select * from supplier;

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

select * from parts;

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

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
NULL	NULL	NULL

1. 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

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

select distinct s.sname from catalog c,

supplier s where c.sid = s.sid and

NOT EXISTS(select p.pid from parts p

where NOT EXISTS(select c1.sid from

catalog c1 where c1.sid = c.sid and c1.pid = c.pid));

	sname
▶	Acme Widget
	Johns
	Vimal
	Reliance

3. **Find the snames of suppliers who supply every red part.**
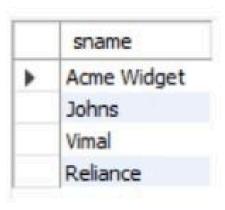
select distinct s.sname from catalog c,

supplier s where c.sid = s.sid and

NOT EXISTS(select p.pid from parts p

where p.color = 'Red' and NOT EXISTS

(select c1.sid from catalog c1 where

c1.sid and c1.pid = p.pid and p.color = 'Red'));

	sname
▶	Acme Widget
	Johns
	Vimal
	Reliance

4. **Find the pnames of parts supplied by Acme Widget Suppliers and by no one else.**
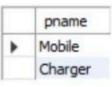
select p.pname from parts p, catalog c, supplier s

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

s.sname = 'Acme Widget' and NOT EXISTS

(select * from catalog c1, supplier s1

where p.pid = c1.pid and c1.sid = s1.sid

and s1.sname != 'Acme Widget');

	pname
▶	Mobile
	Charger

5. **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);

	sid
▶	10002
	10004

6. **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