

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)

```
create table suppliers(  
    sid integer primary key,  
    sname varchar(20),  
    address varchar(50));
```

```
create table parts(  
    pid integer primary key,  
    pname varchar(20),  
    color varchar(10));
```

```
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);
```

```
insert into suppliers(sid,sname,address) VALUES  
(001,'Rohan','Mangalore'),  
(002,'Avni','Bangalore'),  
(003,'Pratibha','Bagalkot'),  
(004,'Rahul','Udupi'),  
(005,'Prithvi','Hassan');
```

```
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');
```

```
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);

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.

```
select distinct parts.pname from parts,catalog
where parts.pid = catalog.pid;
```

				pname
<input type="checkbox"/>	Edit	Copy	Delete	Pipe
<input type="checkbox"/>	Edit	Copy	Delete	Screw
<input type="checkbox"/>	Edit	Copy	Delete	Nail
<input type="checkbox"/>	Edit	Copy	Delete	Tap
<input type="checkbox"/>	Edit	Copy	Delete	bottle
<input type="checkbox"/>	Edit	Copy	Delete	plywood

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

```
select s.sname from suppliers s
where not exists ((select p.pid from parts p) except
  (select c.pid from catalog c where c.sid = s.sid));
```

				sname
<input type="checkbox"/>	Edit	Copy	Delete	Rahul

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

```
select s.sname from suppliers s
where not exists ((select p.pid from parts p where p.color = "red") except
  (select c.pid from catalog c,parts p
    where c.sid = s.sid and c.pid = p.pid and p.color = "red"));
```

				sname
<input type="checkbox"/>	Edit	Copy	Delete	Avni
<input type="checkbox"/>	Edit	Copy	Delete	Rahul

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

```
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
<input type="checkbox"/>	Edit	Copy	Delete	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).

```
SELECT DISTINCT C.sid FROM Catalog C
WHERE C.cost > ( SELECT AVG (C1.cost)
                FROM Catalog C1 WHERE C1.pid = C.pid );
```

+ Options					sid
	Edit	Copy	Delete		1
<input type="checkbox"/>	Edit	Copy	Delete		2
<input type="checkbox"/>	Edit	Copy	Delete		3
<input type="checkbox"/>	Edit	Copy	Delete		4

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

```
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.

```
SELECT DISTINCT C.sid FROM Catalog C
WHERE NOT EXISTS ( SELECT * FROM Parts P
                   WHERE P.pid = C.pid AND P.color <> "red");
```

					sid
<input type="checkbox"/>	Edit	Copy	Delete		2
<input type="checkbox"/>	Edit	Copy	Delete		3
<input type="checkbox"/>	Edit	Copy	Delete		4
<input type="checkbox"/>	Edit	Copy	Delete		5