

Assignment description: The given database is SPJ. It contains 4 tables: Suppliers (Sn, Sname, status, city), Parts (Pn, Pname, city, color, weight), Projects (Jn, Jname, city) and SPJ (Sn, Pn, Jn, qty). The following set of problems is based on this database.

Problem 1:

Find the number of suppliers that supply parts for each London project.

Solution:

```
SELECT Projects.Jn, COUNT(*) AS count_s FROM Projects
INNER JOIN SPJ ON Projects.Jn = SPJ.Jn
WHERE Projects.city = 'London' GROUP BY Projects.Jn
```

Problem 2:

Find the names of suppliers that supply more than one red part.

Solution:

```
SELECT Suppliers.Sname FROM (
SELECT Suppliers.Sname, Parts.Pn FROM (
Suppliers INNER JOIN SPJ ON SPJ.Sn = Suppliers.Sn
) INNER JOIN Parts ON Parts.Pn =
SPJ.Pn WHERE Parts.color = 'Red'
) GROUP BY Suppliers.Sname HAVING COUNT(*) > 1
```

Problem 3:

Find the names of suppliers that supply yellow parts into more than one project.

Solution:

```
SELECT Suppliers.Sname FROM (
SELECT Suppliers.Sname, Projects.Jn FROM (
```

```
(  
Suppliers INNER JOIN SPJ ON SPJ.Sn = Suppliers.Sn  
) INNER JOIN Projects ON Projects.Jn =  
SPJ.Jn  
) WHERE Parts.color = 'Yellow'  
)  
GROUP BY Suppliers.Sname HAVING COUNT(*) > 1
```

Problem 4:

Find the number of details that are supplied in Paris projects exactly by 2 suppliers from London.

Solution:

```
SELECT COUNT(*) FROM (  
SELECT Parts.Pn FROM (  
SELECT Parts.Pn, Suppliers.Sn FROM (  
SPJ INNER JOIN Parts ON SPJ.Pn = Parts.Pn  
)  
INNER JOIN Projects ON Projects.Jn =  
SPJ.Jn  
WHERE Projects.city = 'Paris' AND Suppliers.city = 'London'  
)  
GROUP BY Parts.Pn HAVING COUNT(*) = 2  
)
```

Problem 5:

Find the number of projects where red parts are supplied only by John.

Solution:

```
SELECT COUNT(*) FROM (  
SELECT DISTINCT Projects.Jn FROM Projects
```

```
WHERE NOT EXISTS (  
SELECT * FROM (  
SPJ INNER JOIN Suppliers ON SPJ.Sn = Suppliers.Sn  
)  
INNER JOIN Parts ON SPJ.Sn =Suppliers.Sn  
WHERE Parts.color = 'Red' AND  
Suppliers.Sname <> 'John' AND  
SPJ.Jn = Projects.Jn  
)  
)
```

Problem 6:

Find the names of suppliers that supply all red parts.

Solution:

```
SELECT Sname FROM Suppliers, SPJ  
WHERE Suppliers.Sn = SPJ.Sn  
GROUP BY Suppliers.Sname, Suppliers.Sn  
HAVING SET (Pn) CONTAINS (  
SELECT Pn FROM Parts WHERE color = 'Red'  
)
```