SQL>create table empdept(deptid varchar(10) primary key,deptname varchar(20),depthead number(10));

Table created.

SQL> desc empdept

Name Null? Type

----------------------------------------- -------- ----------------------------

DEPTID NOT NULL VARCHAR2(10)

DEPTNAME VARCHAR2(20)

DEPTHEAD NUMBER(10)

SQL> create table employee\_3(empid varchar(10) primary key,empname varchar(10),dept varchar(10),contactno number(10),emailid varchar(20),empheadid varchar(10),foreign key(dept) references empdept(deptid));

Table created.

SQL> alter table employee\_3 modify empid number(10);

Table altered.

SQL> alter table employee\_3 modify empheadid number(10);

Table altered.

SQL> desc employee\_3;

Name Null? Type

----------------------------------------- -------- ----------------------------

EMPID NOT NULL NUMBER(10)

EMPNAME VARCHAR2(10)

DEPT VARCHAR2(10)

CONTACTNO NUMBER(10)

EMAILID VARCHAR2(20)

EMPHEADID NUMBER(10)

SQL> alter table employee\_3 add constraint FK\_e foreign key(empheadid) references employee\_3(empid);

Table altered.

SQL> create table emp\_sal(empid number(10) primary key,salary number(10),isPermanent varchar(10));

Table created.

SQL> desc emp\_sal;

Name Null? Type

----------------------------------------- -------- ----------------------------

EMPID NOT NULL NUMBER(10)

SALARY NUMBER(10)

ISPERMANENT VARCHAR2(10)

SQL> insert into empdept values('E-101','HR','105');

1 row created.

SQL> insert into empdept values('E-102','Development','101');

1 row created.

SQL> insert into empdept values('E-103','House Keeping',Null);

1 row created.

SQL> insert into empdept values('E-104','sales','104');

1 row created.

SQL> insert into empdept values('E-105','purchase','104');

1 row created.

SQL> select \* from empdept;

DEPTID DEPTNAME DEPTHEAD

---------- -------------------- ----------

E-101 HR 105

E-102 Development 101

E-103 House Keeping

E-104 sales 104

E-105 purchase 104

SQL> insert into employee\_3 values('101','Isha','E-101','1234567890','abc@gmail.com',Null);

1 row created.

SQL> insert into employee\_3 values('102','Priya','E-104','1234567890','abc@gmail.com',Null);

1 row created.

SQL> insert into employee\_3 values('103','Neha','E-101','1234567890','abc@gmail.com',Null);

1 row created.

SQL> insert into employee\_3 values('104','Rahul','E-102','1234567890','abc@gmail.com',Null);

1 row created.

SQL> insert into employee\_3 values('105','abhishek','E-101','1234567890','abc@gmail.com',Null);

1 row created.

SQL> select \* from employee\_3;

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID

---------- ---------- ---------- ---------- -------------------- ----------

101 Isha E-101 1234567890 abc@gmail.com

102 Priya E-104 1234567890 abc@gmail.com

103 Neha E-101 1234567890 abc@gmail.com

104 Rahul E-102 1234567890 abc@gmail.com

105 abhishek E-101 1234567890 abc@gmail.com

SQL> update employee\_3 set empheadid='105' where empid='101';

1 row updated.

SQL> update employee\_3 set empheadid='103' where empid='102';

1 row updated.

SQL> update employee\_3 set empheadid='101' where empid='103';

1 row updated.

SQL> update employee\_3 set empheadid='105' where empid='104';

1 row updated.

SQL> update employee\_3 set empheadid='102' where empid='105';

1 row updated.

SQL> select \* from employee\_3;

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID

---------- ---------- ---------- ---------- -------------------- ----------

101 Isha E-101 1234567890 abc@gmail.com 105

102 Priya E-104 1234567890 abc@gmail.com 103

103 Neha E-101 1234567890 abc@gmail.com 101

104 Rahul E-102 1234567890 abc@gmail.com 105

105 abhishek E-101 1234567890 abc@gmail.com 102

SQL> insert into emp\_sal values('101','2000','Yes');

1 row created.

SQL> insert into emp\_sal values('102','10000','Yes');

1 row created.

SQL> insert into emp\_sal values('103','5000','No');

1 row created.

SQL> insert into emp\_sal values('104','1900','Yes');

1 row created.

SQL> insert into emp\_sal values('105','2300','yes');

1 row created.

SQL> select \* from emp\_sal;

EMPID SALARY ISPERMANEN

---------- ---------- ----------

101 2000 Yes

102 10000 Yes

103 5000 No

104 1900 Yes

105 2300 yes

**1. For the above given Relational Schema, Perform the following Join Operations:**

**i. Use Natural Join, to join employee and EmpDept tables.**

SQL> select \* from employee\_3 NATURAL JOIN empdept;

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID DEPTID DEPTNAME DEPTHEAD

---------- ---------- ---------- ---------- -------------------- ---------- ---------- -------------------- ----------

101 Isha E-101 1234567890 abc@gmail.com 105 E-101 HR 105

101 Isha E-101 1234567890 abc@gmail.com 105 E-102 Development 101

101 Isha E-101 1234567890 abc@gmail.com 105 E-103 House Keeping

101 Isha E-101 1234567890 abc@gmail.com 105 E-104 sales 104

101 Isha E-101 1234567890 abc@gmail.com 105 E-105 purchase 104

102 Priya E-104 1234567890 abc@gmail.com 103 E-101 HR 105

102 Priya E-104 1234567890 abc@gmail.com 103 E-102 Development 101

102 Priya E-104 1234567890 abc@gmail.com 103 E-103 House Keeping

102 Priya E-104 1234567890 abc@gmail.com 103 E-104 sales 104

102 Priya E-104 1234567890 abc@gmail.com 103 E-105 purchase 104

103 Neha E-101 1234567890 abc@gmail.com 101 E-101 HR 105

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID DEPTID DEPTNAME DEPTHEAD

---------- ---------- ---------- ---------- -------------------- ---------- ---------- -------------------- ----------

103 Neha E-101 1234567890 abc@gmail.com 101 E-102 Development 101

103 Neha E-101 1234567890 abc@gmail.com 101 E-103 House Keeping

103 Neha E-101 1234567890 abc@gmail.com 101 E-104 sales 104

103 Neha E-101 1234567890 abc@gmail.com 101 E-105 purchase 104

104 Rahul E-102 1234567890 abc@gmail.com 105 E-101 HR 105

104 Rahul E-102 1234567890 abc@gmail.com 105 E-102 Development 101

104 Rahul E-102 1234567890 abc@gmail.com 105 E-103 House Keeping

104 Rahul E-102 1234567890 abc@gmail.com 105 E-104 sales 104

104 Rahul E-102 1234567890 abc@gmail.com 105 E-105 purchase 104

105 abhishek E-101 1234567890 abc@gmail.com 102 E-101 HR 105

105 abhishek E-101 1234567890 abc@gmail.com 102 E-102 Development 101

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID DEPTID DEPTNAME DEPTHEAD

---------- ---------- ---------- ---------- -------------------- ---------- ---------- -------------------- ----------

105 abhishek E-101 1234567890 abc@gmail.com 102 E-103 House Keeping

105 abhishek E-101 1234567890 abc@gmail.com 102 E-104 sales 104

105 abhishek E-101 1234567890 abc@gmail.com 102 E-105 purchase 104

25 rows selected.

**ii. Use Right outer Join, to join employee and EmpDept tables.**

SQL> select \* from employee\_3 e RIGHT JOIN empdept d ON e.dept=d.deptid;

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID DEPTID DEPTNAME DEPTHEAD

---------- ---------- ---------- ---------- -------------------- ---------- ---------- -------------------- ----------

101 Isha E-101 1234567890 abc@gmail.com 105 E-101 HR 105

103 Neha E-101 1234567890 abc@gmail.com 101 E-101 HR 105

105 abhishek E-101 1234567890 abc@gmail.com 102 E-101 HR 105

104 Rahul E-102 1234567890 abc@gmail.com 105 E-102 Development 101

E-103 House Keeping

102 Priya E-104 1234567890 abc@gmail.com 103 E-104 sales 104

E-105 purchase 104

7 rows selected.

**iii. Use Self Join, to display the names of Employee head along with each employee**

**details.**

SQL> select \* from employee\_3 e,employee\_3 d where e.empid=d.empid;

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID

---------- ---------- ---------- ---------- -------------------- ---------- ---------- ---------- ---------- ---------- -------------------- ----------

101 Isha E-101 1234567890 abc@gmail.com 105 101 Isha E-101 1234567890 abc@gmail.com 105

102 Priya E-104 1234567890 abc@gmail.com 103 102 Priya E-104 1234567890 abc@gmail.com 103

103 Neha E-101 1234567890 abc@gmail.com 101 103 Neha E-101 1234567890 abc@gmail.com 101

104 Rahul E-102 1234567890 abc@gmail.com 105 104 Rahul E-102 1234567890 abc@gmail.com 105

105 abhishek E-101 1234567890 abc@gmail.com 102 105 abhishek E-101 1234567890 abc@gmail.com 102

**iv. Use Inner Join, to join employee and EmpDept tables for department id doesn’t**

**match.**

SQL> select \* from employee\_3 e INNER JOIN empdept d ON d.deptid!=e.dept;

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID DEPTID DEPTNAME DEPTHEAD

---------- ---------- ---------- ---------- -------------------- ---------- ---------- -------------------- ----------

101 Isha E-101 1234567890 abc@gmail.com 105 E-102 Development 101

101 Isha E-101 1234567890 abc@gmail.com 105 E-103 House Keeping

101 Isha E-101 1234567890 abc@gmail.com 105 E-104 sales 104

101 Isha E-101 1234567890 abc@gmail.com 105 E-105 purchase 104

102 Priya E-104 1234567890 abc@gmail.com 103 E-101 HR 105

102 Priya E-104 1234567890 abc@gmail.com 103 E-102 Development 101

102 Priya E-104 1234567890 abc@gmail.com 103 E-103 House Keeping

102 Priya E-104 1234567890 abc@gmail.com 103 E-105 purchase 104

103 Neha E-101 1234567890 abc@gmail.com 101 E-102 Development 101

103 Neha E-101 1234567890 abc@gmail.com 101 E-103 House Keeping

103 Neha E-101 1234567890 abc@gmail.com 101 E-104 sales 104

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID DEPTID DEPTNAME DEPTHEAD

---------- ---------- ---------- ---------- -------------------- ---------- ---------- -------------------- ----------

103 Neha E-101 1234567890 abc@gmail.com 101 E-105 purchase 104

104 Rahul E-102 1234567890 abc@gmail.com 105 E-101 HR 105

104 Rahul E-102 1234567890 abc@gmail.com 105 E-103 House Keeping

104 Rahul E-102 1234567890 abc@gmail.com 105 E-104 sales 104

104 Rahul E-102 1234567890 abc@gmail.com 105 E-105 purchase 104

105 abhishek E-101 1234567890 abc@gmail.com 102 E-102 Development 101

105 abhishek E-101 1234567890 abc@gmail.com 102 E-103 House Keeping

105 abhishek E-101 1234567890 abc@gmail.com 102 E-104 sales 104

105 abhishek E-101 1234567890 abc@gmail.com 102 E-105 purchase 104

20 rows selected.

**v. Use Equi Join, to join employee and EmpDept tables.**

SQL> select \* from employee\_3 e, empdept d where e.dept=d.deptid;

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID DEPTID DEPTNAME DEPTHEAD

---------- ---------- ---------- ---------- -------------------- ---------- ---------- -------------------- ----------

101 Isha E-101 1234567890 abc@gmail.com 105 E-101 HR 105

102 Priya E-104 1234567890 abc@gmail.com 103 E-104 sales 104

103 Neha E-101 1234567890 abc@gmail.com 101 E-101 HR 105

104 Rahul E-102 1234567890 abc@gmail.com 105 E-102 Development 101

105 abhishek E-101 1234567890 abc@gmail.com 102 E-101 HR 105

**2. For the above given Relational Schema, Perform the following Nested Sub Query**

**Operations:**

**i. Display the department details of a company which is assigned to the employee with**

**employee id above 103.**

SQL> select \* from empdept where deptid in (select dept from employee\_3 where empid>103);

DEPTID DEPTNAME DEPTHEAD

---------- -------------------- ----------

E-101 HR 105

E-102 Development 101

**ii. Display the details of Employee who is working under ‘Priya’.**

SQL> select \* from employee\_3 where empheadid in (select empid from employee\_3 where empname='Priya');

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID

---------- ---------- ---------- ---------- -------------------- ----------

105 abhishek E-101 1234567890 abc@gmail.com 102

**iii. Display the details of Employee who is the department head of HR.**

SQL> select \* from employee\_3 where empid in (select depthead from empdept where deptname='HR');

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID

---------- ---------- ---------- ---------- -------------------- ----------

105 abhishek E-101 1234567890 abc@gmail.com 102

**iv. Display the detail of employee who is working in ‘development’ department and they**

**are permanent.**

SQL> select a.\* from (select \* from employee\_3 where dept In ( select deptid from empdept where deptname='Development')) a, emp\_sal where a.empid=emp\_sal.empid and Ispermanent='Yes';

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID

---------- ---------- ---------- ---------- -------------------- ----------

104 Rahul E-102 1234567890 abc@gmail.com 105

**v. Display the salary of the employee who is currently working in the HR Department**

**and is a permanent employee.**

SQL> select a.\*,emp\_sal.salary from (select \* from employee\_3 where dept In ( select deptid from empdept where deptname='HR')) a, emp\_sal where a.empid=emp\_sal.empid and isPermanent='Yes';

EMPID EMPNAME DEPT CONTACTNO EMAILID EMPHEADID SALARY

---------- ---------- ---------- ---------- -------------------- ---------- ----------

101 Isha E-101 1234567890 abc@gmail.com 105 2000

105 abhishek E-101 1234567890 abc@gmail.com 102 2300

**vi. Display the maximum salary of an employee with its details from each department.**

SQL> select max(c.salary),b.deptname from employee\_3 a, empdept b, emp\_sal c where a.dept=b.deptid and a.empid=c.empid group by (b.deptname);

MAX(C.SALARY) DEPTNAME

------------- --------------------

1900 Development

5000 HR

10000 sales

**3. For the above given Relational Schema, Perform the following Set Operator**

**Operations:**

**i. Display the department which is not yet being assigned to any employee up till now.**

SQL> Select DeptId From empdept MINUS Select dept From Employee\_3;

DEPTID

--------------------

E-103

E-105

**ii. Find Id of employee for salary less than 5000 and greater than 2300.**

SQL> Select empid From emp\_sal WHERE Salary < 5000 and Salary > 2300;

no rows selected

SQL> Select empid From emp\_sal WHERE Salary < 5000 Intersect Salary > 2300;

no rows selected

**iii. Find Id of employee for salary less than 2000.**

SQL> select empid from emp\_sal where salary<2000;

EMPID

----------

104

**iv. Find Employee Names starting from A, P and N.**

SQL> select \*from employee\_3 where ename like'P%'or ename like 'N%'or ename like 'A%';

EMPID ENAME DEPT CONTACT EMAILID EMPHEADID

---------- ---------- ---------- ---------- ---------- ----------

102 Priya 104 1234567890 abc@gmail.com 103

103 Neha 101 1234567890 abc@gmail.com 104

**v. Find employee details other than employee having salary less than 2000.**

SQL> select \* from employee where empid not in (select empid from emp\_sal where salary<2000);

EMPID ENAME DEPT CONTACT EMAILID EMPHEADID

---------- ---------- ---------- ---------- ---------- ----------

103 Neha 101 1234567890 abc@gmail.com 101

102 Priya 104 1234567890 abc@gmail.com 103

101 Isha 101 1234567890 abc@gmail.com 105

105 abhishek 101 1234567890 abc@gmail.com 102