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CSE-4A

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.

Schema Diagram
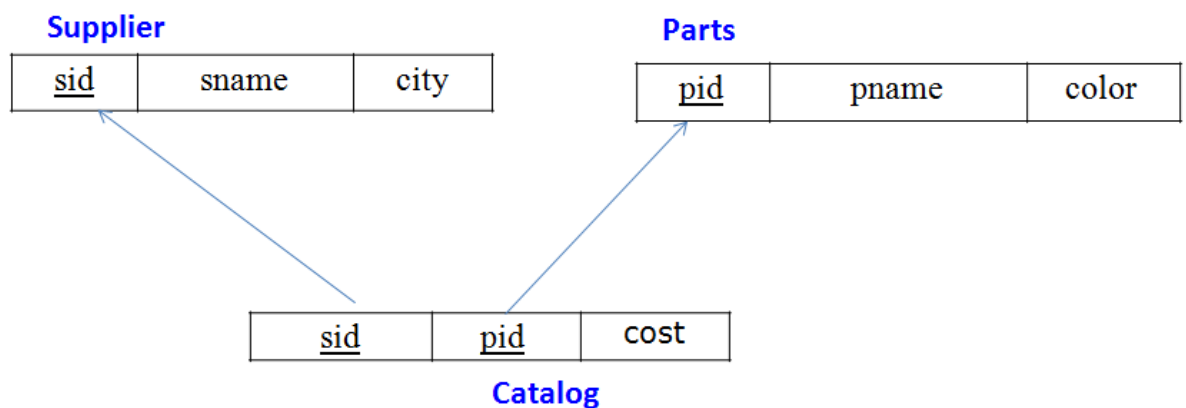
Table Data

```
SUPPLIERS
SID     SNAME         CITY
--- --------------------------------
10001  Acme Widget  Bangalore
10002  Johns          Kolkata
10003  Vimal          Mumbai
10004  Reliance       Delhi
```

```
PARTS
   PID PNAME          COLOR
---------- -------------------- ----------
  20001 Book           Red
  20002 Pen            Red
  20003 Pencil         Green
  20004 Mobile         Green
  20005 Charger        Black
```

```
CATALOG
    SID     PID     COST
---------- ---------- ----------
   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
```

CREATE DATABASE SUPPLIER;

USE SUPPLIER;

CREATE TABLE SUPPLIER(

sid int,

sname varchar(20),

address varchar(40),

primary key(sid)

);

CREATE TABLE PARTS(

pid int,

pname varchar(40),

color varchar(20),

primary key(pid)

);

CREATE TABLE CATALOG(

sid int,

pid int,

cost real,

foreign key(sid) references SUPPLIER(sid),

foreign key(pid) references PARTS(pid)

);

INSERT INTO SUPPLIER

VALUES (10001,"Acme Widget","Bangalore"),(10002,"Johns","Kolkata"),

(10003,"Vimal","Mumbai"),(10004,"Reliance","Delhi");

SELECT * FROM SUPPLIER;

	sid	sname	address
▶	10001	Acme Widget	Bangalore
	10002	Johns	Kolkata
	10003	Vimal	Mumbai
	10004	Reliance	Delhi
*	NULL	NULL	NULL

SUPPLIER 1 ✕

INSERT INTO PARTS

VALUES(20001,"Book","Red"),(20002,"Pen","Red"),(20003,"Pencil","Green"),

(20004,"Mobile","Green"),(20005,"Charger","Black");

SELECT * FROM PARTS;

	pid	pname	color
▶	20001	Book	Red
	20002	Pen	Red
	20003	Pencil	Green
	20004	Mobile	Green
	20005	Charger	Black
*	NULL	NULL	NULL

PARTS 2 ✕

INSERT INTO CATALOG

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);

SELECT * FROM CATALOG;

sid	pid	cost
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

CATALOG 3 ✕

a.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;

pname
Book
Pen
Pencil
Mobile
Charger

Result 5 ✕

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

```
SELECT S.sname, C.sid
FROM SUPPLIER S, CATALOG C
WHERE S.sid = C.sid
GROUP BY S.sname
HAVING COUNT(C.sid)=(SELECT count(pid)
                FROM PARTS);
```

sname	sid
▶ Acme Widget	10001

Result 12 ✕

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

SELECT distinct s.sname
FROM SUPPLIER s, CATALOG c
WHERE s.sid = c.sid and c.pid in (select pid from PARTS WHERE color="Red");

sname
▶ Acme Widget
Johns

Result 13 ✕

d. Find the pnames of parts supplied by Acme Widget Suppliers and by no one else.
SELECT P.PNAME
FROM SUPPLIER S,PARTS P,CATALOG C
WHERE C.sid=S.sid AND C.pid = P.pid AND s.sname = "Acme Widget" ;

PNAME
▶ Book
Pen
Pencil
Mobile
Charger

Result 14 ✕

e. 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 C.sid

FROM Catalog C

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

FROM Catalog C1

WHERE C1.pid = C.pid);

sid
10002
10004

Catalog 6 ×

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

SELECT P.pid, S.sname

FROM Parts P, Supplier 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
20001	Acme Widget
20004	Acme Widget
20005	Acme Widget
20001	Johns
20002	Johns
20003	Reliance

Result 16 ×