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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

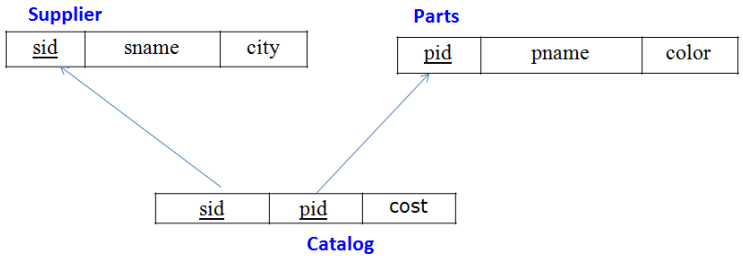


Table Data

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_database;
use supplier_database;
create table SUPPLIER
(
   sid int,
   sname varchar(20),
   address varchar(30),
   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

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

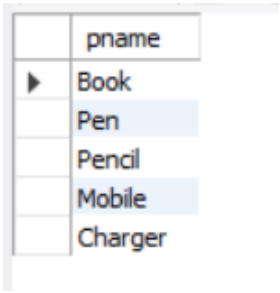
INSERT INTO CATALOG VALUES (10001,20001,10),(10001,20002,10),(10001,20003,30),(10001,20004,10),(10001,20005,10),(10002,20001,10),(10002,20002,20),(10003,20003,30),(10004,20003,40);

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

/* FIND THE PNAMES OF PARTS FOR WHICH THERE IS SOME SUPPLIER */

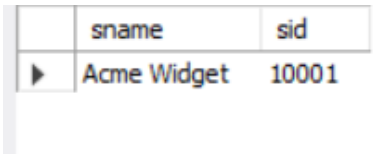
SELECT DISTINCT p.pname FROM parts p, catalog c WHERE p.pid=c.pid;



pname
Book
Pen
Pencil
Mobile
Charger

/*Find the snames of suppliers who supply every part */

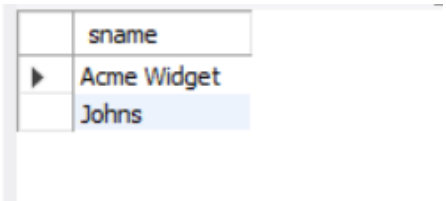
SELECT SUPPLIER.sname,CATALOG.sid FROM SUPPLIER,CATALOG WHERE SUPPLIER.sid=CATALOG.sid group by SUPPLIER.sname having count(CATALOG.sid)=(select count(pid)from PARTS);



sname	sid
Acme Widget	10001

/*Find the snames of suppliers who supply every red part*/

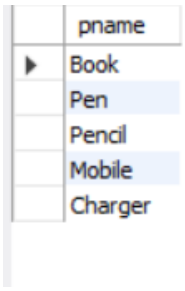
SELECT distinct s.sname FROM SUPPLIER s,CATALOG c WHERE s.sid=c.sid and c.pid in(select pid from PARTS where color="Red");



sname
Acme Widget
Johns

/*Find the pnames of parts supplied by Acme Widget Suppliers and by no one else */

Select pname From PARTS P, CATALOG C where p.pid=c.pid and sid in(Select sid from SUPPLIER Where sname="Acme Widget");



pname
Book
Pen
Pencil
Mobile
Charger

/*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(cost) from CATALOG where pid=c.pid);

	sid
▶	10002
	10004

/*For each part, find the sname of the supplier who charges the most for that part*/

Select c.pid,s.sname from PARTS p, SUPPLIER s, CATALOG c where s.sid = c.sid and c.cost=(SELECT MAX(cost) from CATALOG where pid = c.pid);

	pid	sname
▶	20003	Reliance
	20002	Johns
	20001	Johns
	20005	Acme Widget
	20004	Acme Widget
	20001	Acme Widget