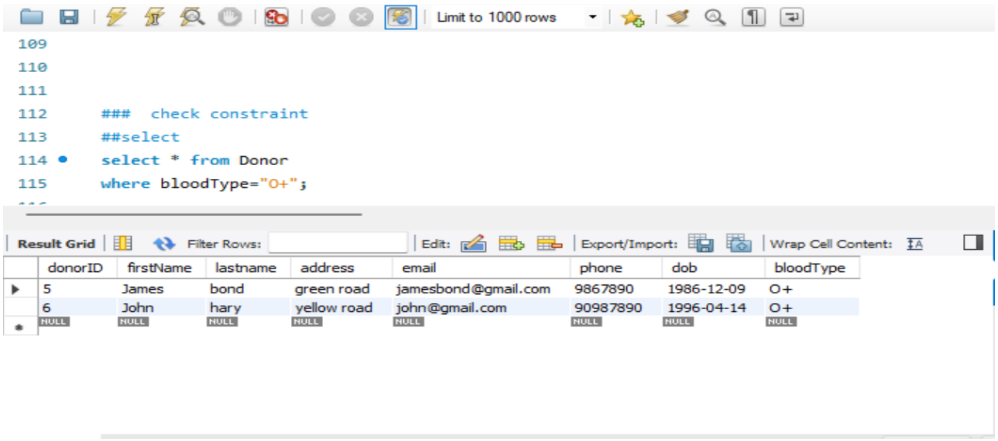
where bloodType="O+" and firstName="james";

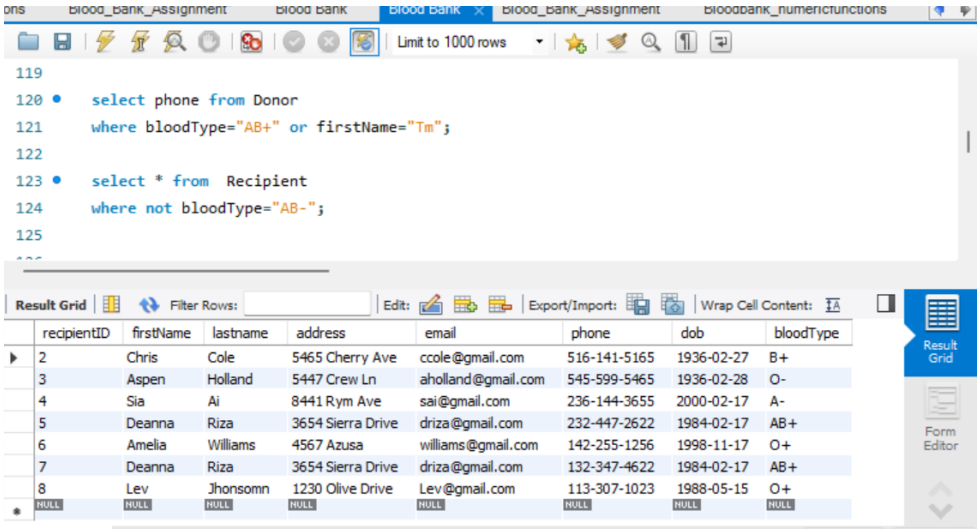
select phone from Donor

where bloodType="AB+" or firstName="Tm";

select * from Recipient

where not bloodType="AB-";





```
select phone from Donor
where bloodType="AB+" or firstName="Tm";

select * from  Recipient
where not bloodType="AB-";
```

recipientID	firstName	lastname	address	email	phone	dob	bloodType
2	Chris	Cole	5465 Cherry Ave	ccole@gmail.com	516-141-5165	1936-02-27	B+
3	Aspen	Holland	5447 Crew Ln	aholland@gmail.com	545-599-5465	1936-02-28	O-
4	Sia	Ai	8441 Rym Ave	sai@gmail.com	236-144-3655	2000-02-17	A-
5	Deanna	Riza	3654 Sierra Drive	driza@gmail.com	232-447-2622	1984-02-17	AB+
6	Amelia	Williams	4567 Azusa	williams@gmail.com	142-255-1256	1998-11-17	O+
7	Deanna	Riza	3654 Sierra Drive	driza@gmail.com	132-347-4622	1984-02-17	AB+
8	Lev	Jhonsomn	1230 Olive Drive	Lev@gmail.com	113-307-1023	1988-05-15	O+

#AGGEGATE FUNCTIONS

Select Min(quantity)

From BloodDonation;

Select Max(donorID)

From BloodDonation;

SELECT SUM(quantity)

FROM BloodDonation;

select count(empID)

FROM MedicalPersonnel;

select avg(quantity)

from BloodDonation;

```
select count(empID)
FROM MedicalPersonnel;
```

count(empID)
6

```
Select Min(quantity)
From BloodDonation;

Select Max(donorID)
From BloodDonation;
```

Min(quantity)
1

Group by

SELECT donorID, dateDonated

FROM BloodDonation

GROUP BY dateDonated;

```
166     ## Group by
167
168 •   SELECT donorID, dateDonated
169     FROM BloodDonation
170     GROUP BY dateDonated;
171
```

Result Grid | Filter Rows: | Export: | Wrap

donorID	dateDonated
5	2018-08-25 00:00:00
2	2018-02-02 00:00:00
1	2016-01-01 00:00:00
3	2018-11-14 00:00:00
4	2018-04-22 00:00:00

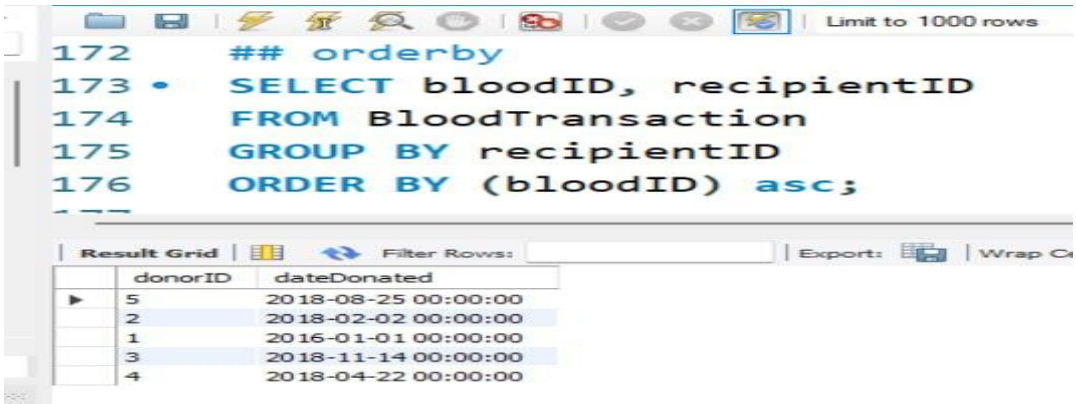
orderby

SELECT bloodID, recipientID

FROM BloodTransaction

GROUP BY recipientID

ORDER BY (bloodID) asc;



having

select firstName, bloodType

FROM Donor GROUP BY firstName

having bloodType="AB+";

```
178    ## having
179 •  select  firstName, bloodType
180    FROM Donor
181    GROUP BY firstName
182    having bloodType="AB+";
```

Result Grid | Filter Rows: | Export: | Wrap Cell

donorID	dateDonated
5	2018-08-25 00:00:00
2	2018-02-02 00:00:00
1	2016-01-01 00:00:00
3	2018-11-14 00:00:00
4	2018-04-22 00:00:00

joins

#innerjoin

SELECT Donor.donorID, BloodDonation.bloodID, Donor.firstName

FROM Donor

INNER JOIN BloodDonation ON Donor.donorID=BloodDonation.donorID;

```
00   ## joins
01
02   #innerjoin
03 • SELECT Donor.donorID, BloodDonation.bloodID, Donor.firstName
04   FROM Donor
05   INNER JOIN BloodDonation ON Donor.donorID=BloodDonation.donorID;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

donorID	bloodID	firstName
1	3	Manish
2	2	Tim
3	4	Divina
4	5	Tm
5	1	James

#Left inner

SELECT MedicalPersonnel.empID, BloodTransaction.dateOut, MedicalPersonnel.firstName

FROM MedicalPersonnel

LEFT JOIN BloodTransaction ON
MedicalPersonnel.empID=BloodTransaction.empID;

```
208   #Left inner
209 • SELECT MedicalPersonnel.empID, BloodTransaction.dateOut, MedicalPersonnel.firstName
210   FROM MedicalPersonnel
211   LEFT JOIN BloodTransaction ON MedicalPersonnel.empID=BloodTransaction.empID;
212
213
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

donorID	bloodID	firstName
1	3	Manish
2	2	Tim
3	4	Divina
4	5	Tm
5	1	James

#Right inner join

SELECT Recipient.recipientID, BloodTransaction.dateOut, Recipient.firstName

FROM Recipient

right JOIN BloodTransaction ON
Recipient.recipientID=BloodTransaction.recipientID;

```
214   #Right inner join
215 • SELECT Recipient.recipientID, BloodTransaction.dateOut, Recipient.firstName
216   FROM Recipient
217   right JOIN BloodTransaction ON Recipient.recipientID=BloodTransaction.recipientID;
218
219
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

recipientID	dateOut	firstName
1	2018-01-01 00:00:00	Melissa
2	2018-01-02 00:00:00	Chris
3	2018-01-03 00:00:00	Aspen
4	2018-01-04 00:00:00	Sia
5	2018-01-05 00:00:00	Deanna

##FULL JOIN

SELECT Donor.lastname, BloodDonation.donorID

FROM Donor

FULL JOIN BloodDonation ON Donor.donorID=BloodDonation.donorID

ORDER BY Donor.lastname;

SELECT * FROM MedicalPersonnel

LEFT JOIN BloodTransaction

ON BloodTransaction.empID = MedicalPersonnel.empID

UNION ALL

SELECT * FROM MedicalPersonnel

RIGHT JOIN BloodTransaction

ON BloodTransaction.empID = MedicalPersonnel.empID;

```
219     ##FULL JOIN
220 •   SELECT Donor.lastname, BloodDonation.donorID
221     FROM Donor
222     FULL JOIN BloodDonation ON Donor.donorID=BloodDonation.donorID
223     ORDER BY Donor.lastname;
224 •   SELECT * FROM MedicalPersonnel
225     LEFT JOIN BloodTransaction
226     ON  BloodTransaction.empID = MedicalPersonnel.empID
227     UNION ALL
228     SELECT * FROM MedicalPersonnel
229     RIGHT JOIN BloodTransaction
230     ON BloodTransaction.empID = MedicalPersonnel.empID;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

empID	firstName	lastname	address	email	phone	dob	transactID	empID	dateOut	quantity	recipientID	bloodID
1	Sam	George	Red Ave	sgeorge@gmail.com	9753142860	1955-03-05	21	1	2018-01-02 00:00:00	1	2	2
1	Sam	George	Red Ave	sgeorge@gmail.com	9753142860	1955-03-05	20	1	2018-01-01 00:00:00	1	1	3
2	Ella	Graham	Cora Ln	egraham@gmail.com	785394025261	1968-04-02	24	2	2018-01-05 00:00:00	1	5	1
2	Ella	Graham	Cora Ln	egraham@gmail.com	785394025261	1968-04-02	23	2	2018-01-04 00:00:00	1	4	5
3	Alice	Holland	6th Ave	aholland@gmail.com	8290815432	1925-04-07	22	3	2018-01-03 00:00:00	1	3	4
4	Kate	Kim	Cina Ave	kkim@gmail.com	9948562301	1963-08-03	NULL	NULL	NULL	NULL	NULL	NULL
5	Deanna	Mane	Lime Drive	dmane@gmail.com	8964201657	1942-03-09	NULL	NULL	NULL	NULL	NULL	NULL
1	Sam	George	Red Ave	sgeorge@gmail.com	9753142860	1955-03-05	20	1	2018-01-01 00:00:00	1	1	3
1	Sam	George	Red Ave	sgeorge@gmail.com	9753142860	1955-03-05	21	1	2018-01-02 00:00:00	1	2	2
3	Alice	Holland	6th Ave	aholland@gmail.com	8290815432	1925-04-07	22	3	2018-01-03 00:00:00	1	3	4
2	Ella	Graham	Cora Ln	egraham@gmail.com	785394025261	1968-04-02	23	2	2018-01-04 00:00:00	1	4	5
2	Ella	Graham	Cora Ln	egraham@gmail.com	785394025261	1968-04-02	24	2	2018-01-05 00:00:00	1	5	1

views

create view BloodStock as select Donor.bloodType as 'Blood Type',

sum(BloodDonation.quantity) as 'In Stock' from BloodDonation join Donor on BloodDonation.donorID =Donor.donorID where BloodDonation.bloodID not in (select bloodID from BloodTransaction) group by bloodType;

create view PatientSeen

as select concat_ws(' ', m.firstName, m.lastName) as 'Medical Personnel',

concat_ws(' ', r.firstname, r.lastName) as 'PatientName', dateOut as 'DateSeen'

From MedicalPersonnel m, BloodTransaction b,Recipient r

where m.empID = b.empID AND r.recipientID= b.recipientID

order by m.lastName ASC;

```
275     /*views*/
276 •   create view PatientSeen
277     as select
278     concat_ws(' ', m.firstName, m.lastName) as
279     'Medical Personnel',
280     concat_ws(' ', r.firstname, r.lastName) as 'Patient
281     Name',
282     dateOut as 'Date Seen'
283     From MedicalPersonnel m, BloodTransaction b,
284     Recipient r
285     where m.empID = b.empID AND r.recipientID
286     = b.recipientID
287     order by m.lastName ASC;
288 •   select * from PatientSeen;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Medical Personnel	Patient Name	Date Seen
Sam George	Melissa Sone	2018-01-01 00:00:00
Sam George	Chris Cole	2018-01-02 00:00:00
Ella Graham	Sia Ai	2018-01-04 00:00:00
Ella Graham	Deanna Riza	2018-01-05 00:00:00
Alice Holland	Aspen Holland	2018-01-03 00:00:00

Triggers

Use bloodbank;

SELECT * FROM Donor;

CREATE TRIGGER increase_bloodDonation AFTER UPDATE ON Donor

FOR EACH ROW SET @donorID = @donorID + 1;

-- Trigger put to use

UPDATE Donor SET donorID = 1 WHERE donorID = 0; -- View the result of Trigger

SELECT * FROM Donor;

```
317     ## Triggers
318 •   Use bloodbank;
319 •   SELECT * FROM Donor;
320 •   CREATE TRIGGER increase_bloodDonation AFTER UPDATE ON Donor
321     FOR EACH ROW SET @donorID = @donorID + 1;
322     -- Trigger put to use
323 •   UPDATE Donor
324     SET donorID = 1
325     WHERE donorID = 0;
326     -- View the result of Trigger
327 •   SELECT * FROM  Donor;
328
329     ##
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

donorID	firstName	lastname	address	email	phone	dob	bloodType
1	Manish	Smith	Apple ave	ram@gmail.com	8790234	1967-12-14	B-
2	Tim	Rogers	Alen ave	trogres@gmail.com	4867891	1965-11-10	O-
3	Divina	Gorospe	Blue ave	dgorospe@gmail.com	8566578	1999-04-08	A-
4	Tm	Rogers	Alen ave	trogres@gmail.com	7890123	1985-11-10	AB+
5	James	bond	green road	jamesbond@gmail.com	9867890	1986-12-09	O+
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

like operator

Select * from Recipient

where firstName like 'S%';

```
27  # like operator
28  Select * from Recipient
29  where firstName like 'S%';
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

recipientID	firstName	lastname	address	email	phone	dob	bloodType
4	Sia	Ai	8441 Rym Ave	sai@gmail.com	236-144-3655	2000-02-17	A-
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Select * from Recipient

where firstName like '%a';

Select * from Recipient

WHERE lastname LIKE '_i%';

```
133
134 •  Select * from Recipient
135    WHERE lastname LIKE '_i%';
136
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

recipientID	firstName	lastname	address	email	phone	dob	bloodType
4	Sia	Ai	8441 Rym Ave	sai@gmail.com	236-144-3655	2000-02-17	A-
5	Deanna	Riza	3654 Sierra Drive	driza@gmail.com	232-447-2622	1984-02-17	AB+
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

CURSOR

```
DECLARE @donorid INT, @firstName VARCHAR(50), @lastName VARCHAR(50)
DECLARE @Counter INT
SET @Counter = 1
DECLARE BLOOD_DONATION CURSOR
FOR
SELECT donorid, firstName, FROM customer
--Open cursor
OPEN BLOOD_DONATION
--Fetch the record into the variables.
FETCH NEXT FROM BLOOD_DONATION  INTO
@donorid, @firstName, @lastName
--LOOP UNTIL RECORDS ARE AVAILABLE.
WHILE @@FETCH_STATUS = 0
   BEGIN
      IF @Counter = 1
      BEGIN
         PRINT 'donorid' + CHAR(9) + 'firstName' + CHAR(9) + CHAR(9) + 'lastName'
         PRINT '-------------------------'
      END
      PRINT CAST(@id AS NVARCHAR(10)) + CHAR(9) + @c_name + CHAR(9) + CH
AR(9) + @city
      --Increment the counter variable
      SET @Counter = @Counter + 1
      --Fetch the next record into the variables.
      FETCH NEXT FROM BLOOD_DONATION  INTO
      @id, @c_name, @city
   END
--Close the cursor
CLOSE BLOOD_DONATION
--Deallocate the cursor
DEALLOCATE BLOOD_DONATION
```

PROCEDURE

```
CREATE PROCEDURE Select All Donors
AS
SELECT * FROM Donor
GO;
```

CONCLUSION:

This project was started with the intention to add all our learnings knowledge into a practical solution and throughout every lab and theory class whatever we learned was implemented into this and we are happy to present it in this document.

We thank our faculty Dr DS Rao sir for guiding us on this journey.

We used MySQL software and queries to accomplish all our course works.