**DBMS - MINI PROJECT**

**BLOOD BANK MANAGEMENT SYSTEM**

**Submitted By:-Bhoomika**

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**SRN:-PES1UG20CS633**

**V Semester**

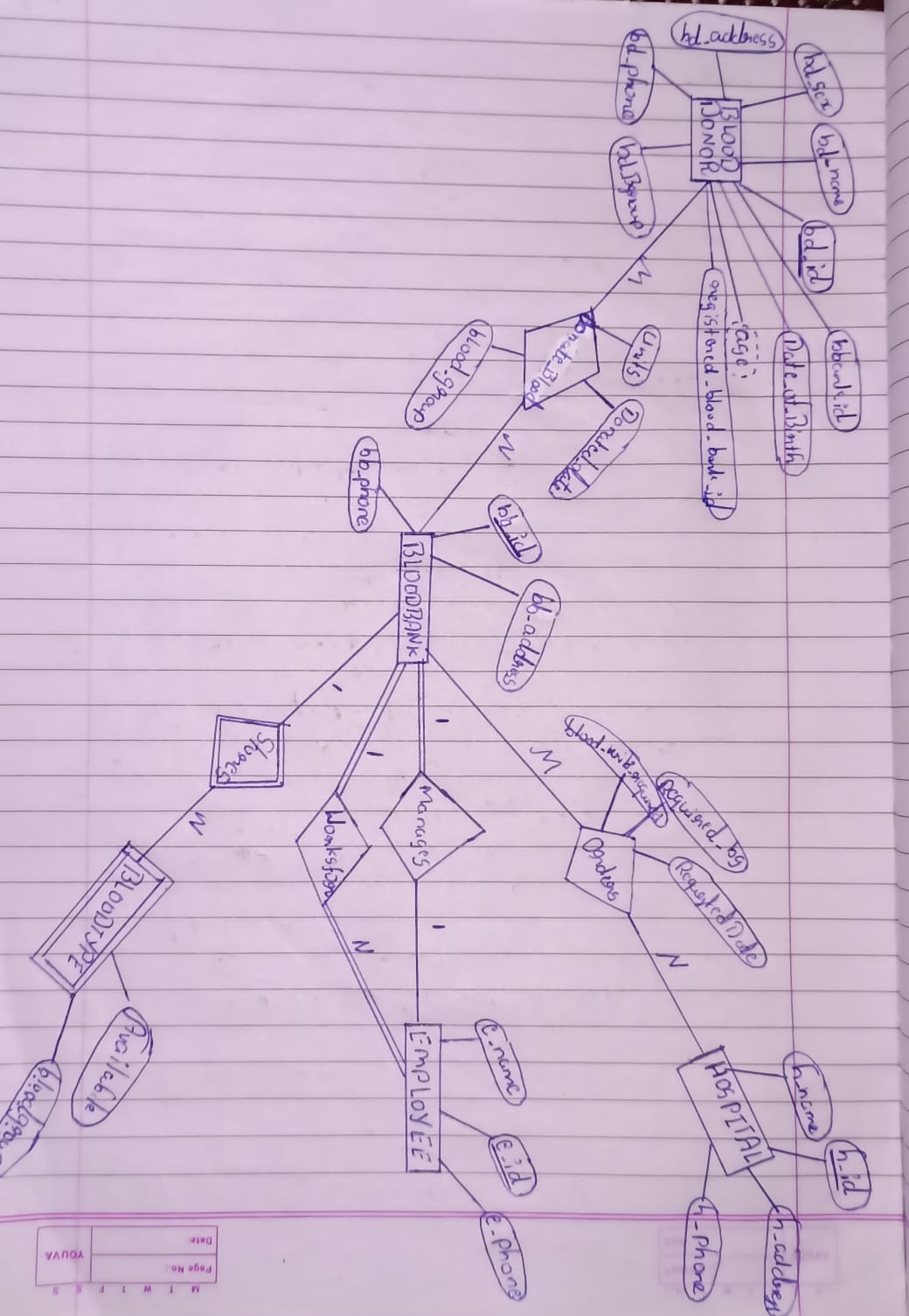
**Section K**

**ABSTRACT**

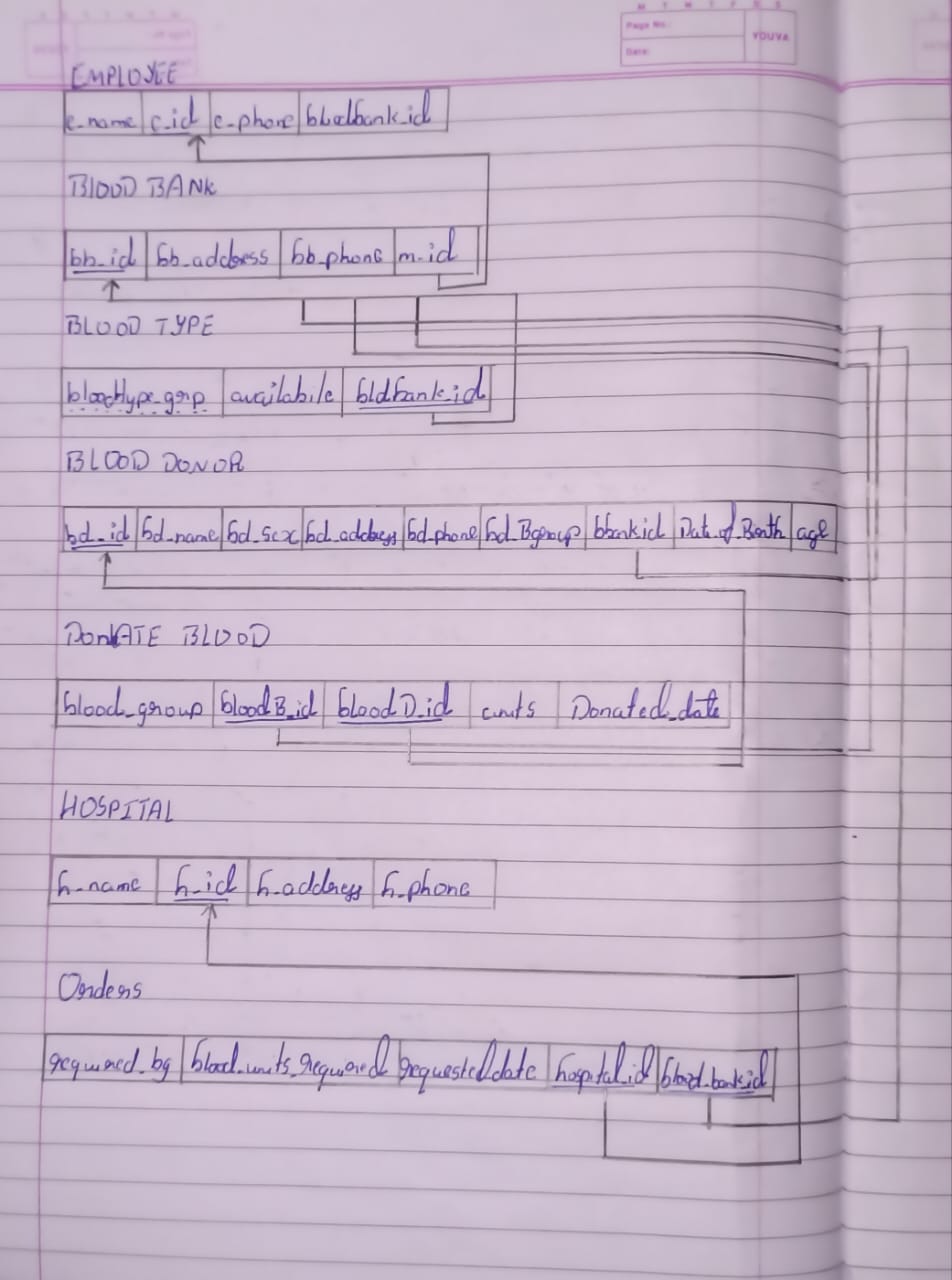
**Blood Bank Management System:-**

Blood Bank Management System (BBMS) is a browser based system that is designed to store, process, retrieve and analyze information concerned with the administrative and inventory management within a blood bank. This project aims at maintaining all the information pertaining to blood donors, different blood groups available in each blood bank and help them manage in a better way. The donors who are interested in donating blood has to register in the database. Details of the hospital who requests for the blood from particular blood bank is also stored.

**ER DIAGRAM**



**RELATIONAL SCHEMA**



**DDL STATEMENTS – BUILDING THE DATABASE**

**EMPLOYEE:-**

create TABLE EMPLOYEE(e\_name varchar(15) NOT NULL,e\_id char(9) NOT NULL,e\_phone char(15),bloodbank\_id char(10) NOT NULL,

PRIMARY KEY(e\_id));

**BLOOD BANK:-**

CREATE TABLE BLOOD\_BANK(bb\_id char(10) NOT NULL,bb\_address varchar(20),bb\_phone varchar(20),

m\_id char(9) NOT NULL,PRIMARY KEY(bb\_id));

ALTER TABLE BLOOD\_BANK add constraint blood\_bank FOREIGN KEY(m\_id) REFERENCES EMPLOYEE(e\_id) ON DELETE CASCADE;

**BLOOD TYPE:-**

CREATE TABLE BLOOD\_TYPE(bloodtype\_grp varchar(10) DEFAULT NULL,availabile varchar(10),bldbank\_id char(10) NOT NULL,

PRIMARY KEY(bloodtype\_grp,bldbank\_id));

ALTER TABLE BLOOD\_TYPE add constraint blood\_type FOREIGN KEY(bldbank\_id) REFERENCES BLOOD\_BANK(bb\_id) ON DELETE CASCADE;

**BLOOD DONOR:-**

CREATE TABLE BLOOD\_DONOR(bd\_id char(10) NOT NULL,bd\_name varchar(15) NOT NULL,

bd\_sex varchar(15) NOT NULL,bd\_address varchar(20),bd\_phone varchar(20),

bd\_Bgroup varchar(10) NOT NULL,registered\_blood\_bank\_id char(15),Date\_of\_birth date,age char(10) DEFAULT NULL,PRIMARY KEY(bd\_id));

**DONATE BLOOD :-**

CREATE TABLE DONATE\_BLOOD(blood\_group varchar(10) NOT NULL,bloodB\_id char(10) NOT NULL,

bloodD\_id char(10) NOT NULL,units int,Donated\_date date,PRIMARY KEY(bloodB\_id,bloodD\_id,Donated\_date));

ALTER TABLE DONATE\_BLOOD add constraint donate\_bloodfk1 FOREIGN KEY(bloodB\_id) REFERENCES BLOOD\_BANK(bb\_id) ON DELETE CASCADE;

ALTER TABLE DONATE\_BLOOD add constraint donate\_bloodfk2 FOREIGN KEY(bloodD\_id) REFERENCES BLOOD\_DONOR(bd\_id) ON DELETE CASCADE;

**HOSPITAL:-**

CREATE TABLE HOSPITAL(h\_name varchar(15) NOT NULL,h\_id char(9) NOT NULL,h\_address varchar(20),h\_phone varchar(20),PRIMARY KEY(h\_id));

**ORDERS:-**

CREATE TABLE ORDERS(required\_bg varchar(10),blood\_units\_required int,requested\_date date NOT NULL,hospital\_id char(9) NOT NULL,

blood\_bank\_id char(10) NOT NULL,PRIMARY KEY(hospital\_id,blood\_bank\_id,requested\_date));

ALTER TABLE ORDERS add constraint ordersfk1 FOREIGN KEY(hospital\_id) REFERENCES HOSPITAL(h\_id) ON DELETE CASCADE;

ALTER TABLE ORDERS add constraint ordersfk2 FOREIGN KEY(blood\_bank\_id) REFERENCES BLOOD\_BANK(bb\_id) ON DELETE CASCADE;

**POPULATING THE DATABASE**

**EMPLOYEE:-**

INSERT into EMPLOYEE VALUES('john','100','9845671234','B01'),('james','101','9842221234','B01'),

('Ram','102','9845871224','B01'),('Roopa','103','6665671234','B01'),

('Shree','104','7845671234','B01'),('Sana','105','9845671234','B01'),

('Reena','200','9845551234','B02'),('Sheela','201','9888671234','B02'),

('Hima','202','9191677774','B02'),('Tom','203','8181677774','B02'),

('Lewis','204','9845672724','B02'),('Lara','205','9845667674','B02'),

('Droupadi','300','9977671234','B03'),('Rahul','301','9845674444','B03'),

('Anshu','302','9846666234','B03'),('Ans','303','9846661134','B03'),

('Rack','304','7161661134','B03'),('Jack','305','8886661134','B03'),

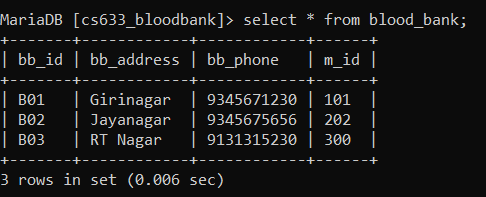
('David','306','7746661134','B03');



**BLOOD BANK:-**

INSERT into BLOOD\_BANK VALUES('B01','Girinagar','9345671230','101'),

('B02','Jayanagar','9345675656','202'),('B03','RT Nagar','9131315230','300');



**BLOOD TYPE:-**

INSERT into BLOOD\_TYPE VALUES('A+ve','yes','B01'),

('B+ve','yes','B01'),

('AB+ve','no','B01'),

('A-ve','no','B01'),

('B-ve','no','B01'),

('AB-ve','yes','B01'),

('O+ve','yes','B01'),

('O-ve','yes','B01'),

('A+ve','no','B02'),

('B+ve','yes','B02'),

('AB+ve','yes','B02'),

('A-ve','no','B02'),

('AB-ve','yes','B02'),

('O+ve','yes','B02'),

('O-ve','no','B02'),

('A+ve','no','B03'),

('B+ve','yes','B03'),

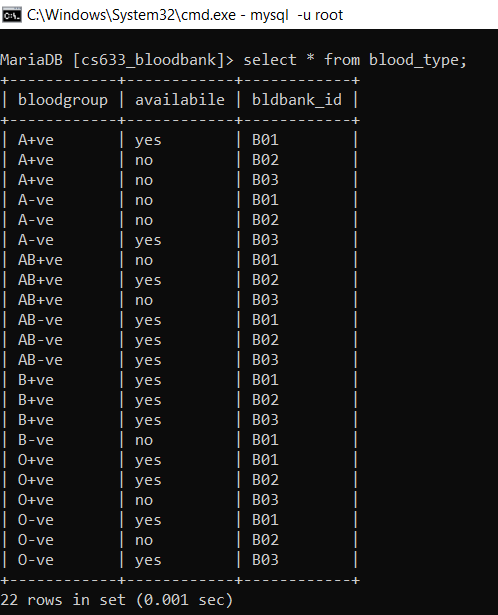
('AB+ve','no','B03'),

('A-ve','yes','B03'),

('AB-ve','yes','B03'),

('O+ve','no','B03'),

('O-ve','yes','B03');



**BLOOD DONOR:-**

INSERT into BLOOD\_DONOR VALUES('BD1','Robert','M','Jayanagar','9886712333','A+ve','B01','1989-04-14',NULL),

('BD2','David','M','JP Nagar','9886713333','AB+ve','B03','1989-03-12',NULL),

('BD3','John','M','Grinagar','9886712332','B+ve','B02','1980-04-14',NULL),

('BD4','Ajit Ullal','M','High Street','9896712333','B-ve','B01','2004-01-01',NULL),

('BD5','Suma S','F','Jp Nagar','9886712344','A-ve','B03','1970-02-14',NULL),

('BD6','Samanta','F','Girinagar','9886712367','B+ve','B02','1960-05-31',NULL),

('BD7','Ansh','F','JC Road','9990712333','O+ve','B03','1999-02-27',NULL),

('BD8','Roopa','F','M G Road','8886712333','O-ve','B01','1996-12-10',NULL),

('BD9','Virat','M','Pink Street','9886712322','AB-ve','B02','2002-01-01',NULL),

('BD10','Subbu','M','Jayanagar','9877712333','A+ve','B01','1990-09-20',NULL),

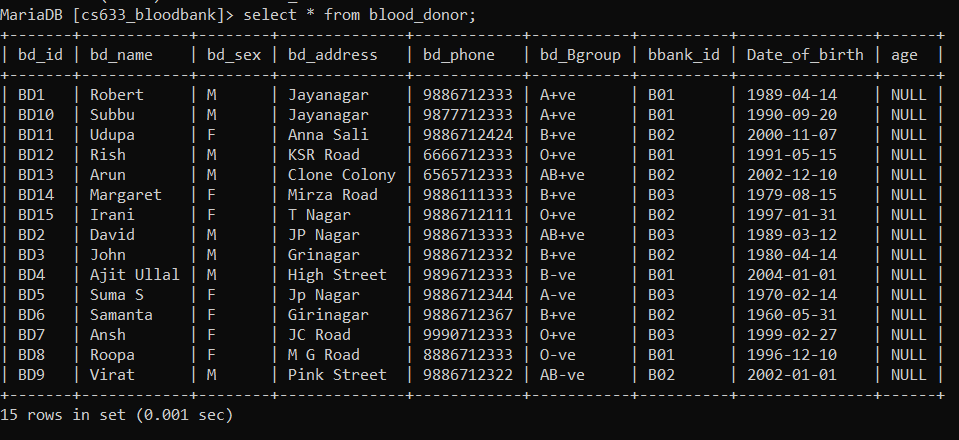
('BD11','Udupa','F','Anna Sali','9886712424','B+ve','B02','2000-11-07',NULL),

('BD12','Rish','M','KSR Road','6666712333','O+ve','B01','1991-05-15',NULL),

('BD13','Arun','M','Clone Colony','6565712333','AB+ve','B02','2002-12-10',NULL),

('BD14','Margaret','F','Mirza Road','9886111333','B+ve','B03','1979-08-15',NULL),

('BD15','Irani','F','T Nagar','9886712111','O+ve','B02','1997-01-31',NULL);



**DONATE BLOOD:-**

INSERT into DONATE\_BLOOD VALUES('AB+ve','B03','BD2','10','2019-01-10'),

('B+ve','B02','BD3','15','2022-10-01'),

('AB-ve','B02','BD9','5','2022-10-01'),

('A+ve','B01','BD10','10','2019-01-10'),

('O+ve','B01','BD12','20','2022-12-22'),

('AB-ve','B02','BD9','10','2021-11-30'),

('O+ve','B02','BD15','10','2020-04-16'),

('A-ve','B03','BD5','15','2022-12-20'),

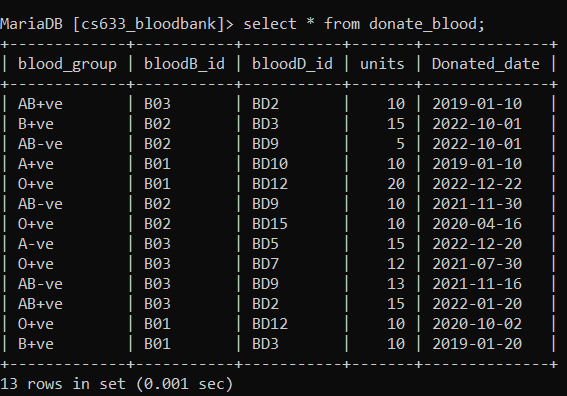
('O+ve','B03','BD7','12','2021-07-30'),

('AB-ve','B03','BD9','13','2021-11-16'),

('AB+ve','B03','BD2','15','2022-01-20'),

('O+ve','B01','BD12','10','2020-10-02'),

('B+ve','B01','BD3','10','2019-01-20');



**HOSPITAL:-**

INSERT into HOSPITAL VALUES('Mayoclinic','H01','Jayanagar','9222333558'),

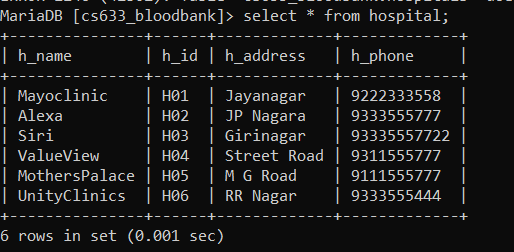
('Alexa','H02','JP Nagara','9333555777'),

('Siri','H03','Girinagar','93335557722'),

('ValueView','H04','Street Road','9311555777'),

('MothersPalace','H05','M G Road','9111555777'),

('UnityClinics','H06','RR Nagar','9333555444');



**ORDERS:-**

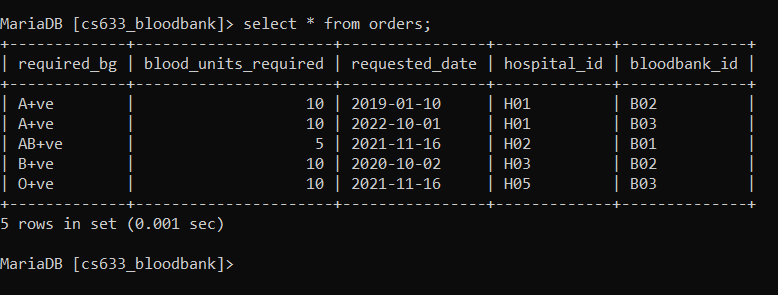
INSERT into ORDERS VALUES('A+ve','10','2019-01-10','H01','B02'),

('A+ve','10','2022-10-01','H01','B03'),

('AB+ve','5','2021-11-16','H02','B01'),

('B+ve','10','2020-10-02','H03','B02'),

('O+ve','10','2021-11-16','H05','B03');



**TOOL USED:-**

**Streamlit**

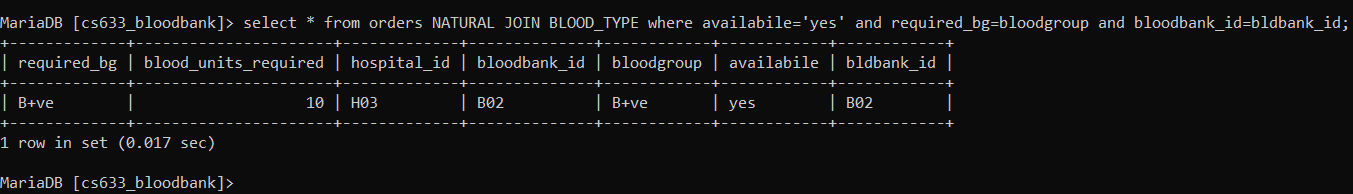
**QUERIES**

**REGULAR JOIN**

**NATURAL JOIN**

**1. Retrive details if required blood by hospital is available in blood bank which it requested.**

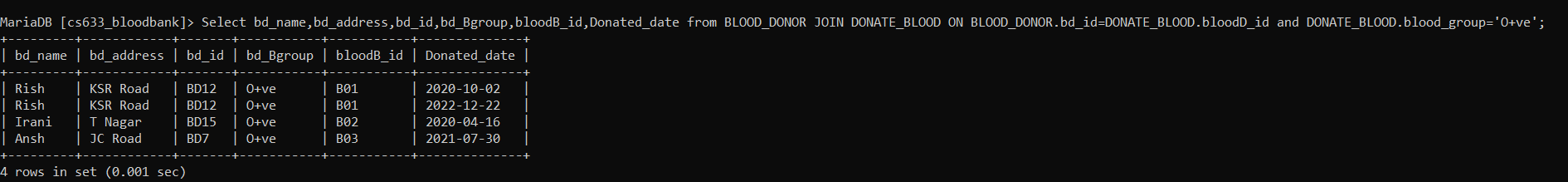
select \* from orders NATURAL JOIN BLOOD\_TYPE where availabile='yes' and required\_bg=bloodgroup and bloodbank\_id=bldbank\_id;



**INNER JOIN**

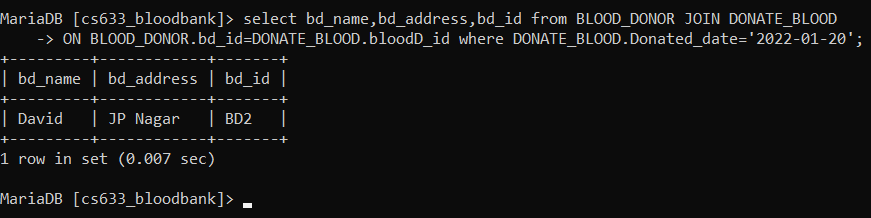
**1. Retrive details of all donor who donated bloodgroup O+ve.**

Select bd\_name,bd\_address,bd\_id,bd\_Bgroup,bloodB\_id,Donated\_date from BLOOD\_DONOR JOIN DONATE\_BLOOD ON BLOOD\_DONOR.bd\_id=DONATE\_BLOOD.bloodD\_id and DONATE\_BLOOD.blood\_group='O+ve';



**2. Retrive details of the blood donor who donated on particular date(2022-01-20)**

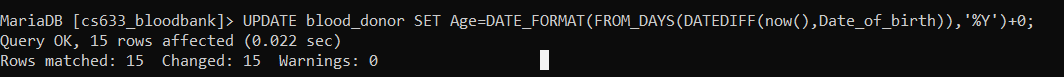
select bd\_name,bd\_address,bd\_id from BLOOD\_DONOR JOIN DONATE\_BLOOD ON BLOOD\_DONOR.bd\_id=DONATE\_BLOOD.bloodD\_id where DONATE\_BLOOD.Donated\_date='2022-01-20';

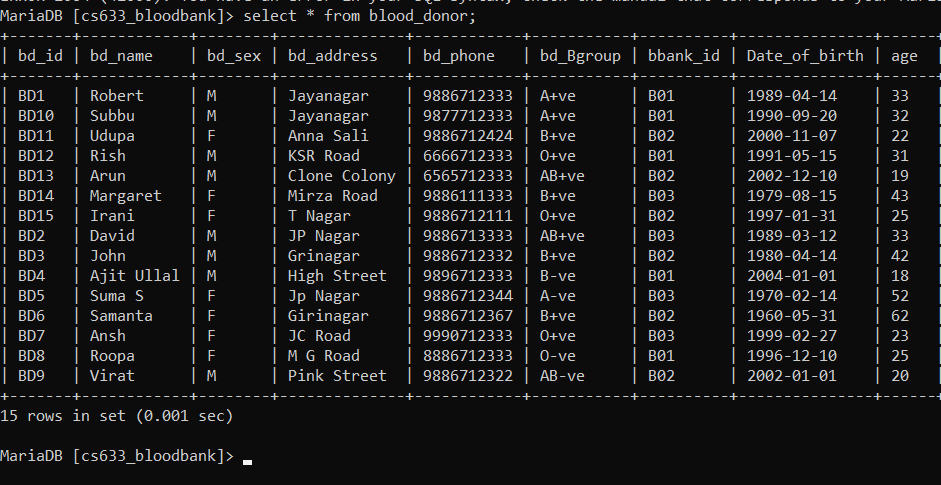


**CORRELATED QUERIES**

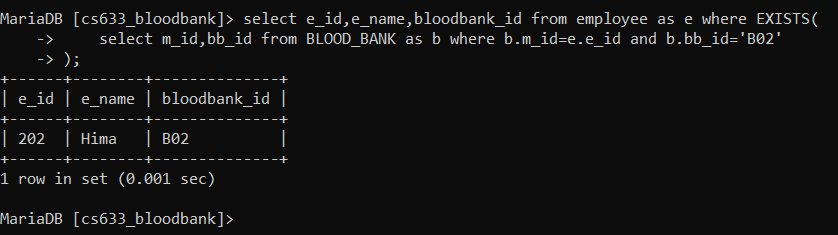
**1. Update age attribute in blood donor**

UPDATE blood\_donor SET Age=DATE\_FORMAT(FROM\_DAYS(DATEDIFF(now(),Date\_of\_birth)),'%Y')+0;



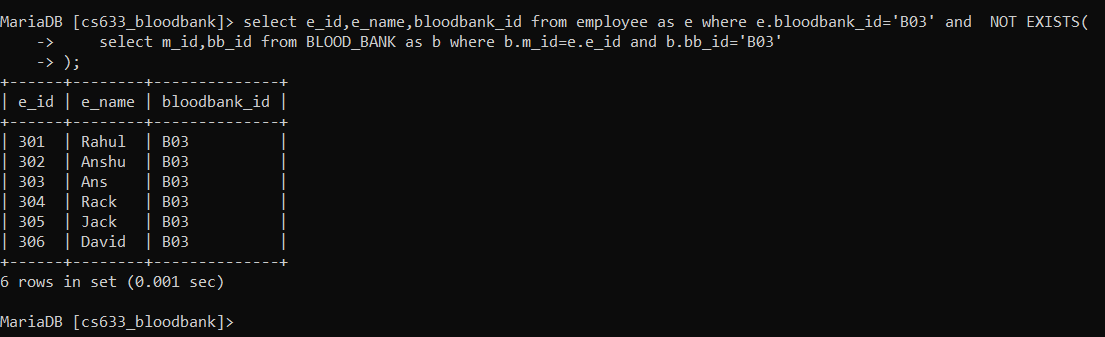
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**2. Display the emplyoee id,name and blood bank id that he manages blood bank B02**

select e\_id,e\_name,bloodbank\_id from employee as e where EXISTS( select m\_id,bb\_id from BLOOD\_BANK as b where b.m\_id=e.e\_id and b.bb\_id='B02'); ****

**3. Display the employee id,name and blood bank id of employees  working for bloodbank 'B03' and they are not having manager status.**

select e\_id,e\_name,bloodbank\_id from employee as e where e.bloodbank\_id='B03' and  NOT EXISTS( select m\_id,bb\_id from BLOOD\_BANK as b where b.m\_id=e.e\_id and b.bb\_id='B03');



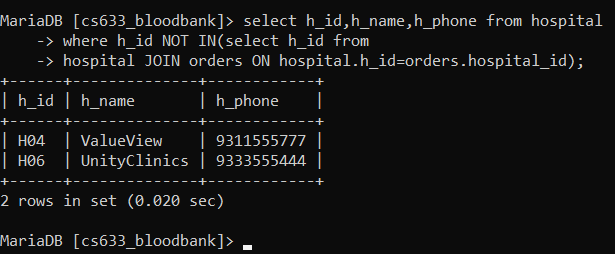
**NESTED QUERIES**

**1. Retrive details of hospital who had not requested the blood bank for blood group**

select h\_id,h\_name,h\_phone from hospital

where h\_id NOT IN(select h\_id from

hospital JOIN orders ON hospital.h\_id=orders.hospital\_id);

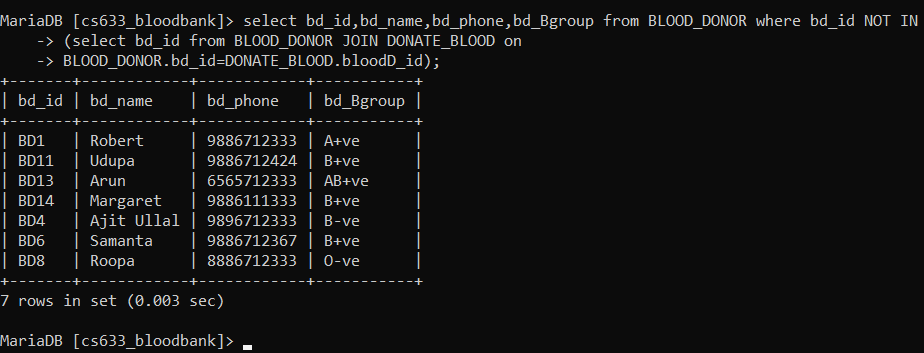


**2. Retrive details of all donor who had not donated blood**

select bd\_id,bd\_name,bd\_phone,bd\_Bgroup from BLOOD\_DONOR where bd\_id NOT IN

(select bd\_id from BLOOD\_DONOR JOIN DONATE\_BLOOD on

BLOOD\_DONOR.bd\_id=DONATE\_BLOOD.bloodD\_id);

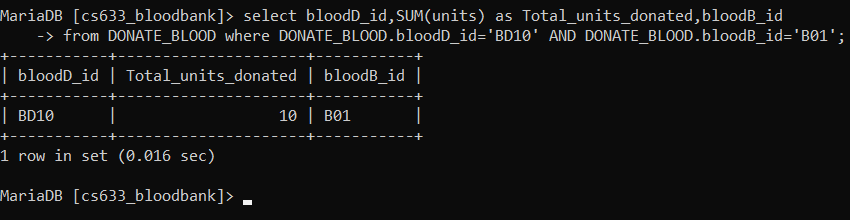


**AGGREGATE FUNCTION**

**1. Display the total units of blood donated by donor with bdid=BD10 to blood bank with bbid=BD01**

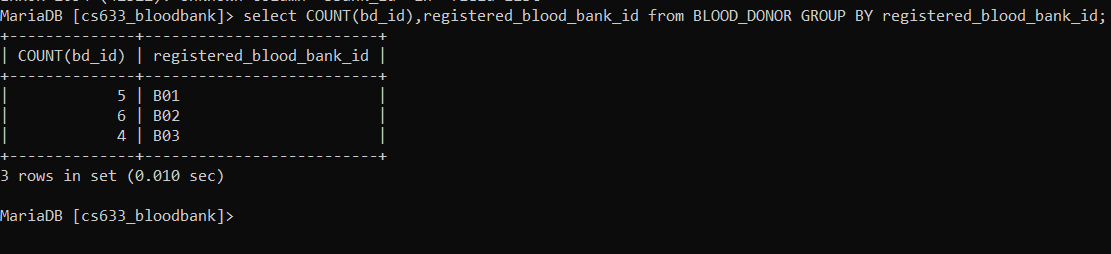
select bloodD\_id,SUM(units) as Total\_units\_donated,bloodB\_id

from DONATE\_BLOOD where DONATE\_BLOOD.bloodD\_id='BD10' AND DONATE\_BLOOD.bloodB\_id='B01';



**2. Retrive the number of donors registered to each of the blood bank.**

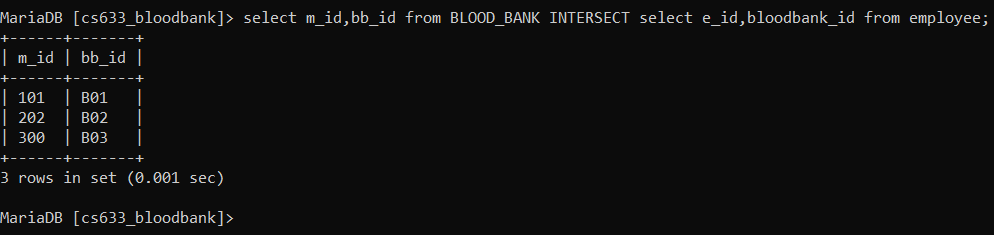
select COUNT(bd\_id),bbank\_id from BLOOD\_DONOR GROUP BY bbank\_id;



**SET OPERATIONS**

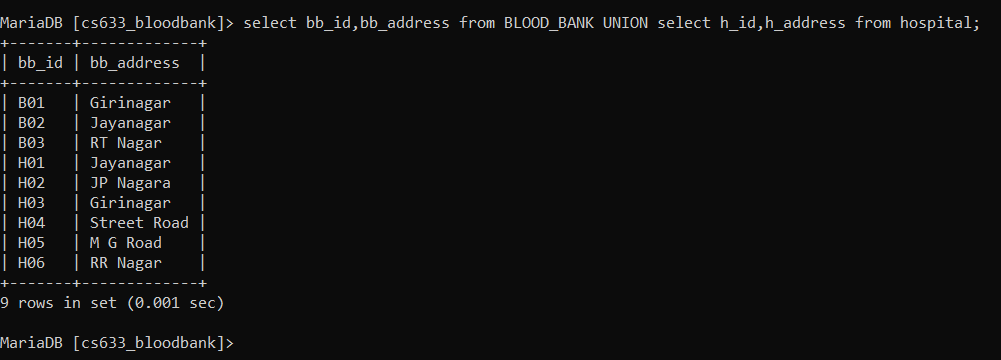
**1. Retrive the manager  of all the blood bank**

select m\_id,bb\_id from BLOOD\_BANK INTERSECT select e\_id,bloodbank\_id from employee;



**2. Retrive the all the blood bank and hospital along with its address**

select bb\_id,bb\_address from BLOOD\_BANK UNION select h\_id,h\_address from hospital;



**PROCEDURE**

DELIMITER $$

CREATE procedure update\_age ()

BEGIN

DECLARE cur date;

select sysdate() into cur;

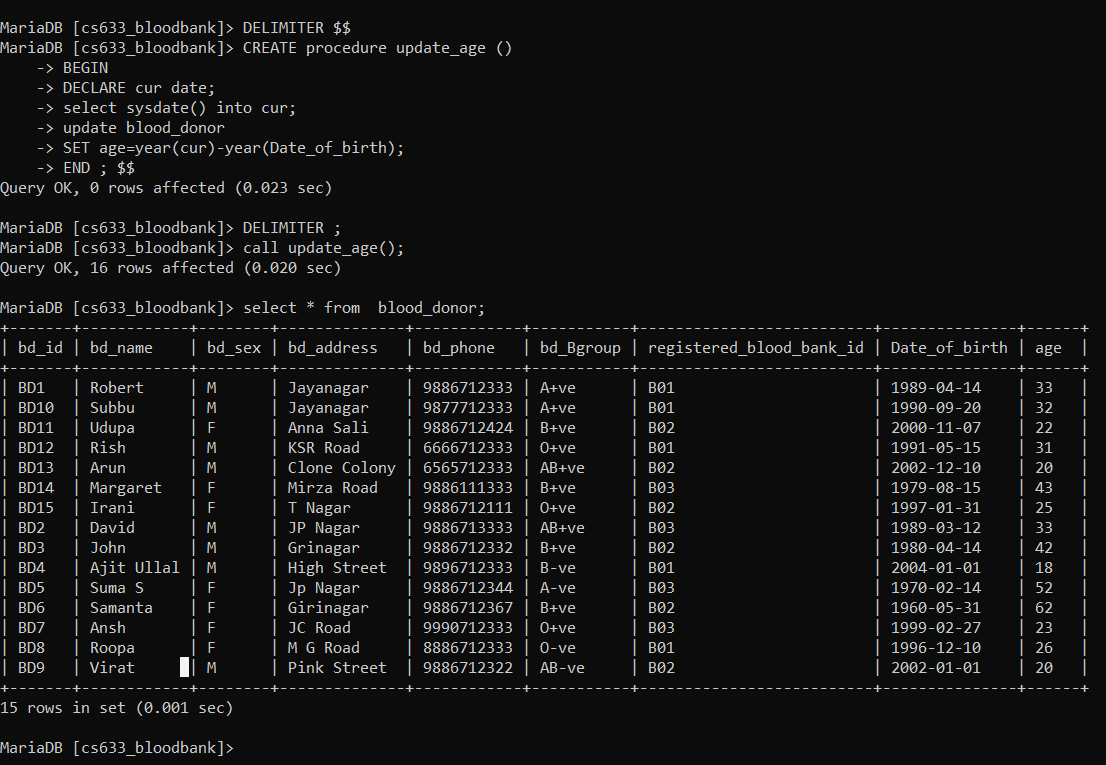
update blood\_donor

SET age=year(cur)-year(Date\_of\_birth);

END ; $$

DELIMITER ;

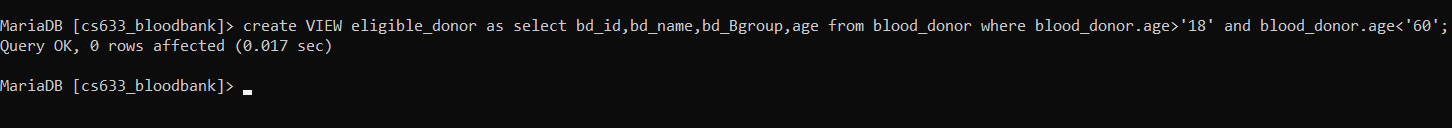
call update\_age();



**VIEW**

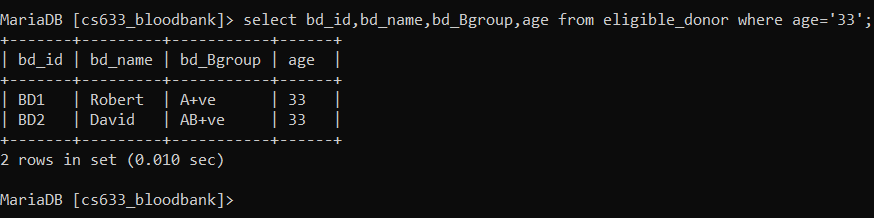
**create view of blood donor as eligible donor  whose age is in between 18 and 60**

create VIEW eligible\_donor as select bd\_id,bd\_name,bd\_Bgroup,age from blood\_donor where blood\_donor.age>'18' and blood\_donor.age<'60';



**Retrive details of blooddonor whose age is 33**

select bd\_id,bd\_name,bd\_Bgroup,age from eligible\_donor where age='33';



**TRIGGER:-**

DELIMITER $$

CREATE TRIGGER bldcoun

BEFORE insert

ON DONATE\_BLOOD FOR EACH ROW

BEGIN

DECLARE error\_msg VARCHAR(255);

SET error\_msg = ('You have donated more than 20 units of blood....You have earned a donater badge');

IF (select SUM(units) as u from DONATE\_BLOOD where DONATE\_BLOOD.bloodD\_id=new.bloodD\_id) >20 THEN

SIGNAL SQLSTATE '45000'

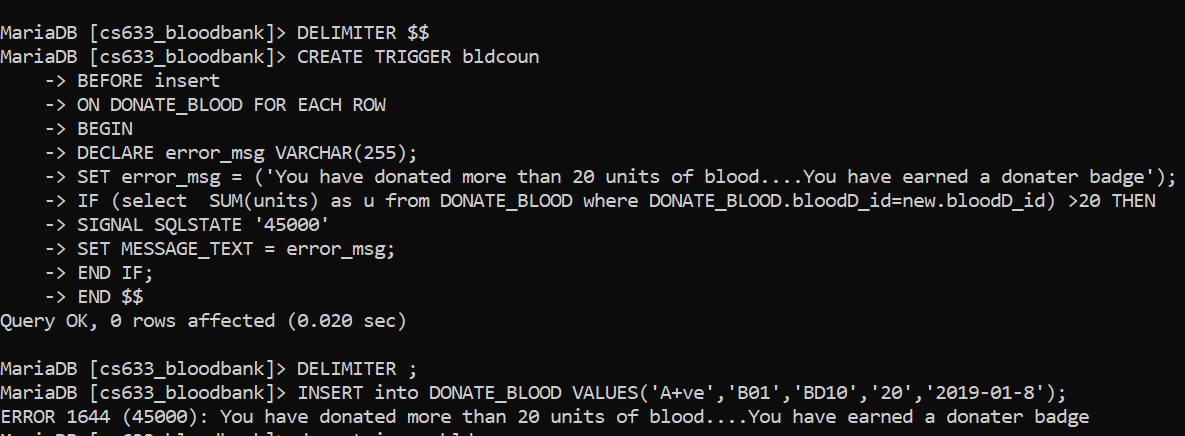
SET MESSAGE\_TEXT = error\_msg;

END IF;

END $$

DELIMITER ;

INSERT into DONATE\_BLOOD VALUES('O+ve','B02','BD15','20','2022-04-16');

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