PROGRAM 3: SUPPLIER DATABASE

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:
i. Find the pnames of parts for which there is some supplier.
ii. Find the snames of suppliers who supply every part.
iii. Find the snames of suppliers who supply every red part.
iv. Find the pnames of parts supplied by Acme Widget Suppliers and by no one else.
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).
vi. For each part, find the sname of the supplier who charges the most for that part.
vii. Find the sids of suppliers who supply only red parts.

```
create database supplier;
use supplier;

create TABLE suppliers(sid int(4),sname varchar(20),address varchar(100),CONSTRAINT
ID PRIMARY key(sid));

CREATE TABLE parts(pid int,pname varchar(20), color varchar(10),CONSTRAINT PID
PRIMARY KEY(pid));

CREATE table catalog(sid int,pid int,cosr real,CONSTRAINT F_sid FOREIGN KEY(sid)
REFERENCES suppliers(sid), CONSTRAINT F_pid FOREIGN KEY(pid)
REFERENCES parts(pid));
```

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

```
select p.pname from parts p where p.pid in (select pid from catalog c group by c.pid
having count(c.sid)>0);
```

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

```
select s.sname from suppliers s where s.sid in (select c.sid from catalog c group by
c.sid having count(distinct (c.pid))=(select count(p.pid) from parts p));
```

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

```sql
select s.sname from suppliers s where s.sid in (select ca.sid  from catalog ca,parts p
where ca.pid=p.pid and p.color='red' group by ca.sid having count(ca.pid)=(select
count(*) from parts p where p.color='red'));
```

iv. Find the pnames of parts supplied by Acme Widget Suppliers and by no one else.

```sql
select ca.pid from catalog ca  where ca.sid=(select s.sid from suppliers s where
s.sname ='Acme Widget') having (select count(c.pid) from catalog c where
c.pid=ca.pid)=1;
```

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).

```sql
select distinct c.sid,c.pid from catalog c where c.cost > (select avg(ca.cost) from catalog
ca where ca.pid=c.pid);
```

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

```sql
select s.sname from suppliers s where s.sid in (select c.sid from catalog c where
c.cost=(select max(cost) from catalog ca where ca.pid=c.pid));
```

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

```sql
select s.sname 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'));
```