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1BM19CS230

CSE-4A

Program 3 - Suppliers Database

Consider the following schema:

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

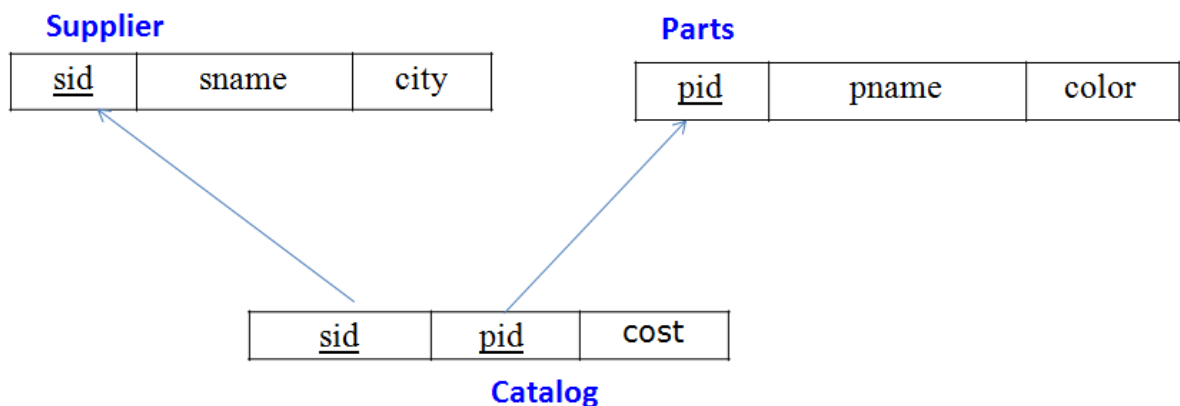
PARTS(pid: integer, pname: string, color: string)

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.



```
create database supplierdb;
```

```
use supplierdb;
```

```
create table Suppliers(  
    sid int not null,  
    sname varchar(20) not null,  
    address varchar(20) not null,  
    primary key(sid)  
);
```

```
create table Parts(  
    pid int not null,  
    pname varchar(20) not null,  
    color varchar(20) not null,  
    primary key(pid)  
);
```

```
create table Catalog(  
    sid int not null,  
    pid int not null,  
    cost real not null,  
    primary key(sid,pid),  
    foreign key(sid) references Suppliers(sid),  
    foreign key(pid) references Parts(pid)  
);
```

```
insert into Suppliers(sid,sname,address)
```

```
values (10001,'Acme Widget','Bangalore'),  
       (10002,'Johns','Kolkata'),  
       (10003,'Vimal','Mumbai'),  
       (10004,'Reliance','Delhi');
```

```
insert into Parts(pid,pname,color)
```

```
values (20001,'Book','Red'),  
       (20002,'Pen','Red'),  
       (20003,'Pencil','Green'),  
       (20004,'Mobile','Green'),  
       (20005,'Charger','Black');
```

```
insert into Catalog(sid,pid,cost)
```

```
values (10001,20001,10),  
       (10001,20002,10),  
       (10001,20003,30),  
       (10001,20004,10),  
       (10001,20005,10),  
       (10002,20001,10),  
       (10002,20002,20),  
       (10003,20003,30),  
       (10004,20003,40);
```

-- find the pnames of parts for which there is some supplier

```
select distinct p.pname from Parts p,Catalog c
```

where p.pid = c.pid and exists (select 'X' from Catalog where pid = p.pid);

	pname
▶	Book
	Pen
	Pencil
	Mobile
	Charger

-- find the snames of suppliers who supply every part

select s.sname from Suppliers s,Catalog c

where s.sid = c.sid

group by s.sname

having count(c.pid) = (select count(*) from Parts);

	sname
▶	Acme Widget

-- find the snames of suppliers who supply every red part

select s.sname from Suppliers s,Parts p,Catalog c

where s.sid = c.sid and p.pid = c.pid

and p.color = 'Red'

group by s.sname

having count(c.pid) = (select count(*) from Parts where color = 'Red');

	sname
▶	Acme Widget
	Johns

-- find the pname of parts supplied by acme widget and no one else

select p.pname from Parts p,Catalog c

where p.pid = c.pid

and p.pid not in (select pid from Catalog where sid in (select sid from Suppliers where sname <> 'Acme Widget'));

	pname
▶	Mobile
	Charger

-- find the sids of suppliers who charge more for some part than average cost of that part

select distinct c.pid,c.sid from Catalog c

where c.cost > (select avg(c1.cost) from Catalog c1 where c1.pid = c.pid);

	pid	sid
▶	20002	10002
	20003	10004

-- for each part, find the sname of supplier who charges most for that part

select p.pname,s.sname from Parts p,Suppliers s,Catalog c

where p.pid = c.pid and s.sid = c.sid

and c.cost = (select max(cost) from Catalog where pid = p.pid);

	pname	sname
▶	Book	Acme Widget
	Mobile	Acme Widget
	Charger	Acme Widget
	Book	Johns
	Pen	Johns
	Pencil	Reliance