```sql
create database supplier;

use supplier;

CREATE TABLE Supplier (
    sid INT PRIMARY KEY,
    sname VARCHAR(50),
    city VARCHAR(50)
);

INSERT INTO Supplier VALUES
(1, 'Acme Widget Suppliers', 'Delhi'),
(2, 'Best Supplies', 'Mumbai'),
(3, 'National Parts Co', 'Chennai');


CREATE TABLE Parts (
    pid INT PRIMARY KEY,
    pname VARCHAR(50),
    color VARCHAR(20)
);

INSERT INTO Parts VALUES
(101, 'Bolt', 'red'),
(102, 'Nut', 'blue'),
(103, 'Screw', 'red'),
(104, 'Washer', 'green');


CREATE TABLE Catalog (
    sid INT,
    pid INT,
    cost INT,
    PRIMARY KEY (sid, pid),
    FOREIGN KEY (sid) REFERENCES Supplier(sid),
    FOREIGN KEY (pid) REFERENCES Parts(pid)
);
```

```
INSERT INTO Catalog VALUES

(1, 101, 50),

(1, 102, 40),

(2, 101, 45),

(2, 103, 60),

(3, 101, 55),

(3, 104, 70);
```

```
SELECT DISTINCT p.pname

FROM Parts p

JOIN Catalog c ON p.pid = c.pid;
```

	pname
▶	Bolt
	Nut
	Screw
	Washer

```
SELECT s.sname

FROM Supplier s

WHERE NOT EXISTS (

    SELECT *

    FROM Parts p

    WHERE NOT EXISTS (

        SELECT *

        FROM Catalog c

        WHERE c.sid = s.sid AND c.pid = p.pid ));
```

	sname

```sql
SELECT s.sname
FROM Supplier s
WHERE NOT EXISTS (
    SELECT *
    FROM Parts p
    WHERE p.color = 'red'
     AND NOT EXISTS (
        SELECT *
        FROM Catalog c
        WHERE c.sid = s.sid AND c.pid = p.pid ));
```

	sname
▶	Best Supplies

```sql
SELECT p.pname
FROM Parts p
JOIN Catalog c1 ON p.pid = c1.pid
JOIN Supplier s ON s.sid = c1.sid
WHERE s.sname = 'Acme Widget Suppliers'
 AND NOT EXISTS (
        SELECT *
        FROM Catalog c2
        WHERE c2.pid = p.pid AND c2.sid <> s.sid
 );
```

	pname
▶	Nut

```sql
SELECT DISTINCT c.sid
FROM Catalog c
```

```
JOIN (

    SELECT pid, AVG(cost) AS avg_cost

    FROM Catalog

    GROUP BY pid

) x ON c.pid = x.pid

WHERE c.cost > x.avg_cost;
```

	sid
▶	3

```
SELECT p.pname, s.sname

FROM Parts p

JOIN Catalog c ON p.pid = c.pid

JOIN Supplier s ON s.sid = c.sid

WHERE c.cost = (

    SELECT MAX(c2.cost)

    FROM Catalog c2

    WHERE c2.pid = p.pid

);
```

	pname	sname
▶	Nut	Acme Widget Suppliers
	Screw	Best Supplies
	Bolt	National Parts Co
	Washer	National Parts Co