DATABASE MANAGEMENT SYSTEM PROJECT

TOPIC: BLOOD DONATION SYSTEM

SUBMITTED BY:

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Abstract

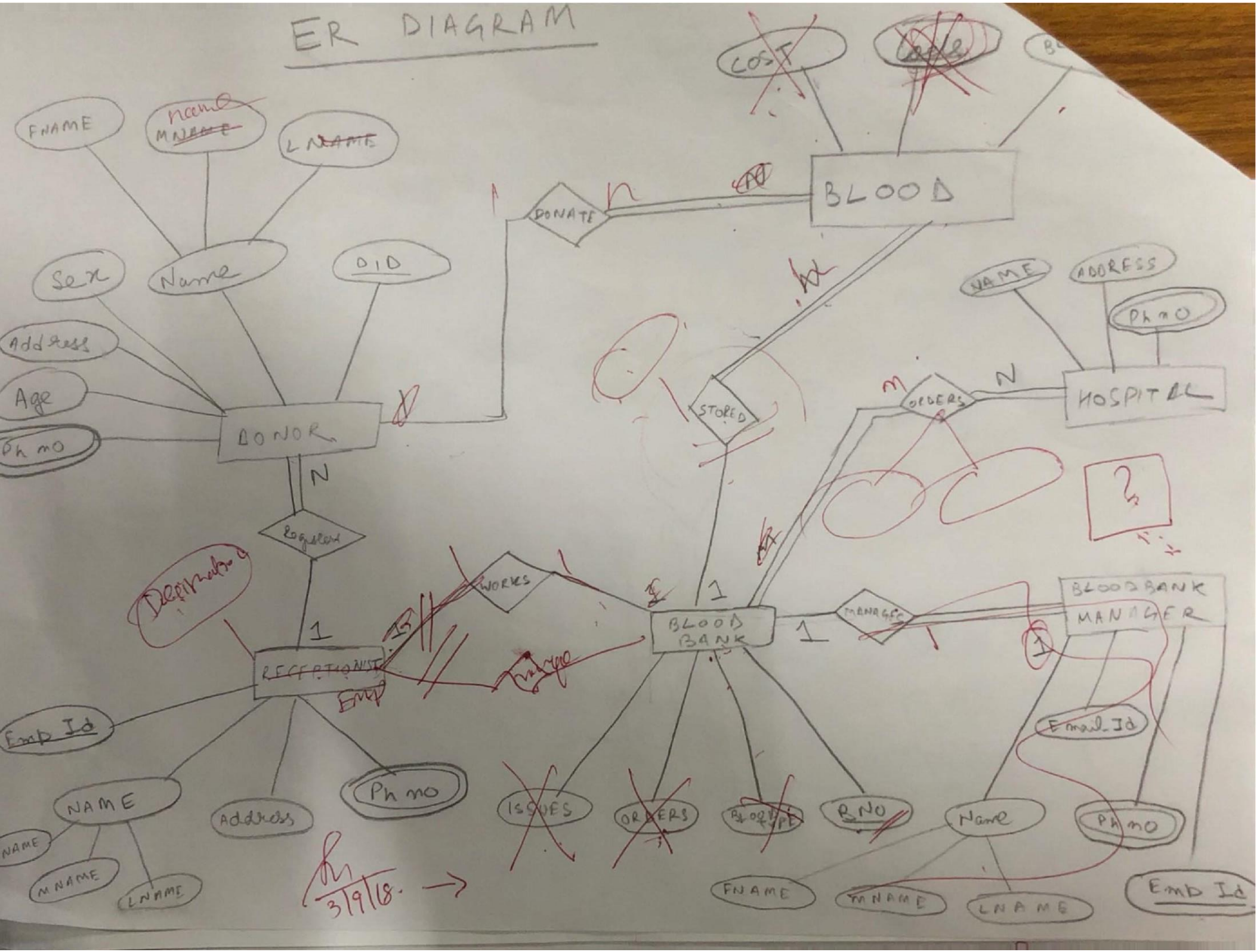
The Purpose of "Blood bank Management System" is to automate the existing manual System by the help of Computerised equipments and full-fledged computer Software, fullfilling their requirements, so that their valuable data can be stored for a longer Period with easy accessing and manipulation of the same.

This System can lead to error free, secure, reliable, and fast management. It can assist the user to concentrate on their other activities rather than on the record keeping. Thus it will help organisation in better utilization of resources. The organisation can maintain computerized records without redundant entries. That means that one need not be distracted by information that is not relevant, while being able to reach the information.

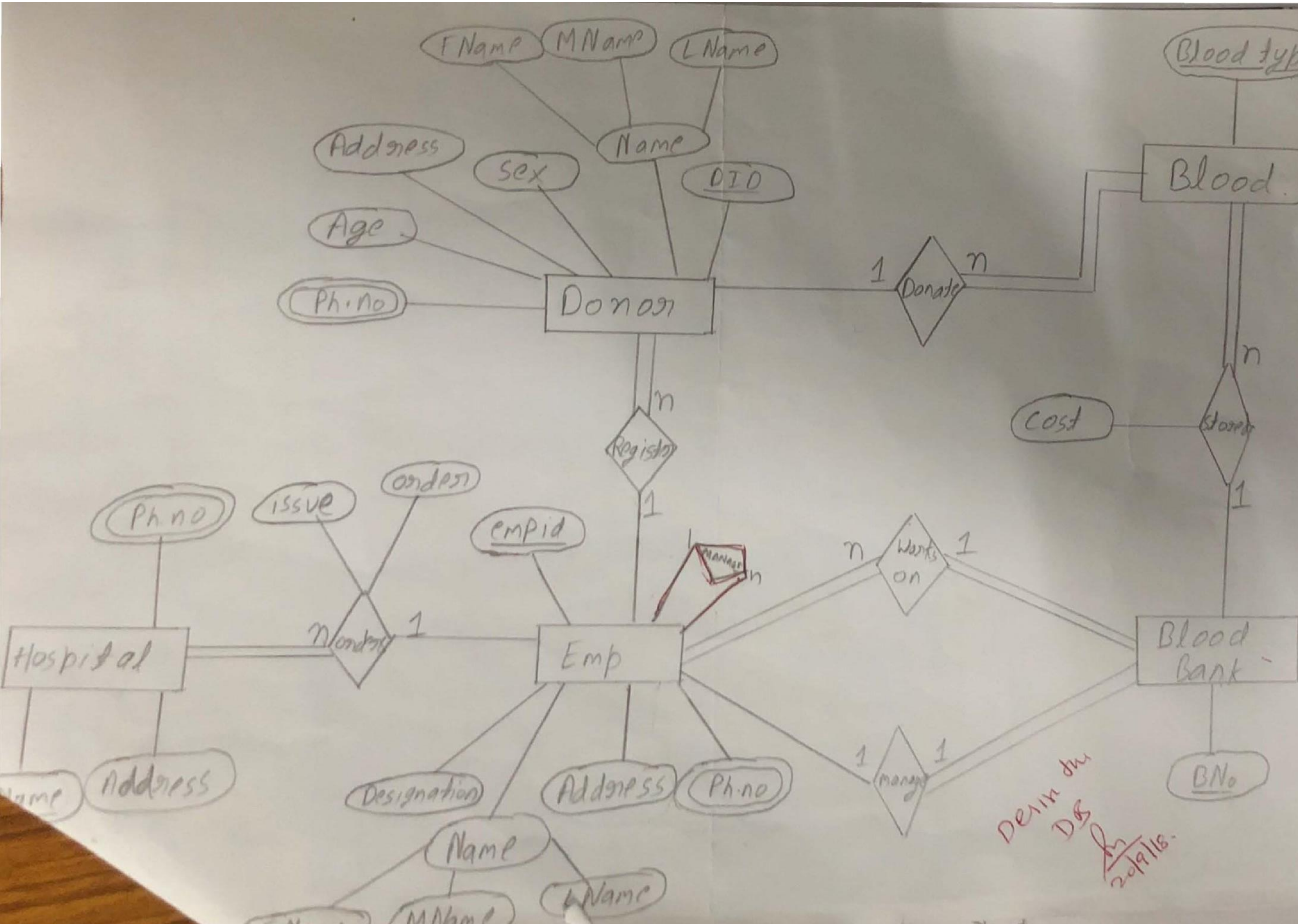
A blood bank stores blood of various blood groups. Many donors donate blood, each of different blood groups/type. A donor may donate blood more than once and he is identified by a donor id (DID), name, sex, age, address and phone number. The blood

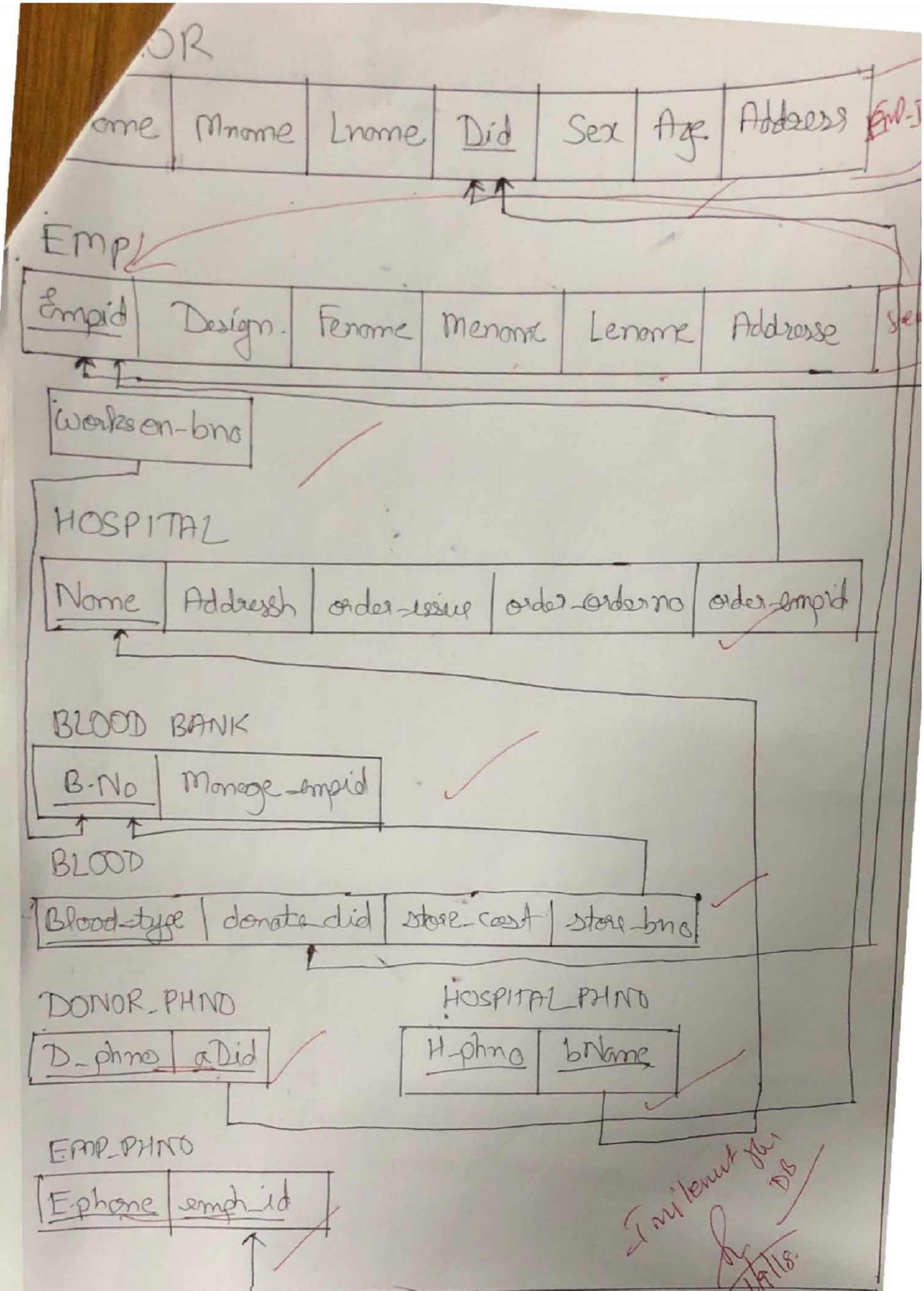
donated by donor is characterized by the blood
Bcode and cost. Before each donor donates his
He is required to register himself with the receptionist
who works at blood bank. The receptionist is identified
by employee_id, name. address and phone number.
The blood banks recieves orders for blood from many
hospitals for emergency purposes and other surgical
requirments. And each blood bank issues the same
required blood type. Each blood bank has its own
blood bank number (BNO), issues orders and blood
types stored. The blood bank is managed who by the
blood bank manager who is identified by employee id,
name, email_id and phone number. He is responsible
for proper management of the blood bank. The
hospitals are identified by name, address and phone
number.

ER DIAGRAM


FNAME
MNAME
LNAME
Sex
Name
DID
Address
Age
Ph no
DONOR
DONATE
BLOOD
COST
STORED
ORDERS
HOSPITAL
NAME
ADDRESS
Ph no
N
Register
Designation
WORKS
BLOOD BANK
MANAGES
BLOOD BANK MANAGER
RECEPTIONIST
Emp Id
NAME
Address
Ph no
ISSUES
ORDERS
R_NO
Name
Ph no
Email_Id
Emp Id
FNAME
MNAME
LNAME
3/9/18.

ER DIAGRAM


FName
MName
LName
Name
Address
Sex
DID
Age
Ph.no
Donor
Donate
1
n
Blood.
Blood type
n
Stores
Cost
1
Blood Bank
BNo
Register
n
1
orders
issue
order
Ph.no
Hospital
Address
Name
n
1
empid
Emp
Manage
1
n
Works on
n
1
manage
1
1
Designation
Address
Ph.no
Name
FName
MName
LName
Derin dm
DB
20/9/18.


OR
ame
Mname
Lname
Did
Sex
Age
Address
EMP
Empid
Design.
Fename
Menam
Lename
Addresse
Works on-bno
HOSPITAL
Name
Addressh
order-issue
order-orderno
order-empid
BLOOD BANK
B-No
Manage-empid
BLOOD
Blood-type
donate-did
store-cost
store-bno
DONOR-PHNO
D-phno
aDid
HOSPITAL-PHNO
H-phno
bName
EMP-PHNO
E-phone
emph-id
Invitement for
DB
by
Hall.

1. Create and insert

```
SQL> create table donor(
2  did number(10) not null primary key,
3  fname varchar(10),
4  mname varchar(10),
5  lname varchar(10),
6  sex varchar(1),
7  age number(3),
8  address varchar(50),
9  phno number(10));
```

```
SQL> create table emp(
2  empid number(10) not null primary key,
3  design varchar(10),
4  fname varchar(10),
5  mname varchar(10),
6  lname varchar(10),
7  address varchar(40),
8  sex varchar(1)
9  );
```

```
SQL> create table hospital(
2  hosp_name varchar(20) not null primary key,
3  address_h varchar(40),
4  order_issue number(8),
5  order_orderno number(8)
6  );
```

```
SQL> create table blood_bank(
2  B_no number(5) not null primary key
3  );
```

```
SQL> create table blood(
2  blood_type varchar(3) not null primary key,
```

```
3  donate_did number(10),
4  store_cost number(10),
5  store_bno number(5)
6  );
```

```
SQL> create table donor_phno(
2  D_phno number(5),
3  aDid number(10));
```

```
SQL> create table hospital_phno(
2  H_phno number(10),
3  bName varchar(20)
4  );
```

```
SQL> create table emp_phno(
2  E_phone number(10),
3  emph_id number(10)
4  );
```

2. Alter, Delete and update

```
SQL> alter table donor drop column phno;

Table altered.
```

```
SQL> alter table donor add donorempid number(10);

Table altered.

SQL> alter table donor add foreign key(donorempid) references emp(empid);

Table altered.

SQL>  alter table donor_phno add constraint primary_key primary key(D_phno,aDid);
```

Table altered.

SQL> alter table donor_phno add foreign key(aDid) references donor(did);

Table altered.

SQL> alter table emp add foreign key(workson_bno) references blood_bank(B_no);

Table altered.

SQL> insert into donor values(22,'Birendra','Singh','Mandal','M',23,'C 429 Sector 10');

1 row created.

SQL> insert into donor values(102,'Sumana','','Bhatt','F',19,'Moti Bazar,Chandni Chowk');

1 row created.

SQL> insert into donor values(255,'Srilekha','Kumar','Som','F',35,'Dak Bhawan, Sansad Marg, Connaught Place');

1 row created.

SQL> insert into donor values(309,'Chetan','Chahal','Mishra','M',47,'65, Prabha Apartments, UrvashiGunj');

1 row created.

SQL> insert into donor values(742,'Anand','','Sharma','M',33,'2, Jantar Mantar Road, New Delhi');

1 row created.

```
SQL> insert into emp values(102,'Manager','K.R.','Ashok','Arjunan','401, Brahmaputra
Apartments','M');

1 row created.
SQL> insert into emp values(117,'','Shri',' Ramdas ','Athawale','11, Safdarjung Road','M');

1 row created.

SQL> insert into emp values(75,'','Pratap','Singh','Bajwa','AB-97, Shahjahan Road,','M');

1 row created.

SQL> insert into emp values(87,'','Ritabrata','','Banerjee','102-104, South Avenue,','F');

1 row created.


SQL> insert into emp values(145,'','Balwinder','Singh','Bhunder','129-131,M.P. Flats, North
Avenue','M');

1 row created.




SQL> insert into blood_bank values(5,102);

1 row created.

SQL> insert into blood_bank values(12,117);

1 row created.

SQL> insert into blood_bank values(34,75);

1 row created.

SQL> insert into blood_bank values(47,87);

1 row created.

SQL> insert into blood_bank values(72,145);

1 row created.
```

```
SQL> insert into hospital values( 'Mohinder Hospital', 'C-5,Green Park
Extension,Delhi110016',110086,2255,102);
1 row created.


SQL> insert into hospital values( 'Aggarwal Medicals', 'C-3/11,Rana Pratap
Bagh,Delhi110045',1005,3587,117);

1 row created.
SQL> insert into hospital values( 'Bhagat Hospital', 'D-2/48-49,Janakpuri,Delhi110085',19086,4422,75);

1 row created.
SQL> insert into hospital values( 'Jeevan Hospital', 'T-43,Main Road, D-Block,Delhi-
110005',7254,2225,87);

1 row created.

SQL> insert into hospital values( 'Pushpanjali Hospital', '14,Opp. Anand
Vihar,Delhi110092',8855,3666,145);

1 row created.


SQL> insert into blood values('AB+',22,1100,5);

1 row created.

SQL> insert into blood values('O-',102,1250,12);

1 row created.
SQL> insert into blood values('AB-',255,950,34);

1 row created.

SQL> insert into blood values('O+',309,1350,47);

1 row created.

SQL> insert into blood values('B+',742,1050,72);

1 row created.

SQL> alter table donor_phno modify D_phno number(10);

Table altered.
```

```
SQL> insert into donor_phno values(8965637458,22);

1 row created.

SQL> insert into donor_phno values(7552463875,102);

1 row created.

SQL> insert into donor_phno values(7556456546,255);

1 row created.

SQL> insert into donor_phno values(8946312314,309);

1 row created.

SQL> insert into donor_phno values(9785029477,742);

1 row created.



SQL> insert into hospital_phno values(26149422,'Mohinder Hospital');

1 row created.

SQL> insert into hospital_phno valuesg
  2
SQL> insert into hospital_phno values(22448008,'Aggarwal Medicals');

1 row created.

SQL> insert into hospital_phno values(28525502,'Bhagat Hospital');

1 row created.

SQL> insert into hospital_phno values(26107133,'Jeevan Hospital');

1 row created.

SQL> insert into hospital_phno values(25351658,'Pushpanjali Hospital');

1 row created.



SQL> insert into emp_phno values(9743531286,102);
```

1 row created.

SQL> insert into emp_phno values(9873908771,117);

1 row created.

SQL> insert into emp_phno values(9874205876,75);

1 row created.

SQL> insert into emp_phno values(9872829991,87);

1 row created.
SQL> insert into emp_phno values(8076897736,145);

1 row created.

SQL> update emp set workson_bno=5 where empid=102;

1 row updated.

SQL> update emp set workson_bno=12 where empid=117;

1 row updated.

SQL> update emp set workson_bno=34 where empid=75;

1 row updated.

SQL> update emp set workson_bno=47 where empid=87;

1 row updated.

SQL> update emp set workson_bno=72 where empid=145;

1 row updated.

SQL> update donor set donorempid=102 where did=22;

1 row updated.

SQL> update donor set donorempid=117 where did=102;

1 row updated.

```
SQL> update donor set donorempid=75 where did=255;

1 row updated.

SQL> update donor set donorempid=87 where did=309;

1 row updated.

SQL> update donor set donorempid=145 where did=742;

1 row updated.
```

3. Primary key and foreign key constraint

```
SQL> select * from donor;

      DID FNAME      MNAME      LNAME      S        AGE
---------- ---------- ---------- ---------- - ----------
ADDRESS                                            DONOREMPID
-------------------------------------------------- ----------
       22 Birendra   Singh      Mandal     M         23
C 429 Sector 10                                         102
      102 Sumana               Bhatt      F         19
Moti Bazar,Chandni Chowk                                117

      255 Srilekha   Kumar      Som        F         35
Dak Bhawan, Sansad Marg, Connaught Place                 75


      DID FNAME      MNAME      LNAME      S        AGE
---------- ---------- ---------- ---------- - ----------
ADDRESS                                            DONOREMPID
-------------------------------------------------- ----------
309 Chetan     Chahal     Mishra     M         47
65, Prabha Apartments, UrvashiGunj                       87

      742 Anand                 Sharma     M         33
2, Jantar Mantar Road, New Delhi                        145
```

SQL> select * from emp;

```
    EMPID DESIGN     FNAME      MNAME      LNAME
---------- ---------- ---------- ---------- ----------
ADDRESS                                    S WORKSON_BNO
---------------------------------------- - -----------
102 Manager    K.R.       Ashok      Arjunan
401, Brahmaputra Apartments                M          5
      117          Shri       Ramdas     Athawale
11, Safdarjung Road                        M         12

       75          Pratap     Singh      Bajwa
AB-97, Shahjahan Road,                     M         34


    EMPID DESIGN     FNAME      MNAME      LNAME
---------- ---------- ---------- ---------- ----------
ADDRESS                                    S WORKSON_BNO
---------------------------------------- - -----------
       87          Ritabrata            Banerjee
102-104, South Avenue,                     F         47

      145          Balwinder  Singh      Bhunder
129-131,M.P. Flats, North Avenue           M         72
```

SQL> select * from hospital;

```
HOSP_NAME          ADDRESS_H                              ORDER_ISSUE
------------------ -------------------------------------- -----------
ORDER_ORDERNO ORDER_EMPID
------------- -----------
Mohinder Hospital    C-5,Green Park Extension,Delhi-110016        110086
        2255        102

Aggarwal Medicals    C-3/11,Rana Pratap Bagh,Delhi-110045          1005
        3587        117

Bhagat Hospital      D-2/48-49,Janakpuri,Delhi-110085             19086
        4422         75


HOSP_NAME          ADDRESS_H                              ORDER_ISSUE
------------------ -------------------------------------- -----------
ORDER_ORDERNO ORDER_EMPID
```

---------- ----------
Jeevan Hospital T-43,Main Road, D-Block,Delhi-110005 7254
2225 87

Pushpanjali Hospital 14,Opp. Anand Vihar,Delhi-110092 8855
3666 145

SQL> select * from blood_bank;

B_NO MANAGE_EMPID
---------- ----------
5 102
12 117
34 75
47 87
72 145

SQL> select * from blood;

BLO DONATE_DID STORE_COST STORE_BNO
--- ---------- ---------- ---------- AB+
22 1100 5
O- 102 1250 12
AB- 255 950 34
O+ 309 1350 47
B+ 742 1050 72

SQL> select * from donor_phno;

D_PHNO ADID
---------- ---------- 7552463875
102
7556456546 255
8946312314 309
8965637458 22
9785029477 742

```
   H_PHNO BNAME
---------- --------------------
  22448008 Aggarwal Medicals
  25351658 Pushpanjali Hospital
  26107133 Jeevan Hospital
  26149422 Mohinder Hospital
  28525502 Bhagat Hospital
```

```
SQL> select * from emp_phno;

   E_PHONE    EMPH_ID
---------- ---------- 8076897736
145 9743531286        102
9872829991         87
9873908771        117
9874205876         75
```

4. Select with Where clause

```
SQL> select fname,sex from donor where did=255;

FNAME      S
---------- - Srilekha   F
```

```
SQL> select fname,sex,address from emp where empid=75;

FNAME      S ADDRESS
---------- - ---------------------------------------- Pratap
M AB-97, Shahjahan Road,
```

```
SQL> select hosp_name,order_issue from hospital where order_empid=117;

HOSP_NAME          ORDER_ISSUE
------------------- -----------
Aggarwal Medicals          1005
```

```
SQL> select blood_type from blood where donate_did=309;
```

```
BLO
---
O+


SQL> select B_no from blood_bank where manage_empid=117;

     B_NO
----------
12


SQL> select D_phno from donor_phno where ADid=309;

   D_PHNO
----------
8946312314


SQL> select H_phno from hospital_phno where BName='Jeevan Hospital';

   H_PHNO
----------
 26107133



SQL> select E_phone from emp_phno where emph_id=117;

  E_PHONE
----------
9873908771
```

5. Any five comparison operators

```
SQL> select * from donor where did>=300;

      DID FNAME      MNAME      LNAME      S        AGE
---------- ---------- ---------- ---------- - ----------
ADDRESS                                       DONOREMPID
-------------------------------------------------- ----------
309 Chetan     Chahal     Mishra     M         47
65, Prabha Apartments, UrvashiGunj                     87

      742 Anand              Sharma     M         33
```

2, Jantar Mantar Road, New Delhi 145

SQL> select * from hospital where order_issue<=8000;

HOSP_NAME ADDRESS_H ORDER_ISSUE
---------- ---------- ----------
ORDER_ORDERNO ORDER_EMPID
---------- ----------
Aggarwal Medicals C-3/11,Rana Pratap Bagh,Delhi-110045 1005
3587 117

Jeevan Hospital T-43,Main Road, D-Block,Delhi-110005 7254
2225 87

SQL> select * from emp where empid between 100 and 140;

EMPID DESIGN FNAME MNAME LNAME
---------- ---------- ---------- ---------- ----------
ADDRESS S WORKSON_BNO
---------- - ----------
102 Manager K.R. Ashok Arjunan
401, Brahmaputra Apartments M 5

117 Shri Ramdas Athawale
11, Safdarjung Road M 12

SQL> select * from donor where mname is not null;

DID FNAME MNAME LNAME S AGE
---------- ---------- ---------- ---------- - ----------
ADDRESS DONOREMPID
---------- ----------
22 Birendra Singh Mandal M 23
C 429 Sector 10 102
255 Srilekha Kumar Som F 35
Dak Bhawan, Sansad Marg, Connaught Place 75

309 Chetan Chahal Mishra M 47

```
SQL> select * from blood where store_cost in(1100,1050);

BLO DONATE_DID STORE_COST  STORE_BNO
--- ---------- ---------- ---------- AB+
22       1100          5
B+         742       1050         72
```

6. Any five Aggregate functions

```
SQL> select avg(store_cost) from blood;

AVG(STORE_COST)
---------------
1140

SQL> select min(store_cost) from blood;

MIN(STORE_COST)
---------------
950

SQL> select max(store_cost) from blood;

MAX(STORE_COST)
---------------
1350

SQL> select count(blood_type) from blood;

COUNT(BLOOD_TYPE)
-----------------
                5

SQL> select stddev(store_cost) from blood;

STDDEV(STORE_COST)
------------------
       159.687194
```

7. Any five numeric functions

SQL

SQL> select cos(store_cost) from blood;

```
COS(STORE_COST)
---------------       .90365348
    .938036543
    .325724305
    .633412512
    .759629102

SQL> select abs(store_cost) from blood;

ABS(STORE_COST)
---------------
         1100
         1250
          950
         1350
         1050



SQL> select sqrt(store_cost) from blood;

SQRT(STORE_COST)
----------------       33.1662479
     35.3553391
       30.82207
     36.7423461
     32.4037035


SQL> select round(store_cost) from blood;

ROUND(STORE_COST)
-----------------
          1100
          1250
           950
          1350
          1050

SQL> select floor(store_cost) from blood;

FLOOR(STORE_COST)
-----------------
          1100
          1250
           950
          1350
          1050

SQL> select sin(store_cost) from blood;
```

```
SIN(STORE_COST)
---------------      .428264391
    -.34653635
    .945464794
    -.77381431
    .650356538
```

8. Any five String Functions

```
SQL> select lower(fname) from emp;

LOWER(FNAM
---------k.r.
shri pratap
ritabrata balwinder

SQL> select reverse(fname) from emp;

REVERSE(FN
---------- .R.K
irhS patarP
atarbatiR
redniwlaB

SQL> select upper(fname) from emp;

UPPER(FNAM
---------- K.R.
SHRI
PRATAP
RITABRATA
BALWINDER

SQL> select length(fname) from emp;
```

LENGTH(FNAME)

4
4
6
9
9

SQL> select ltrim(fname) from emp;

LTRIM(FNAM

K.R. Shri
Pratap
Ritabrata
Balwinder

9. Three queries based on set operators

SQL> select b_no from blood_bank where b_no<=20 union select b_no from blood_bank where b_no>=50;

B_NO

5
12
72

SQL> select b_no from blood_bank where b_no<40 intersect select b_no from blood_bank where b_no>=30;

B_NO

34

SQL> select fname from emp where empid<100 minus select fname from emp where empid>80;

FNAME
--- Pratap

10. Group by and having

SQL> select * from emp order by empid;

```
    EMPID DESIGN     FNAME      MNAME      LNAME
---------- ---------- ---------- ---------- ----------
ADDRESS                                    S WORKSON_BNO
---------------------------------------- - -----------
       75           Pratap     Singh      Bajwa
AB-97, Shahjahan Road,                     M         34

       87           Ritabrata            Banerjee
102-104, South Avenue,                     F         47

      102 Manager    K.R.       Ashok      Arjunan
401, Brahmaputra Apartments                M          5


    EMPID DESIGN     FNAME      MNAME      LNAME
---------- ---------- ---------- ---------- ----------
ADDRESS                                    S WORKSON_BNO
---------------------------------------- - -----------
117          Shri        Ramdas     Athawale
11, Safdarjung Road                        M         12

      145           Balwinder  Singh      Bhunder
129-131,M.P. Flats, North Avenue           M         72
```

11. Sub Queries (3 Queries)

SQL> select fname from emp where empid in (select emph_id from emp_phno where emph_id>100);

FNAME

Balwinder K.R.
Shri

SQL> select e_phone from emp_phno where emph_id < (select empid from emp where workson_bno>70);

  E_PHONE

9743531286
9872829991
9873908771
9874205876

SQL> select fname from donor where did in(select adid from donor_phno where adid<40);

FNAME

Birendra

12. Create 2 views (if possible)

SQL> create or replace view view4 as select fname,lname,sex from donor where age>=21;

View created.

SQL> create or replace view view4 as select fname,lname,sex from donor where age<=21;

View created.

Implementation (Procedural Queries) 1. One PL/SQL block using Cursor

```
SQL> set serveroutput on;
SQL> DECLARE
2    fname1 donor.fname%type;
3    lname1 donor.lname%type;
4    age1 donor.age%type;
5    CURSOR cur_donor is
6    SELECT fname,lname,age from donor;
7    BEGIN
8    OPEN cur_donor;
9    LOOP
10  FETCH cur_donor into fname1,lname1,age1;
11  EXIT WHEN cur_donor%notfound;
12  dbms_output.put_line('First Name:'||fname1 || 'Last Name:'||lname1 ||'And age:'||age1);
13  END LOOP;
14  CLOSE cur_donor;
15  END;
16  /
First Name:BirendraLast Name:MandalAnd age:23
First Name:SumanaLast Name:BhattAnd age:19
First Name:SrilekhaLast Name:SomAnd age:35
First Name:ChetanLast Name:MishraAnd age:47
First Name:AnandLast Name:SharmaAnd age:33

PL/SQL procedure successfully completed.
```

Ghg

2. One PL/SQL block using Procedure

```
SQL> set serveroutput on;
SQL> DECLARE
2    female1 number(3);
3    female2 number(3);
4    resultt number(3);
5    PROCEDURE agefind(x in number, y in number, z out number) is
6    BEGIN
7    IF x>y then
8    z:=x;
9    else
10   z:=y;
11   end if;
12   end;
13   begin
14   select age into female1 from donor where fname='Sumana';
15   select age into female2 from donor where fname='Srilekha';
16   agefind(female1,female2,resultt);
17   dbms_output.put_line('The oldest female donor is ' ||resultt||'years old');
18   END;
19   /
The oldest female donor is 35years old

PL/SQL procedure successfully completed.
```

3. One PL/SQL block using Function

```
SQL> set serveroutput on;
SQL> DECLARE
2    female1 number(3);
3    female2 number(3);
```

```
4   resultt number(3);
5   FUNCTION agefind(x in number, y in number)
6   RETURN number
7   is
8   z number;
9   BEGIN
10  IF x<y then
11  z:=x;
12  else
13  z:=y;
14  end if;
15  return z;
16  end;
17  begin
18  select age into female1 from donor where fname='Sumana';
19  select age into female2 from donor where fname='Srilekha';
20  resultt:=agefind(female1,female2);
21  dbms_output.put_line('The youngest female donor is ' ||resultt||'years old');
22  END;
23  /
The youngest female donor is 19years old

PL/SQL procedure successfully completed.
```

4. One PL/SQL block using Trigger

```
SQL> CREATE OR REPLACE TRIGGER display_age_changes before delete or insert or update on donor
for each row when(NEW.did>0)
2     declare
3     age_diff number;
4     begin
5     age_diff:=:NEW.age-:OLD.age;
6     dbms_output.put_line('Old age: ' || :OLD.age);
7     dbms_output.put_line('New age: ' || :NEW.age);
```

```
8     dbms_output.put_line('age difference: ' || age_diff);
9     END;
10    /
```

Trigger created.