3.Consider the following schema:

SUPPLIERS (sid: integer, sname: string, address: string)

PARTS (pid: integer, pname: string, color: string)

CATALOG (sid: integer, pid: integer, cost: real)

The Catalog relation lists the prices charged for parts by Suppliers. Write the following queries in SQL:

mysql> create table suppliers(

-> sid integer primary key,

-> sname varchar(20),

-> address varchar(50));

mysql> desc suppliers;

+---------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+---------+-------------+------+-----+---------+-------+

| sid | int | NO | PRI | NULL | |

| sname | varchar(20) | YES | | NULL | |

| address | varchar(50) | YES | | NULL | |

+---------+-------------+------+-----+---------+-------+

mysql> create table parts(

-> pid integer primary key,

-> pname varchar(20),

-> color varchar(10));

mysql> desc parts;

+-------+-------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-------+-------------+------+-----+---------+-------+

| pid | int | NO | PRI | NULL | |

| pname | varchar(20) | YES | | NULL | |

| color | varchar(10) | YES | | NULL | |

+-------+-------------+------+-----+---------+-------+

mysql> create table catalog(

-> sid integer,

-> pid integer,

-> cost real,

-> primary key(sid,pid),

-> foreign key(sid) references suppliers(sid) on delete cascade on update cascade,

-> foreign key(pid) references parts(pid) on delete cascade on update cascade);

mysql> desc catalog;

+-------+--------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+-------+--------+------+-----+---------+-------+

| sid | int | NO | PRI | NULL | |

| pid | int | NO | PRI | NULL | |

| cost | double | YES | | NULL | |

+-------+--------+------+-----+---------+-------+

mysql> insert into suppliers(sid,sname,address) VALUES

-> (001,'Rohan','Mangalore'),

-> (002,'Avni','Bangalore'),

-> (003,'Pratibha','Bagalkot'),

-> (004,'Rahul','Udupi'),

-> (005,'Prithvi','Hassan');

mysql> select\*from suppliers;

+-----+----------+-----------+

| sid | sname | address |

+-----+----------+-----------+

| 1 | Rohan | Mangalore |

| 2 | Avni | Bangalore |

| 3 | Pratibha | Bagalkot |

| 4 | Rahul | Udupi |

| 5 | Prithvi | Hassan |

+-----+----------+-----------+

mysql> insert into parts(pid,pname,color) VALUES

-> (001,'Pipe','white'),

-> (002,'Screw','red'),

-> (003,'Nail','black'),

-> (004,'Tap','grey'),

-> (005,'bottle','red'),

-> (006,'plywood','brown');

mysql> select \*from parts;

+-----+---------+-------+

| pid | pname | color |

+-----+---------+-------+

| 1 | Pipe | white |

| 2 | Screw | red |

| 3 | Nail | black |

| 4 | Tap | grey |

| 5 | bottle | red |

| 6 | plywood | brown |

+-----+---------+-------+

mysql> insert into catalog(sid,pid,cost) VALUES

-> (001,001,50.00),

-> (001,006,120.00),

-> (002,002,75),

-> (002,005,100),

-> (003,002,45),

-> (003,003,75),

-> (004,001,140),

-> (004,002,38),

-> (004,003,42),

-> (004,004,310),

-> (004,005,79),

-> (004,006,110),

-> (005,002,50),

-> (005,003,48);

mysql> select\*from catalog;

+-----+-----+------+

| sid | pid | cost |

+-----+-----+------+

| 1 | 1 | 50 |

| 1 | 6 | 120 |

| 2 | 2 | 75 |

| 2 | 5 | 100 |

| 3 | 2 | 45 |

| 3 | 3 | 75 |

| 4 | 1 | 140 |

| 4 | 2 | 38 |

| 4 | 3 | 42 |

| 4 | 4 | 310 |

| 4 | 5 | 79 |

| 4 | 6 | 110 |

| 5 | 2 | 50 |

| 5 | 3 | 48 |

+-----+-----+------+

The Catalog relation lists the prices charged for parts by Suppliers. Write the following queries in SQL:

i. Find the pnames of parts for which there is some supplier.

mysql> select distinct parts.pname from parts,catalog

-> where parts.pid = catalog.pid;

+---------+

| pname |

+---------+

| Pipe |

| Screw |

| Nail |

| Tap |

| bottle |

| plywood |

+---------+

ii. Find the snames of suppliers who supply every part.

mysql> select sname from suppliers s,catalog c

-> where s.sid=c.sid group by s.sid,sname

-> having count(pid)=6

-> ;

+-------+

| sname |

+-------+

| Rahul |

+-------+

(or)

mysql> select distinct s.sname from suppliers s

-> where not exists(select p.pid from parts p

-> where not exists(select c.sid from catalog c

-> where c.sid=s.sid and c.pid=p.pid));

+-------+

| sname |

+-------+

| Rahul |

+-------+

iii. Find the snames of suppliers who supply every red part.

mysql> select s.sname from suppliers s where s.sid in (select c.sid

from catalog c,parts p where c.pid=p.pid and p.color='red'

group by c.sid having count(c.pid)=(select count(\*)

from parts p where p.color='red'));

+-------+

| sname |

+-------+

| Avni |

| Rahul |

+-------+

iv. Find the pnames of parts supplied by Rahul and by no one else.

mysql> SELECT P.pname FROM Parts P, Catalog C, Suppliers S

-> WHERE P.pid = C.pid AND C.sid = S.sid AND S.sname = "Rahul"

-> AND NOT EXISTS ( SELECT \*

-> FROM Catalog C1, Suppliers S1

-> WHERE P.pid = C1.pid AND C1.sid = S1.sid AND S1.sname <>"Rahul" );

+-------+

| pname |

+-------+

| Tap |

+-------+

v. Find the sids of suppliers who charge more for some part than the average cost of that part (averaged over

all the suppliers who supply that part).

mysql> SELECT DISTINCT C.sid FROM Catalog C

-> WHERE C.cost > ( SELECT AVG (C1.cost)

-> FROM Catalog C1 WHERE C1.pid = C.pid );

+-----+

| sid |

+-----+

| 1 |

| 2 |

| 3 |

| 4 |

+-----+

vi. For each part, find the sname of the supplier who charges the most for that part.

mysql> SELECT P.pid, S.sname FROM Parts P, Suppliers S, Catalog C

-> WHERE C.pid = P.pid AND C.sid = S.sid

-> AND C.cost = (SELECT MAX(C1.cost) FROM Catalog C1

-> WHERE C1.pid = P.pid);

+-----+----------+

| pid | sname |

+-----+----------+

| 6 | Rohan |

| 2 | Avni |

| 5 | Avni |

| 3 | Pratibha |

| 1 | Rahul |

| 4 | Rahul |

+-----+----------+

vii. Find the sids of suppliers who supply only red parts.

mysql> select s.sid from suppliers s where s.sid in(select c.sid

from catalog c where c.sid not in (select distinct(ca.sid)

from catalog ca,parts p where ca.pid=p.pid and p.color!='red'));

+-----+

| sid |

+-----+

| 2 |

+-----+