VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Belgaum, Karnataka

DATABASE LABORATORY

LABORATORY MANUAL

16MCA28

II SEMESTER - 2017

Prepared By:

Nagesh B S
Asst. Prof.
Dept. of MCA
RNSIT
Phone:9844032238

Department of MCA

ESTD: 2001

An Institution with a difference

Program 1

Create the following tables with properly specifying Primary keys, Foreign keys and solve the following queries.

BRANCH(**Branchid**,Branchname,HOD)
STUDENT(**USN**,Name,Address,Branchid,sem)
BOOK(Bookid,Bookname,Authorid,Publisher,Branchid)
AUTHOR(Authorid,Authorname,Country,age)
BORROW(USN,Bookid,Borrowed_Date)

Queries:

1 List the details of Students who are all Studying in 2nd sem MCA.
2 List the students who are not borrowed any books.
3 Display the USN, Student name, Branch_name, Book_name, Author_name , Books_Borrowed_Date of 2nd sem MCA Students who borrowed books.
4 Display the number of books written by each Author.
5 Display the student details who borrowed more than two books.
6 Display the student details who borrowed books of more than one Author.
7 Display the Book names in descending order of their names.
8 List the details of students who borrowed the books which are all published by the same Publisher.

BRANCH

Branchid	Branchname	HOD

STUDENT

USN	Name	Address	Branchid	sem

BOOK

Bookid	Bookname	Authorid	Publisher	Branchid

AUTHOR

Authorid	Authorname	Country	age

BORROW

USN	Bookid	Borrowed_Date

```
 create table branch
(branchid int primary key,
 bname varchar(10),
 hod varchar(10));

create table student
(usn varchar(10) primary key,
name varchar(10),
addr varchar(15),
branchid int references branch(branchid),
sem int);

 create table book
(bookid int primary key,
 bname varchar(10),
 author

create table author
(authorid int primary key,
 aname varchar(10),
 country varchar(10),
 age int);

 create table book
 (bookid int primary key,
 bname varchar(10),
 authorid int references author(authorid),
 publisher varchar(10),
 branchid int references branch(branchid));

create table borrow
(usn varchar(10) references student(usn),
 bookid int references book(bookid),
 borrowdate date);

SQL> select * from branch;

  BRANCHID BNAME      HOD
---------- ---------- ----------
         1 mca        npk
         2 mba        bojanna
         3 cse        gtr
         4 ise        sudhamani
         5 electrical sumathi

SQL> select * from student;
USN        NAME       ADDR              BRANCHID        SEM
---------- ---------- --------------- ---------- ----------
1rn1       harish     bangalore                1          2
1rn2       bharath    mysore                   2          3
1rn3       kiran      delhi                    3          6
1rn4       mahi       chennai                  4          7
1rn5       krishna    hubli                    5          4
```

```
SQL> select * from book;

    BOOKID BNAME        AUTHORID PUBLISHER    BRANCHID
---------- ---------- ---------- ---------- ----------
      1111 c prog            123 pearson             1
      2222 dbms              124 mgrawhill           2
      3333 oops              125 sapna               3
      4444 unix              126 subhash             4
      5555 cprog             127 pearson             5

SQL> select * from author;

  AUTHORID ANAME      COUNTRY           AGE
---------- ---------- ---------- ----------
       123 navathe    india              55
       124 ritche     uk                 44
       125 RAMKRISHNA india              55
       126 sumitabha  india              38
       127 dennis     usa                66

SQL> select * from borrow;

USN            BOOKID BORROWDAT
---------- ---------- ---------
1rn1             2222 10-JAN-00
1rn1             3333 05-MAR-16
1rn3             5555 01-JUN-10
1rn5             2222 19-MAY-00
1rn2             1111 22-FEB-15
```

Query 1.

```
select * from student where sem=2 and branchid in
(select branchid from branch where bname='mca')

USN        NAME       ADDR              BRANCHID        SEM
---------- ---------- --------------- ---------- ----------
1rn1       harish     bangalore                1          2
```

Query 2.

```
  select * from student where usn not in (select usn from borrow);

USN        NAME       ADDR              BRANCHID        SEM
---------- ---------- --------------- ---------- ----------
1rn4       mahi       chennai                  4          7
```

Query 3.

```
select student.usn ,student.name,branch.bname, book.bname, aname,
borrowdate   from student , branch, book, author, borrow where
student.usn=borrow.usn  and borrow.bookid=book.bookid and
book.authorid =author.authorid   and student.branchid=branch.branchid
and student.sem=2 and branch.bname='mca';
```

```
USN        NAME       BNAME      BNAME      ANAME      BORROWDAT
---------- ---------- ---------- ---------- ---------- ---------
1rn1       harish     mca        dbms       ritche     10-JAN-00
1rn1       harish     mca        oops       RAMKRISHNA 05-MAR-16
```

Query 4.

```
 select count(*) , authorid from book group by authorid;

  COUNT(*)   AUTHORID
---------- ----------
         1        123
         1        125
         1        124
         1        126
         1        127
```

Query 5.

```
   select * from student where usn in ( select usn from borrow group
by usn having count(usn) >=2);

USN        NAME       ADDR            BRANCHID        SEM
---------- ---------- --------------- ---------- ----------
1rn1       harish     bangalore               1          2
```

Query 6.

```
select * from student s where exists (select br.usn from borrow br
join book bk on br.bookid=bk.bookid where br.usn=s.usn group by usn
having count(distinct authorid)>1);

USN        NAME       ADDR            BRANCHID        SEM
---------- ---------- --------------- ---------- ----------
1rn1       harish     bangalore               1          2
```

Query 7.

```
 select bname from book order by bname desc;

BNAME
----------
unix
oops
dbms
cprog
c prog
```

Query 8.

```
 select * from student s where exists (select usn , publisher from
borrow join book on borrow.bookid=book.bookid where s.usn=borrow.usn
group by usn having count(distinct publisher)=1);

USN        NAME       ADDR            BRANCHID        SEM
---------- ---------- --------------- ---------- ----------
1rn2       bharath    mysore                  2          3
1rn3       kiran      delhi                   3          6
1rn5       krishna    hubli                   5          4
```

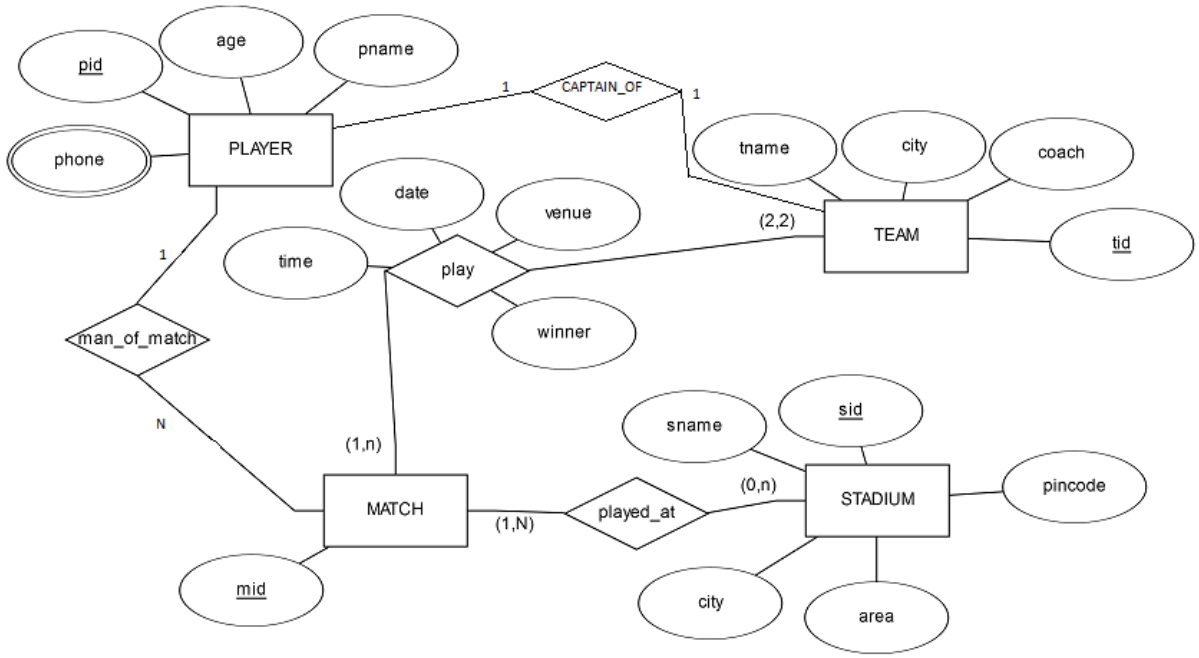
Program 2

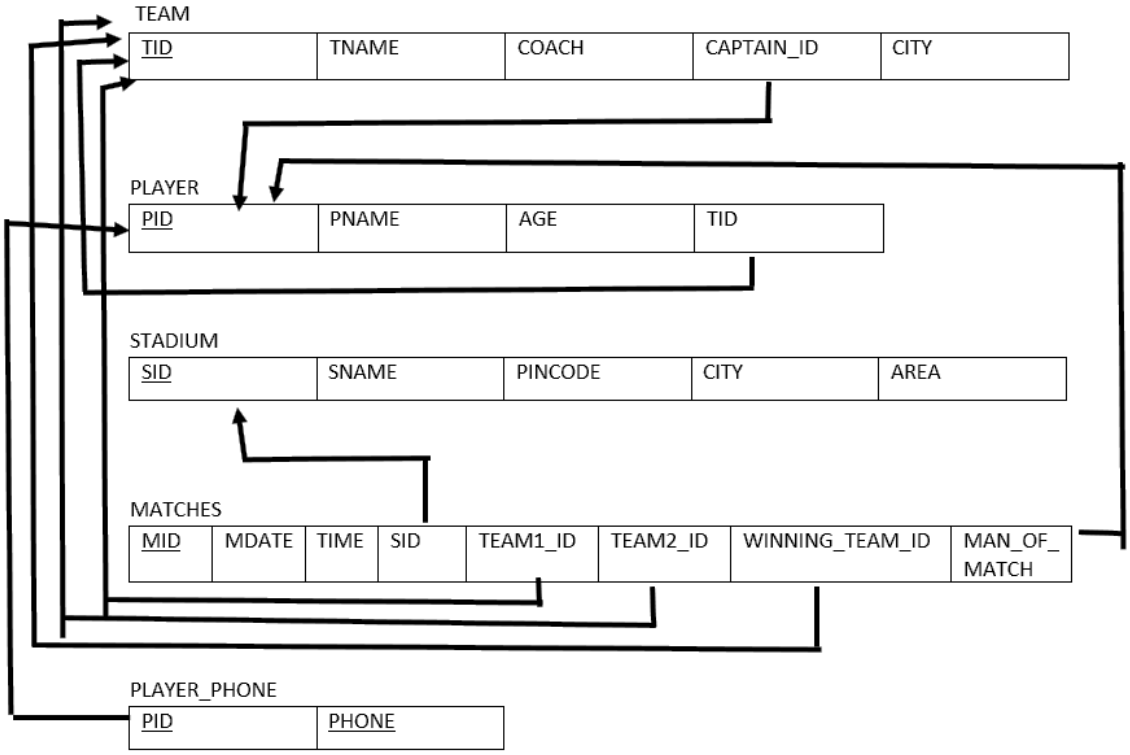
Design an ER-diagram for the following scenario, Convert the same into a relational model and
then solve the following queries.

Consider a Cricket Tournament "ABC CUP" organized by an organization. In the tournament there
are many teams are contesting each having a Teamid,Team_Name, City, a coach. Each team is uniquely identified by using Teamid. A team can have many Players and a captain. Each player is uniquely identified by Playerid, having a Name, and multiple phone numbers,age. A player represents only one team. There are many Stadiums to conduct matches. Each stadium is identified using Stadiumid, having a stadium_name,Address (involves city,area_name,pincode).A team can play many matches. Each match played between the two teams in the scheduled date and time in the predefined Stadium. Each match is identified uniquely by using Matchid. Each match won by any of the one team that also wants to record in the database. For each match man_of_the match award given to a player.

Queries:

1 Display the youngest player (in terms of age) Name, Team name , age in which he belongs of the tournament.
2 List the details of the stadium where the maximum number of matches were played.
3 List the details of the player who is not a captain but got the man_of _match award at least in two matches.
4 Display the Team details who won the maximum matches.
5 Display the team name where all its won matches played in the same stadium.






```
create table team
( tid int primary key,
tname varchar(20),
coach varchar(20),
captain_pid int,
city varchar(20));

create table player
( pid int primary key,
pname varchar(2),
age int,
tid int references team(tid))

create table stadium
(sid int primary key,
sname varchar(20),
picode number(8),
city varchar(20),
area varchar(20));

create table match
(mid int primary key,
mdate date,
time varchar(6),
sid int references stadium(sid),
team1_id int references team(tid),
team2_id int references team(tid),
winning_team_id int references team(tid),
```

```
 man_of_match int references player(pid))


 create table player_phone
 ( pid int references player(pid),
  phone int ,
  primary key(pid,phone));
```

```
SQL> select * from team;
      TID TNAME                COACH                CAPTAIN_PID CITY
--------- -------------------- -------------------- ----------- ------------------
      123 rcb                  sunil                          1 bangalore
      124 csk                  laxman                         3 chennai
      125 royals               singh                          4 rajasthan
      126 daredevils           sehwag                         2 delhi
```

```
SQL> select * from player;

       PID PNAME                          AGE        TID
---------- -------------------- ---------- ----------
         1 sachin                       33        123
         2 dravid                       32        124
         3 dhoni                        30        124
         4 raina                        30        125
         5 kohli                        23        126
```

```
SQL> select * from stadium;

       SID SNAME                     PICODE CITY                 AREA
---------- -------------------- ---------- -------------------- -----------
       111 chinnaswamy               56001 bangalore            mg road
       222 kotla                    460009 delhi                highway
       333 international             38883 chennai              tr nagar
       444 ksca                     560098 bangalore            peenya
       555 csca                     567772 cochin               beach road
```

```
SQL> select * from match;

       MID MDATE    TIME         SID   TEAM1_ID   TEAM2_ID WINNING_TEAM_ID MAN_OF_MATCH
---------- --------- ------ ---------- ---------- ---------- --------------- ------------
         1 10-JAN-17 10am          111        123        124             123            1
       102 11-JAN-17 pm            222        124        126             126            5
       103 12-JAN-17 11am          111        125        126             126            5
       104 17-JAN-17 12pm          111        125        123             123            1
```

```
SQL> select * from player_phone;

       PID      PHONE
---------- ----------
         1  998882928
         2  877563733
         2  988928822
         3  877366383
```

Query 1 :

```
  Select pname, tname, age from player p, team t where
p.tid=t.tid and age =(select min(age) from player);
```

```
PNAME                TNAME                      AGE
-------------------- -------------------- ----------
kohli                daredevils                   23
```

Query 2:

```
 select * from stadium where sid in
  (select sid from match group by sid having count(sid) =
(select max(count(sid)) from match group by sid))
```

```
       SID SNAME                   PICODE CITY                 AREA
---------- -------------------- ---------- -------------------- ------------
       111 chinnaswamy               56001 bangalore            mg road
```

Query 3:

```
select * from player where pid not in ( select captain_pid from
team) and pid in (select man_of_match from match group by
man_of_match having count(man_of_match)=2);
       PID PNAME                          AGE        TID
---------- -------------------- ---------- ----------
         5 kohli                          23        126
```

Query 4:

```
select * from team where tid in (select winning_team_id from
match group by winning_team_id having count(winning_team_id)=
(select max(count(winning_team_id))from match group by
winning_team_id))
```

```
       TID TNAME                COACH              CAPTAIN_PID CITY
---------- -------------------- -------------------- s---------- ----
      126 daredevils           sehwag                          2 delhi
```

Query 5

```
    select tname from team where tid in (
    select winning_team_id from match group
by(winning_team_id,sid)
    having count(*) in (select count(winning_team_id)
    from match group by winning_team_id))

TNAME
-------
rcb
```

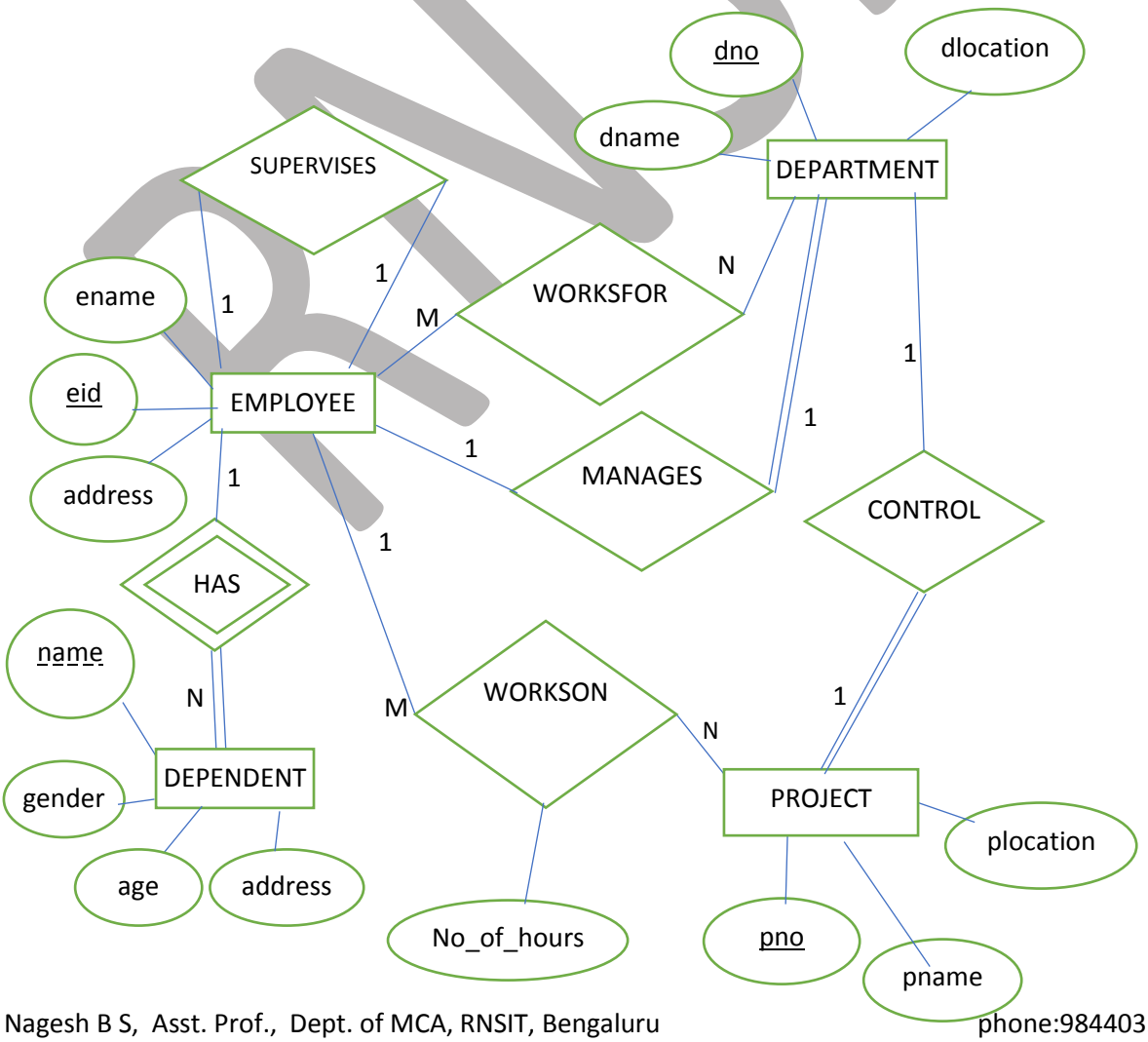
Program 3

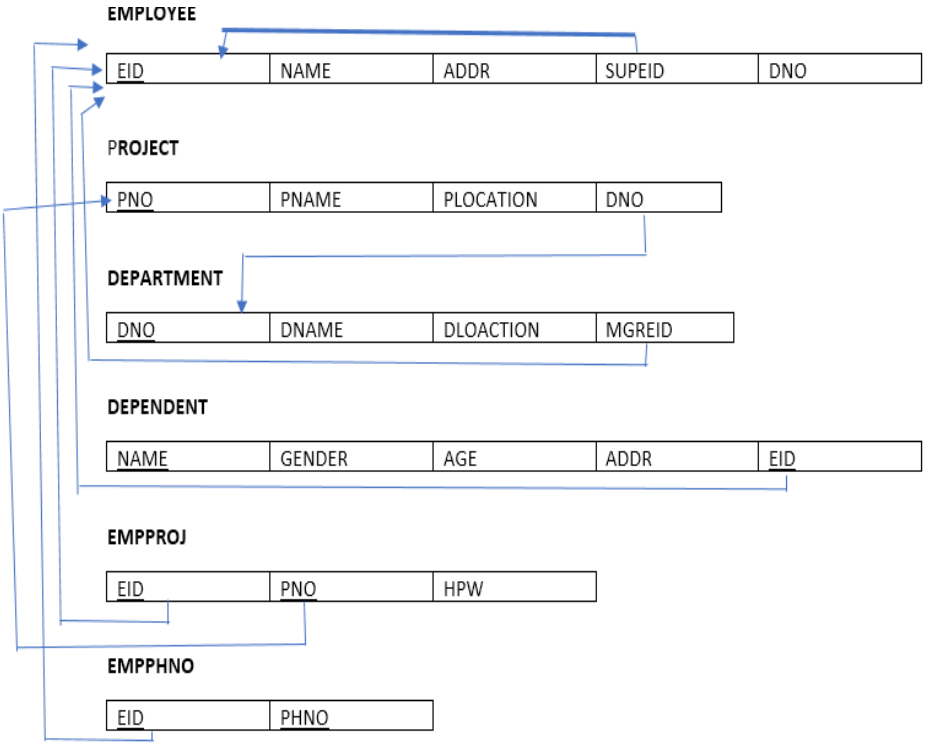
Consider the following Scenario and design an ER-Diagram, map the designed ER-diagram into a Relational model. Consider an organization "ABC" having many employees. An employee works for one department. Each employee identified by using Empid, having Name, address (described as House_no, city, district, state, pin code) and more than one phone numbers. Department identified by using Dno, having Dname, Dlocation. Each Department having a manager . Each department having many employees. There are many Projects , each project is controlled by the department. Each Project uniquely identified by Pno, having Project_name, Project_location. An employee works on many Projects. Number of hours per week worked on each project by an Employee also needs to be recorded in the database . A project is worked by many employees. Each employee supervised by the supervisor. Employee having many dependents. Dependents having the dependent_name, gender, age, address. Dependents are identified by Empid.

T1(Empid, Emp_Name,city, district, state, pin_code, phoneno, Dno,Dname,Dlocation, Dept_mgr_id, Pno, Project_name, Project_location, Number_of_Hours,Supervisor_Empid, Dependent_name, gender, address) ,Deduce the above Relation T1 into the 3NF and then solve the following queries.

Queries:

1. Display the details of the employees who are working on both the projects having project_no 5 and 10.
2. Display the details of employees having atleast two dependents.
3. Display the project name on which more number of employees are working.
4. Retrieve the employees who do not have any dependents.
5. Display the Employee details whose total number of hours per week working on various projects is maximum than all other employees.
6. create a view to display the number of employees working in each department.






```
SQL> create table employee(eid int primary key,
ename varchar(10),
address varchar(10),
supeid int,
dno int);

SQL> alter table employeee add constraint fk_supeid foreign
key(supeid) references employeee(eid));

SQL> create table department(dno int primary key,
dname varchar(20),
dlocation varchar(10),
mgrid int references employeee(eid));

SQL> alter table employeee add constraint fk_dno foreign key(dno)
references department(dno));

SQL> create table project(pno int primary key,
pname varchar(20),
plocation varchar(20),
dno int references department(dno));

SQL> create table dependent(name varchar(20),
gender varchar(6),
age int,
addr varchar(20),
eid int references employeee(eid),
primary key(name,eid));

SQL> create table empproj(eid int references employeee(eid),
pno int references project(pno),
hpw int,
primary key(eid,pno));
```

```
SQL> create table empphno(eid int references employeee(eid),
phno int,
primary key(eid,phno));

SQL> desc employee;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 EID                                       NOT NULL NUMBER(38)
 NAME                                               VARCHAR2(30)
 ADDRESS                                            VARCHAR2(30)
 SUPEID                                             NUMBER(38)
 DNO                                                NUMBER(38)

SQL> desc department;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 DNO                                       NOT NULL NUMBER(38)
 DNAME                                              VARCHAR2(20)
 DLOCATION                                          VARCHAR2(10)
 MGRID                                              NUMBER(38)

SQL> desc project;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 PNO                                       NOT NULL NUMBER(38)
 PNAME                                              VARCHAR2(20)
 PLOCATION                                          VARCHAR2(20)
 DNO                                                NUMBER(38)

SQL> desc dependent;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 NAME                                      NOT NULL VARCHAR2(20)
 GENDER                                             VARCHAR2(6)
 AGE                                                NUMBER(38)
 ADDR                                               VARCHAR2(20)
 EID                                       NOT NULL NUMBER(38)

SQL> desc empproj;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 EID                                       NOT NULL NUMBER(38)
 PNO                                       NOT NULL NUMBER(38)
 HPW                                                NUMBER(38)

SQL> desc empphno;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 EID                                       NOT NULL NUMBER(38)
 PHNO                                      NOT NULL NUMBER(38)

SQL> select * from employee;
       EID    NAME     ADDRESS    SUPEID        DNO
---------- ---------- ---------- ---------- ----------
         1 priya      bangalore     5        200
         2 sindu      davangere     1        400
         3 teertha    sirsi         2        300
```

```
         4 spurthy     chikmangalore 3        200
         5 raghavi     bangalore     4        500


SQL> select * from department;

       DNO DNAME                DLOCATION       MGRID
---------- -------------------- ---------- ----------
       100 mca                  blore               4
       200 mba                  mlore               5
       300 cse                  mumbai              2
       400 mech                 delhi               3
       500 ece                  chennai             1

SQL> select * from project;

       PNO PNAME                PLOCATION                 DNO
---------- -------------------- -------------------- ----------
       111 student              blore                     100
       222 library              madurai                   300
       333 hotel                chennai                   100
       444 railway              delhi                     500
       555 airline              ranchi                    400
         5 sp                   mysore                    100
        10 raji                 kolkata                   200


SQL> select * from dependent;

NAME                 GENDER        AGE ADDR                      EID
-------------------- ------ ---------- -------------------- ----------
priya                f              20 mumbai                        1
divya                f              19 blore                         2
priyanka             f              18 madurai                       3
sarvan               m              24 delhi                         3
jothi                f              40 madurai                       5
lakshmi              f              23 udupi                         1


SQL> select * from empproj;

       EID        PNO        HPW
---------- ---------- ----------
         1        111          5
         3        222          4
         2        333          7
         4        111         10
         5        444         20
         1          5          4
         1         10          8

SQL> select * from empphno;

       EID       PHNO
---------- ----------
         3 9025678934
         4 9807654323
         5 8907654323
```

```
         2 7896897654
         1 9087654321
```

Query 1. select * from employee where eid in(select w1.eid from empproj w1,empproj w2 where w1.pno=5 and w2.pno=10 and w1.eid=w2.eid);

```
       EID    NAME       ADDRESS       SUPEID      DNO
---------- ----------   ----------    --------    -----
         1   priya     bangalore          5        200
```

Query 2. select * from employee where eid in(select eid from dependent group by eid having count(eid)>=2);

```
       EID      NAME     ADDRESS         SUPEID      DNO
 ----------   --------   ----------     -------    ------
         1     priya     bangalore         5        200
         3     teertha   sirsi             2        300
```

Query 3. select pname from project where pno in(select pno from empproj group by pno having count(pno)=(select max(count(pno)) from empproj group by pno))

```
PNAME
--------------------
student
```

Query 4. select * from employee where eid not in (select eid from dependent);

```
   EID       NAME      ADDRESS        SUPEID        DNO
---------- --------   ---------    ---------   ----------
     4     spurthy    chikmangalore      3         200
```

Query 5. select * from employee where eid in(select eid from empproj group by eid having sum(hpw)= 2 (select max(sum(hpw)) from empproj group by eid));

```
     EID     NAME       ADDRESS      SUPEID        DNO
---------- --------    ----------    --------     ------
       5    raghavi     bangalore          4        500
```

Query 6.

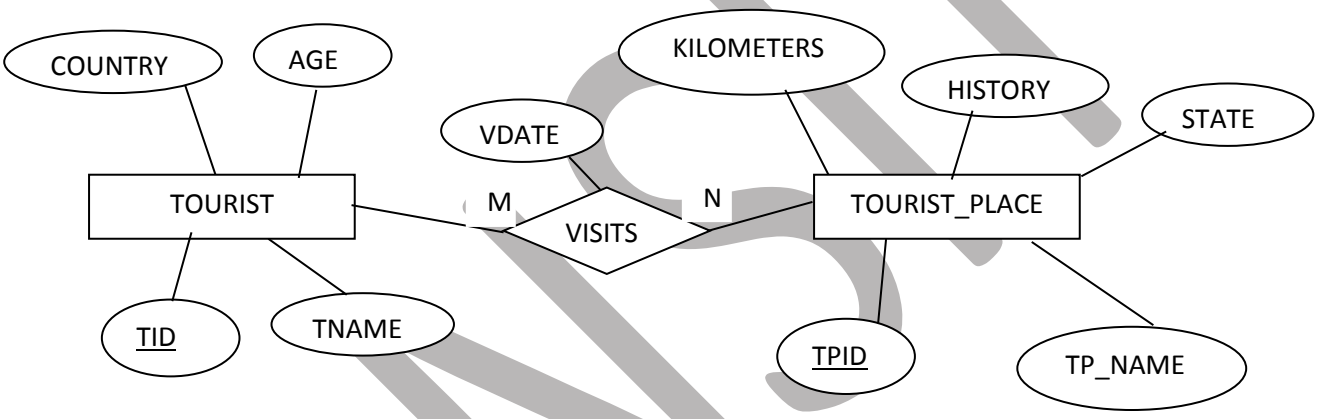
```
create view empcount(dno,no_of_emp) as select dno,count(dno) from
employeee group by dno;


SQL> select * from empcount;

       DNO     NO_OF_EMP
----------    ----------
       200           2
       300           1
       400           1
       500           1
```

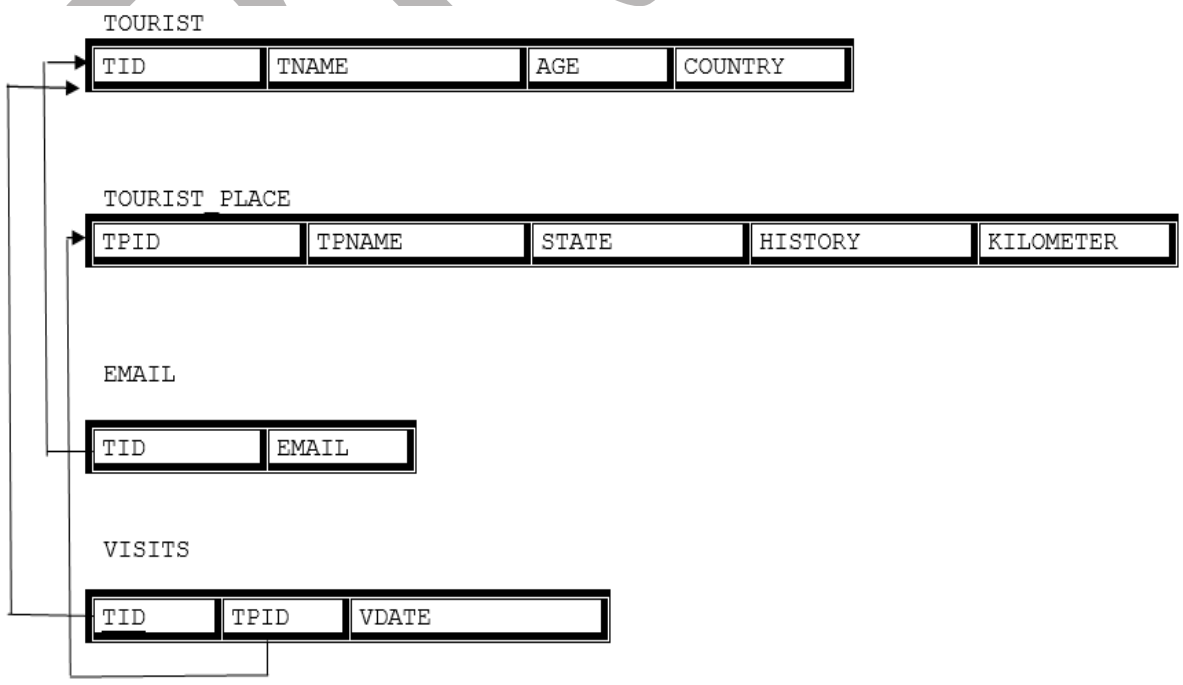
Program 4

Design an ER-diagram for the following scenario, Convert the same into a relational model, normalize Relations into a suitable Normal form and then solve the following queries. A country can have many Tourist places . Each Tourist place is identified by using tourist_place_id, having a name, belongs to a state, Number of kilometers away from the capital city of that state,history. There are many Tourists visits tourist places every year. Each tourist is identified uniquely by using Tourist_id, having a Name, age, Country and multiple emailids. A tourist visits many Tourist places, it is also required to record the visted_date in the database. A tourist can visit aTourist place many times at different dates. A Tourist place can be visited by many tourists either inthe same date or at different dates.

Queries:

1 List the state name which is having maximum number of tourist places.
2 List details of Tourist place where maximum number of tourists visited.
3 List the details of tourists visited all tourist places of the state "KARNATAKA".
4 Display the details of the tourists visited at least one tourist place of the state, but visited all states tourist places.
5 Display the details of the tourist place visited by the tourists of all country.





```
create table tourist_place
(tpid number primary key,
history varchar(20),
kilometers number(3)
,state varchar(20),
tpname varchar(20));

create table tourist(tid number primary key,
country varchar(20),
age number,
tname varchar(20));

create table visits
(tpid number(3) references tourist_place(tpid),
tid number references tourist(tid),
vdate date,
primary key(tpid,tid));

create table email
(tid number references tourist(tid),
email varchar(20),primary key(tid,email));

 desc tourist_place;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------
 TPID                                      NOT NULL NUMBER
 HISTORY                                            VARCHAR2(20)
 KILOMETERS                                         NUMBER
 STATE                                              VARCHAR2(20)
 TPNAME                                             VARCHAR2(20)

 desc tourist;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------
 TID                                       NOT NULL NUMBER
 COUNTRY                                            VARCHAR2(20)
 AGE                                                NUMBER
 TNAME                                              VARCHAR2(20)

desc visits;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------
 TPID                                      NOT NULL NUMBER
 TID                                       NOT NULL NUMBER
 VDATE                                              DATE

desc email;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------
 TID                                                NUMBER
 EMAIL                                              VARCHAR2(20)

SQL> insert into
tourist_place(tpid,history,kilometers,state,tpname)values('11','beauty','
160','karnataka','ooty');

1 row created.
```

```
SQL> select * from tourist_place;

      TPID HISTORY              KILOMETERS STATE           TPNAME
---------- -------------------- ---------- -------------  ---------
        11 beauty                      160 karnataka       ooty
        12 monuments                   270 kerala          beluru
        13 beach                       360 tamilnadu       marina

SQL> insert into
tourist(tid,country,age,tname)values('22','india','34','prakash');

1 row created.

SQL> select * from tourist;

       TID COUNTRY                   AGE TNAME
---------- -------------------- ---------- --------------------
        22 india                        34 prakash
        23 orissa                       28 bhanu
        24 india                        30 nagesh

SQL> insert into visits values('&tpid','&tid','&vdate');
Enter value for tpid: 12
Enter value for tid: 23
Enter value for vdate: 13-nov-2014
old   1: insert into visits values('&tpid','&tid','&vdate')
new   1: insert into visits values('12','23','13-nov-2014')

1 row created.

SQL> select * from visits;

TPID        TID VDATE
---- ---------- ---------
  12         23 13-NOV-14
  11         24 24-JUN-13
  13         22 25-SEP-11
  11         23 23-FEB-10
  13         23 12-JAN-10
  14         24 10-JAN-17

SQL> insert into email values('&tid','&email');
Enter value for tid: 23
Enter value for email: bhanu12@gmail.com
old   1: insert into email values('&tid','&email')
new   1: insert into email values('23','bhanu12@gmail.com')

1 row created.

SQL> select * from email;
       TID EMAIL
---------- --------------------
        23 bhanu12@gmail.com
        22 prakash242@gmail.com
        24 nageshh@gmail.com
```

Query 1:

```
 select state from tourist_place group by state having
count(state)=(select max(count(state)) from tourist_place group by
state);

      STATE
      --------------------
      karnataka
```

query 2:

```
select * from tourist_place where tpid in (select tpid from visits group
by tpid having count(tpid)= (select max(count(tpid)) from visits group by
tpid));

     TPID HISTORY              KILOMETERS STATE               TPNAME
--------- -------------------- ---------- -------------------- ----------
       11 beauty                      160 karnataka            ooty
       13 beach                       360 tamilnadu            marina
```

query 3:

```
   select * from tourist t where t.tid in
 (select tid from visits join tourist_place   on
visits.tpid=tourist_place.tpid where state='karnataka'
    group by tid having count(state) in (select count(state ) from
tourist_place where state='karnataka') );


   TID COUNTRY                 AGE TNAME
------ -------------------- ---------- --------------------
    24 india                        30 nagesh
```

query 4:

```
select * from tourist t where t.tid in (select tid from visits join
tourist_place on visits.tpid=tourist_place.tpid
  group by tid having count(distinct state)
in (select count(distinct state ) from tourist_place) );

  TID COUNTRY                  AGE TNAME
----- -------------------- ---------- --------------------
   23 orissa                       28 bhanu
```

query 5:

```
select * from tourist_place where tpid in (
select  tpid from visits join tourist on visits.tid=tourist.tid
group by tpid having count(distinct country)=
(select count(distinct country) from tourist));

 TPID HISTORY              KILOMETERS STATE               TPNAME
----- -------------------- ---------- -------------------- --------------
   11 beauty                      160 karnataka            ooty
   13 beach                       360 tamilnadu            marina
```

Program 5

Design an ER-diagram for the following scenario, Convert the same into a relational model, normalize Relations into a suitable Normal form and then solve the following queries.

A country wants to conduct an election for the parliament. A country having many constituencies. Each constituency is identified uniquely by Constituency_id, having the Name, belongs to a state, Number_of_voters. A constituency can have many voters. Each voter is uniquely identified by using Voter_id, having the Name, age, address (involves Houseno, city, state, pincode). Each voter belongs to only one constituency. There are many candidates contesting in the election. Each candidates are uniquely identified by using candidate_id, having Name, phone_no, age, state. A candidate belongs to only one party. There are many parties. Each party is uniquely identified by using Party_id, having Party_Name, Party_symbol. A candidate can contest from many constituencies under a same party. A party can have many candidates contesting from different constituencies. No constituency having the candidates from the same party. A constituency can have many contesting candidates belongs to different parties. Each voter votes only one candidate of his/her constituency.

Queries:

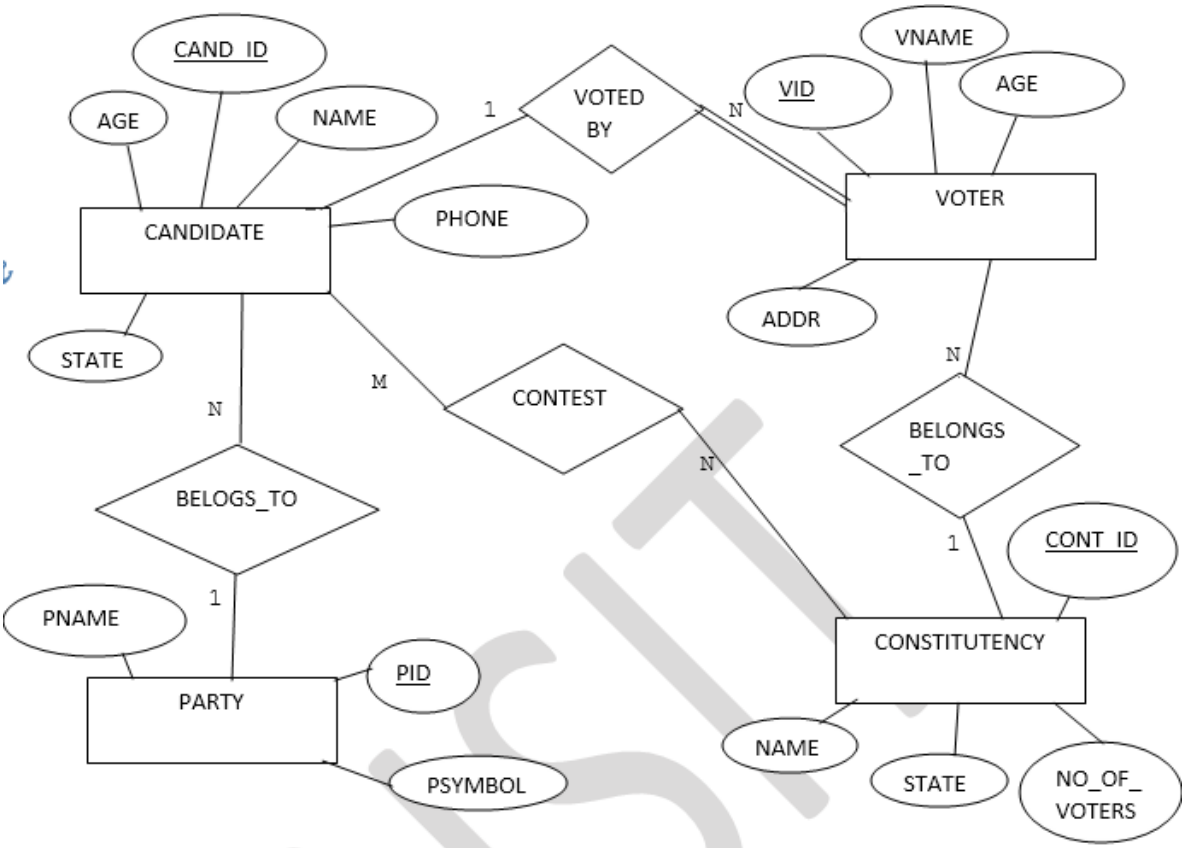
1 List the details of the candidates who are contesting from more than one constituencies which are belongs to different states.

2 Display the state name having maximum number of constituencies.

3 Create a stored procedure to insert the tuple into the voter table by checking the voter age. If voter's age is at least 18 years old, then insert the tuple into the voter else display the "Not an eligible voter msg" .

4 Create a stored procedure to display the number_of_voters in the specified constituency. Where the constituency name is passed as an argument to the stored procedure.

5 Create a TRIGGER to UPDATE the count of " Number_of_voters" of the respectiv constituency in "CONSTITUENCY" table , AFTER inserting a tuple into the "VOTERS" table.



CONSTITUENCY

CONT_ID	NAME	AGE	NO_OF_VOTERS

CANDIDATE

CAND_ID	NAME	PHONE	AGE	STATE	PID

VOTER

VID	VNAME	AGE	ADDR	CONT_ID	CAND_ID

PARTY

PID	PNAME	SYMBOL

CONTEST

CONT_ID	CAND_ID

```
create table constituency
(cons_id number(20) primary key,
csname varchar(20),
csstate varchar(20),
no_of_voters number(10));


create table party
(pid number(20) primary key,
pname varchar(20),
psymbol varchar(10));

create table candidates
(cand_id number(12) primary key,
phone_no number(10),
age number(2),
state varchar(20),
name varchar(20),
pid int references party(pid));

create table contest
(cons_id number(20) references constituency(cons_id),
cand_id number(12) references candidates(cand_id)
primary key(cons_id,cand_id);

create table voter
(vid number(20) primary key,
vname varchar(20),
vage number(5),
vaddr varchar(20),
cons_id number(20) references constituency(cons_id),
cand_id number(12) references candidates(cand_id));


select * from constituency;

CONS_ID CSNAME               CSSTATE              NO_OF_VOTERS
-------- -------------------- -------------------- ------------
     111 rajajinagar           karnataka                       4
     222 ramnagar              kerala                          1

select * from party;

PID PNAME                PSYMBOL
---- -------------------- ----------
 876 bjp                  lotus
 877 congress             hand

select * from candidates;

CAND_ID   PHONE_NO        AGE STATE                NAME           PID
-------- ---------- ---------- -------------------- --------- ----------
     121 9538904626         23 kerala               raksha       876
     122 9740777502         24 karnataka            veena        877


select * from contest;
 CONS_ID    CAND_ID
--------- ----------
      111        122
```

```
      222        121
      222        122


select * from voter;

  VID VNAME                     VAGE VADDR          CONS_ID    CAND_ID
----- -------------------- ---------- ------------ ---------- ----------
  345 prashanth                    21 kanakpura         222        122
  346 prakash                      23 ramnagar          111        121
  348 nagesh                       30 mandya            111        121
  349 nagesh                       30 mandya            111        121
```

Query 1:

```
select * from candidates where cand_id in (select cand_id from contest
join constituency on contest.cons_id=constituency.cons_id
group by cand_id having count(distinct(csstate))>1);

CAND_ID   PHONE_NO        AGE STATE      NAME                 PID
------- ---------- ---------- ---------- -------------------- --------
    122 9740777502         24 karnataka           veena            877
```

Query 2:

```
select csstate from constituency group by csstate having count(csstate)
in (select max(count(csstate)) from constituency group by csstate);

CSSTATE
--------------------
karnataka
```

query 3:

```
    create  or replace procedure agechecking ( id in number,age in
    number)
     as
     BEGIN
     if age>18 then
     insert into voter(vid,vage) values (id,age);
     else
     dbms_output.put_line('age should be high');
     end if;
    end agechecking;
    /

Procedure created.

SQL> set serveroutput on;
SQL> exec agechecking (25,21);

PL/SQL procedure successfully completed. // row inserted

SQL> exec agechecking (20,15);
age should be high //Message displayed as age is less than or equal to 18

PL/SQL procedure successfully completed.
```

query 4:

```
  create or replace procedure display_count
  (
  const_id number
  )
  as
  vid  constituency.cons_id  %  type;
  begin
  select no_of_voters into vid from constituency where cons_id = const_id
and rownum = 1;
  dbms_output.put_line ( 'total voters are: '  || vid);
 end;
 /

Procedure created.
SQL> select * from constituency;

   CONS_ID CSNAME               CSSTATE              NO_OF_VOTERS
---------- -------------------- -------------------- ------------
       111 rajajinagar          karnataka                       2
       222 ramnagar             kerala                          1

SQL> exec display_count(111);
total voters are: 2
```

Query 5:

```
     create or replace trigger count
     after insert on voter
     for each row
     begin
     update constituency
     set no_of_voters = no_of_voters + 1
     where cons_id=:new.cons_id;
    end count;
    /
Trigger created.

SQL> set serveroutput on;
SQL> select * from constituency;

   CONS_ID CSNAME               CSSTATE              NO_OF_VOTERS
---------- -------------------- -------------------- ------------
       111 rajajinagar          karnataka                       2
       222 ramnagar             kerala                          1

SQL> insert into voter values(348,'nagesh',30,'mandya',111,121);

1 row created.
```

After insertion into voter table , the constituency table is automatically updated.

```
SQL> select * from constituency;

   CONS_ID CSNAME               CSSTATE              NO_OF_VOTERS
---------- -------------------- -------------------- ------------
       111 rajajinagar          karnataka                       3
       222 ramnagar             kerala                          1
```