DBMS - Mini
Project
Organ
Donation
Management
System

Submitted By:

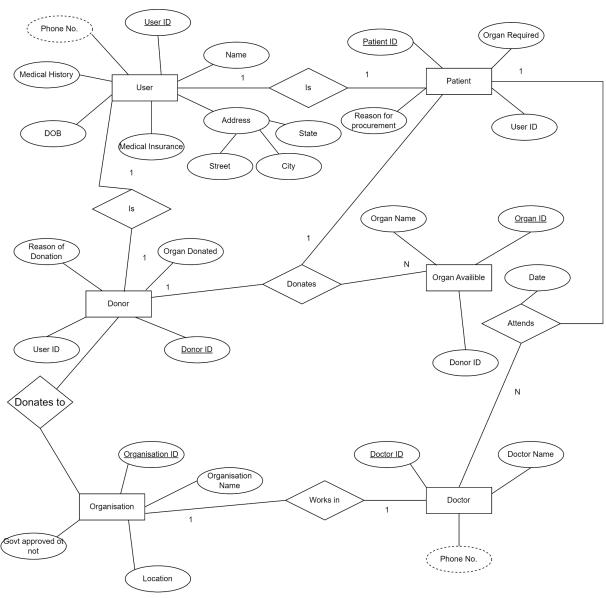
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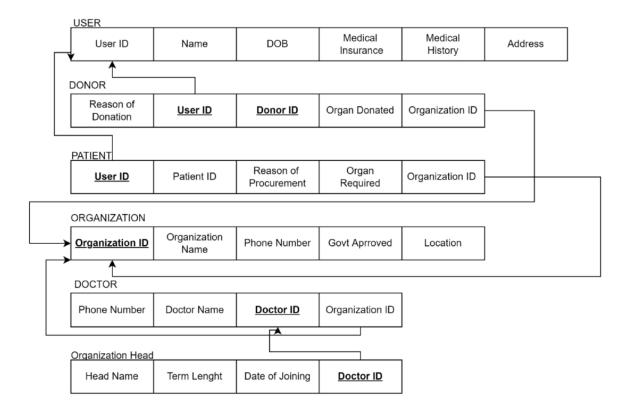
### Short Description and Scope of the Project

Organ donation and procurement plays a crucial role in improving the lives of patients worldwide. One main problem that is present today is the fact that organs are not available in time to save patients' lives. This system uses database technologies to manage a person's donation of organs. Organ procurement facilities are also enlisted. The database will be designed to maintain a complete medical record of all patients, along with information based on geographic location. These features will enable easy procurement for patients in time of need.

# ER Diagram



## Relational Schema



### DDL statements - Building the database

```
CREATE DATABASE DBMS proj final;
USE DBMS proj final;
#table 1
CREATE TABLE User (
    User ID int NOT NULL,
    Name varchar(20) NOT NULL,
    Date of Birth date NOT NULL,
    Medical insurance int,
    Medical history varchar (20),
    Street varchar(20),
    City varchar(20),
    State varchar(20),
    Phno user varchar(10),
    PRIMARY KEY (User ID)
);
#table 2
CREATE TABLE Organization(
  Organization ID int NOT NULL,
 Organization name varchar(20) NOT NULL,
 Location varchar(20),
 Government approved int, # 0 or 1
 PRIMARY KEY (Organization ID)
);
#table 3
CREATE TABLE Doctor (
  Doctor ID int NOT NULL,
 Doctor Name varchar (20) NOT NULL,
  organization ID int NOT NULL,
 FOREIGN KEY (organization ID) REFERENCES
Organization (organization ID) ON DELETE CASCADE,
  PRIMARY KEY (Doctor ID)
);
#table 4
CREATE TABLE Patient (
    Patient ID int NOT NULL,
    organ req varchar(20) NOT NULL,
    reason of procurement varchar(20),
    Doctor ID int NOT NULL,
```

```
User ID int NOT NULL,
    FOREIGN KEY (User ID) REFERENCES User (User ID) ON
DELETE CASCADE,
    FOREIGN KEY(Doctor ID) REFERENCES
Doctor (Doctor ID) ON DELETE CASCADE,
    PRIMARY KEY (Patient Id, organ req)
);
#table 5
CREATE TABLE Donor (
  Donor ID int NOT NULL,
 organ donated varchar(20) NOT NULL,
 reason of donation varchar(20),
 Organization ID int NOT NULL,
 User ID int NOT NULL,
  FOREIGN KEY (User ID) REFERENCES User (User ID) ON
DELETE CASCADE,
  FOREIGN KEY (Organization ID) REFERENCES
Organization (Organization ID) ON DELETE CASCADE,
  PRIMARY KEY (Donor ID, organ donated)
);
#table 6
CREATE TABLE Organ available (
 Organ ID int NOT NULL AUTO INCREMENT,
 Organ name varchar(20) NOT NULL,
 Donor ID int NOT NULL,
 FOREIGN KEY (Donor ID) REFERENCES Donor (Donor ID) ON
DELETE CASCADE,
  PRIMARY KEY (Organ ID)
);
```

### Populating the Database

```
insert into Organization values
(1, 'Organization-1','New Delhi',1),
(2, 'Organization-2','Mumbai',0),
(3, 'Organization-3','Kolkata',0),
(4, 'Organization-4','Kolkata',1),
(5, 'Organization-5','Ahmedabad',1),
(6, 'Organization-6','Kolkata',0),
(7, 'Organization-7','Kolkata',0),
(8, 'Organization-8','Ahmedabad',0),
(9, 'Organization-9','Kolkata',1),
(10, 'Organization-10','Ahmedabad',1),
(11, 'Organization-11','Ahmedabad',1),
(12, 'Organization-12','Mumbai',0),
```

```
(13, 'Organization-13', 'Kolkata', 0),
(14, 'Organization-14', 'Ahmedabad', 1),
(15, 'Organization-15', 'Ahmedabad', 0);
insert into Doctor values
(1, 'Doctor-1', 12),
(2, 'Doctor-2', 10),
(3, 'Doctor-3', 1),
(4, 'Doctor-4', 6),
(5, 'Doctor-5', 11),
(6, 'Doctor-6', 9),
(7, 'Doctor-7', 5),
(8, 'Doctor-8', 4),
(9, 'Doctor-9', 7),
(10, 'Doctor-10', 3),
(11, 'Doctor-11', 8),
(12, 'Doctor-12', 2),
(13, 'Doctor-13', 13),
(14, 'Doctor-14', 15),
(15, 'Doctor-15', 14);
insert into User values
( 1
,'Name-1','1978-8-21',1,'NIL','Street-1','New
Delhi', 'Delhi', '1212121212'),
,'Name-2','1975-12-10',0,'NIL','Street-2','Mum
bai', 'Maharashtra', '2121212121'),
,'Name-3','1976-6-4',0,'NIL','Street-3','Mumba
i', 'Maharashtra', '2323232323'),
,'Name-4','1985-10-13',1,'NIL','Street-4','Ahm
edabad', 'Gujarat', '3232323232'),
,'Name-5','1983-10-12',1,'NIL','Street-5','Kol
kata','West Bengal', '3434343434'),
(6
,'Name-6','1977-1-18',1,'NIL','Street-6','Kolk
ata','West Bengal', '4343434343'),
( 7
,'Name-7','1976-2-26',0,'NIL','Street-7','New
Delhi', 'Delhi', '4545454545'),
(8
,'Name-8','1973-4-12',1,'NIL','Street-8','Mumb
ai', 'Maharashtra', '5454545454'),
(9
```

```
,'Name-9','1976-11-1',0,'NIL','Street-9','Mumb
ai', 'Maharashtra', '5656565656'),
,'Name-10','1978-11-18',1,'NIL','Street-10','N
ew Delhi', 'Delhi', '6565656565'),
,'Name-11','1975-1-6',1,'NIL','Street-11','Mum
bai', 'Maharashtra', '6767676767'),
( 12
,'Name-12','1983-11-1',1,'NIL','Street-12','Mu
mbai', 'Maharashtra', '7676767676'),
,'Name-13','1983-1-9',1,'NIL','Street-13','New
Delhi', 'Delhi', '7878787878'),
,'Name-14','1975-10-12',1,'NIL','Street-14','M
umbai', 'Maharashtra', '8787878787'),
,'Name-15','1977-9-23',0,'NIL','Street-15','Ah
medabad', 'Gujarat', '8989898989');
insert into Patient values
(1, 'Heart', 'Reason-1', 3, 12),
(2, 'Kidney', 'Reason-2', 2, 13),
(3, 'Pancreas', 'Reason-3', 7, 8),
(4, 'Kidney', 'Reason-4', 8, 7),
(5, 'Heart', 'Reason-5', 4, 11),
(6, 'Lung', 'Reason-6', 1, 14),
(7, 'Intestine', 'Reason-7', 10, 5),
(8, 'Intestine', 'Reason-8', 12, 3),
(9, 'Lung', 'Reason-9', 11, 4),
(10, 'Kidney', 'Reason-13', 6, 9),
(11, 'Kidney', 'Reason-11', 9, 6),
(12, 'Pancreas', 'Reason-12', 5, 10),
(13, 'Intestine', 'Reason-13', 13, 2),
(14, 'Heart', 'Reason-14', 14, 1),
(15, 'Kidney', 'Reason-15', 15, 15);
insert into Donor values
(1, 'Heart', 'Reason-1', 7, 8),
(2, 'Pancreas', 'Reason-2', 9, 6),
(3, 'Pancreas', 'Reason-3', 1, 14),
(4, 'Intestine', 'Reason-4', 6, 9),
(5, 'Kidney', 'Reason-5', 8, 7),
(6, 'Pancreas', 'Reason-6', 2, 13),
(7, 'Kidney', 'Reason-7', 5, 10),
(8, 'Kidney', 'Reason-8', 3, 12),
```

```
(9, 'Heart', 'Reason-9', 15, 15),
(10, 'Heart', 'Reason-10', 4, 11),
(11, 'Kidney', 'Reason-11', 11, 4),
(12, 'Pancreas', 'Reason-12', 4, 12),
(13, 'Pancreas', 'Reason-13', 12, 3),
(14, 'Pancreas', 'Reason-14', 10, 5),
(15, 'Heart', 'Reason-15', 5, 4),
(16, 'Intestine', 'Reason-16', 14, 1),
(17, 'Intestine', 'Reason-17', 13, 2),
(18, 'Intestine', 'Reason-18', 2, 7),
(19, 'Pancreas', 'Reason-19', 9, 9),
(20, 'Intestine', 'Reason-20', 1, 2);
insert into organ available values
(1, 'Heart', 9),
(2, 'Pancreas', 4),
(3, 'Pancreas', 5),
(4, 'Intestine', 6),
(5, 'Kidney', 12),
(6, 'Pancreas', 8),
(7, 'Kidney', 3),
(8, 'Kidney', 11),
(9, 'Heart', 1),
(10, 'Heart', 10),
(11, 'Kidney', 13),
(12, 'Pancreas', 2),
(13, 'Pancreas', 7),
(14, 'Pancreas', 14),
(15, 'Heart', 15),
(16, 'Intestine', 3),
(17, 'Intestine', 9),
(18, 'Intestine', 7),
(19, 'Pancreas', 6);
```

#### Join Queries

Showcase at least 4 join queries

Write the query in English Language, Show the equivalent SQL statement and also a screenshot of the query and the results

Join of  $Organ\_available$  and Donor, so as to get all the organs donated by a donor along with  $organ\_id$ 

select Donor.Donor\_ID, Donor.organ\_donated, Donor.reason\_of\_donation,
organ\_available.Organ\_ID from donor inner join organ\_available on
Donor.Donor\_id = organ\_available.donor\_id;

Join to find the location where the donor has donated the organ.

select organization.Organization\_id, organization.organization\_name,
organization.location, organization.government\_approved,
donor.organ\_donated, donor.reason\_of\_donation from organization inner
join donor on donor.organization id = organization.organization id;

anization_id	organization_name	location	government_approved	organ_donated	reason_of_donation	
	Organization-7	Kolkata	   0	Heart	Reason-1	
9	Organization-9	Kolkata	j 1	Pancreas	Reason-2	
1	Organization-1	New Delhi	j 1	Pancreas	Reason-3	
6	Organization-6	Kolkata	i ø	Intestine	Reason-4	
	Organization-8	Ahmedabad	i ø	Kidney	Reason-5	
	Organization-2	Mumbai	j e	Pancreas	Reason-6	
	Organization-5	Ahmedabad	1	Kidney	Reason-7	
	Organization-3	Kolkata	0	Kidney	Reason-8	
15	Organization-15	Ahmedabad	į e	Heart	Reason-9	
	Organization-4	Kolkata	1	Heart	Reason-10	
11	Organization-11	Ahmedabad	1	Kidney	Reason-11	
	Organization-4	Kolkata	1	Pancreas	Reason-12	
12	Organization-12	Mumbai	0	Pancreas	Reason-13	
10	Organization-10	Ahmedabad	1	Pancreas	Reason-14	
	Organization-5	Ahmedabad	1	Heart	Reason-15	
14	Organization-14	Ahmedabad	1	Intestine	Reason-16	
13	Organization-13	Kolkata	0	Intestine	Reason-17	
	Organization-2	Mumbai	0	Intestine	Reason-18	
	Organization-9	Kolkata	1	Pancreas	Reason-19	
	Organization-1	New Delhi	1	Intestine	Reason-20	

Aggregate Functions

Showcase at least 4 Aggregate function queries
Write the query in English Language, Show the equivalent SQL statement
and also a screenshot of the query and the results
To get the count of number of users that have medical insurance:

select count(medical\_insurance) from user where medical\_insurance =
1;

To select the organ which has maximum number of available units for donation  $\ensuremath{\mathsf{S}}$ 

select max(y.num), y.organ\_name from (select count(\*) as num ,
organ name from organ available group by organ name)y;

## Set Operations

Showcase at least 4 Set Operations queries
Write the query in English Language, Show the equivalent SQL statement
and also a screenshot of the query and the results
List of Donors and Patients

select \* from patient union all select \* from donor;

ariaDB [dbms <sub>.</sub>	_proj_final]:	select * from patient ι	union all se	lect * from
	<del>+</del>		<del> </del>	+
Patient_ID	organ_req	reason_of_procurement	Doctor_ID	User_ID
	<del>+</del>		+	+
1	Heart	Reason-1	3	12
2	Kidney	Reason-2	2	13
3	Pancreas	Reason-3	7	8
4	Kidney	Reason-4	8	7
5	Heart	Reason-5	4	11
6	Lung	Reason-6	1	14
7	Intestine	Reason-7	10	5
8	Intestine	Reason-8	12	3
9	Lung	Reason-9	11	4
10	Kidney	Reason-13	6	9
11	Kidney	Reason-11	9	6
12	Pancreas	Reason-12	5	10
13	Intestine	Reason-13	13	2
14	Heart	Reason-14	14	1
15	Kidney	Reason-15	15	15
1	Heart	Reason-1	7	8
2	Pancreas	Reason-2	9	6
3	Pancreas	Reason-3	1	14
4	Intestine	Reason-4	6	9
5	Kidney	Reason-5	8	7
6	Pancreas	Reason-6	2	13
7	Kidney	Reason-7	5	10
8	Kidney	Reason-8	3	12
9	Heart	Reason-9	15	15
10	Heart	Reason-10	4	11
11	Kidney	Reason-11	11	4
12	Pancreas	Reason-12	4	12
13	Pancreas	Reason-13	12	3
14	Pancreas	Reason-14	10	5
15	Heart	Reason-15	5	4
16	Intestine	Reason-16	14	1
17	Intestine	Reason-17	13	2
18	Intestine	Reason-18	2	7
19	Pancreas	Reason-19	9	9
20	Intestine	Reason-20	1	2
	+		+	+

select \* from doctor union all select \* from organ\_available;

```
MariaDB [dbms_proj_final]> select * from doctor union all select * from organ_available;
 Doctor_ID | Doctor_Name | organization_ID |
         1 | Doctor-1
         2
             Doctor-2
                                         10
         3 | Doctor-3
                                          1
             Doctor-4
             Doctor-5
             Doctor-6
                                          5
             Doctor-7
             Doctor-8
                                          7
3
             Doctor-9
        10
             Doctor-10
        11
12
                                         8
2
13
             Doctor-11
             Doctor-12
             Doctor-13
        14
             Doctor-14
                                         15
                                         14
             Doctor-15
             Heart
             Pancreas
             Pancreas
                                          5
             Intestine
                                          6
             Kidney
             Pancreas
                                          8
             Kidney
             Kidney
             Heart
             Heart
        11
12
                                         13
             Kidney
                                          2
7
             Pancreas
             Pancreas
             Pancreas
                                         15
3
        15
             Heart
             Intestine
        17
             Intestine
                                          9
        18
             Intestine
        19
                                          6
             Pancreas
```

#### Functions and Procedures

Create a Function and Procedure. State the objective of the function  $\slash$  Procedure. Run and display the results.

```
Function to find the age of each user:
DELIMITER $$

CREATE FUNCTION age_of_user1(Date_of_Birth DATE) RETURNS varchar(200)
DETERMINISTIC

BEGIN

    DECLARE currentDate DATE;
    Select current_date() into currentDate;

-- Return currentDate - Date_of_Birth;
    Return DATE_FORMAT(FROM_DAYS(DATEDIFF(now(), Date_of_Birth)),
'%Y')+0;
END
```

```
DELIMITER ;
```

```
Select age_of_user1(Date_of_Birth) as 'age' from user;
```

```
Procedure to get the location of organs donated

DELIMITER //

CREATE PROCEDURE get_loc()

BEGIN

SELECT donor.organ_donated, organization.organization_name, organization.location FROM donor INNER JOIN organization ON donor.organization_id=organization.organization_id;

END;

//

DELIMITER;

CALL get_loc()
```

```
organ_donated | organization_name
                                      location
                                       New Delhi
                  Organization-1
 Pancreas
                  Organization-2
 Pancreas
                                       Mumbai
 Intestine
                  Organization-2
                                       Mumbai
 Kidney
                  Organization-3
                                       Kolkata
 Pancreas
                  Organization-4
                                       Kolkata
 Kidney
                  Organization-5
                                       Ahmedabad
                  Organization-7
                                       Kolkata
 Heart
                  Organization-8
 Kidney
                                       Ahmedabad
 Pancreas
                  Organization-10
                                       Ahmedabad
 Kidney
                  Organization-11
                                       Ahmedabad
10 rows in set (0.003 sec)
MariaDB [dbms proj final]>
```

### Triggers and Cursors

Create a Trigger and a Cursor. State the objective. Run and display the results.

Trigger to get a insert name of users with medical insurance into another table.

```
delimiter |
CREATE TRIGGER med_ins BEFORE INSERT ON user
  FOR EACH ROW
  BEGIN
    IF NEW.medical_insurance = 1 THEN
        INSERT INTO med_insurance SET name = NEW.name;
  END IF;

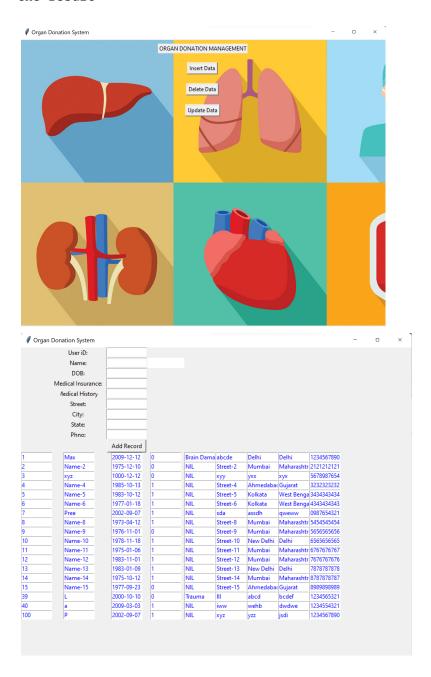
END;
|
delimiter;
```

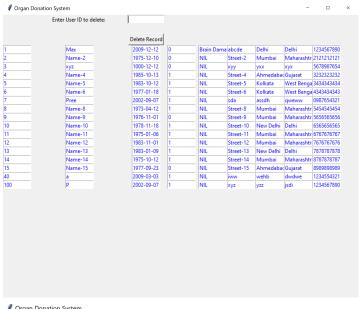
MariaDB [dbms\_proj\_final]> source C:\Users\preethikaajay\Documents\PES\DBMS\Project\_final\trigger.sql Query OK, 0 rows affected (0.020 sec)

## Developing a Frontend

The frontend should support

1. Addition, Modification and Deletion of records from any chosen table 2. There should be an window to accept and run any SQL statement and display the result





Organ D	Donation System						-	
	Enter User ID to update:							
Name:								
DOB:								
Medical Insurance:								
/ledical History								
Street:								
	City:							
	State:							
	Phno:							
	Fillio.							
		Update Record						
	blue	9999-10-10	0	NIL	sdwd		wer	1234565432
	Name-2	1975-12-10	0	NIL	Street-2		Maharashtr	
	xyz	1000-12-12	0	NIL	xyy		хух	5678987654
	Name-4	1985-10-13	1	NIL	Street-4	Ahmedabad		3232323232
	Name-5	1983-10-12	1	NIL	Street-5	Kolkata	West Benga	3434343434
	Name-6	1977-01-18	1	NIL	Street-6	Kolkata	West Benga	4343434343
	Pree	2002-09-07	1	NIL	sda	assdh	qweww	0987654321
	Name-8	1973-04-12	1	NIL	Street-8	Mumbai	Maharashtr	5454545454
	Name-9	1976-11-01	0	NIL	Street-9	Mumbai	Maharashtr	5656565656
0	Name-10	1978-11-18	1	NIL	Street-10	New Delhi	Delhi	6565656565
1	Name-11	1975-01-06	1	NIL	Street-11	Mumbai	Maharashtr	6767676767
2	Name-12	1983-11-01	1	NIL	Street-12	Mumbai	Maharashtr	7676767676
3	Name-13	1983-01-09	1	NIL	Street-13	New Delhi	Delhi	7878787878
4	Name-14	1975-10-12	1	NIL	Street-14	Mumbai	Maharashtr	8787878787
5	Name-15	1977-09-23	0	NIL	Street-15	Ahmedabad	Gujarat	8989898989
0	a	2009-03-03	1	NIL	iww	wehb	dwdwe	1234554321
00	P	2002-09-07	1	NIL	xyz	yzz	jsdi	1234567890