Lab Assignment 2(b)

Question:

Create the following tables and answer the queries: (Take appropriate data types and relationships to define the columns and then insert relevant data).

- SUPPLIER(SNO, SNAME, STATUS, CITY)
- PARTS(PNO, PNAME, COLOR, WEIGHT, CITY)
- PROJECT(JNO, JNAME, CITY)
- SPJ(SNO, PNO, JNO, QTY)

Answer:

```
CREATE TABLE SSUPPLIER (SNO INT PRIMARY KEY, SNAME VARCHAR(50), STATUS INT, CITY VARCHAR(50));

INSERT INTO SSUPPLIER VALUES (1, 'Supplier A', 10, 'New York');
INSERT INTO SSUPPLIER VALUES (2, 'Supplier B', 20, 'Los Angeles');
INSERT INTO SSUPPLIER VALUES (3, 'Supplier C', 30, 'Chicago');
INSERT INTO SSUPPLIER VALUES (4, 'Supplier D', 25, 'New York');
INSERT INTO SSUPPLIER VALUES (5, 'Supplier E', 15, 'San Francisco');
INSERT INTO SSUPPLIER VALUES (6, 'Supplier F', 35, 'Los Angeles');
INSERT INTO SSUPPLIER VALUES (7, 'Supplier G', 40, 'Chicago');
INSERT INTO SSUPPLIER VALUES (8, 'Supplier H', 45, 'San Francisco');

SELECT * FROM SSUPPLIER;
```

SNO	SNAME	STATUS	CITY
1	Supplier A	10	New York
2	Supplier B	20	Los Angeles
3	Supplier C	30	Chicago
4	Supplier D	25	New York
5	Supplier E	15	San Francisco
6	Supplier F	35	Los Angeles
7	Supplier G	40	Chicago
8	Supplier H	45	San Francisco

```
CREATE TABLE SPARTS (PNO INT PRIMARY KEY, PNAME VARCHAR(50), COLOR VARCHAR(20), WEIGHT DECIMAL(10, 2), CITY VARCHAR(50));

INSERT INTO SPARTS VALUES (101, 'Part X', 'Red', 15.5, 'New York');
INSERT INTO SPARTS VALUES (102, 'Part Y', 'Blue', 20.0, 'Los Angeles');
INSERT INTO SPARTS VALUES (103, 'Part Z', 'Green', 10.0, 'Chicago');
INSERT INTO SPARTS VALUES (104, 'Part A', 'Yellow', 25.5, 'San Francisco');
INSERT INTO SPARTS VALUES (105, 'Part B', 'Black', 18.0, 'New York');
INSERT INTO SPARTS VALUES (106, 'Part C', 'White', 22.0, 'Chicago');
INSERT INTO SPARTS VALUES (107, 'Part D', 'Purple', 12.5, 'San Francisco');
INSERT INTO SPARTS VALUES (108, 'Part E', 'Orange', 17.0, 'Los Angeles');

SELECT * FROM SPARTS;
```

PNO	PNAME	COLOR	WEIGHT	CITY
101	Part X	Red	15.5	New York
102	Part Y	Blue	20	Los Angeles
103	Part Z	Green	10	Chicago
104	Part A	Yellow	25.5	San Francisco
105	Part B	Black	18	New York
106	Part C	White	22	Chicago
107	Part D	Purple	12.5	San Francisco
108	Part E	Orange	17	Los Angeles

CREATE TABLE SPROJECT (JNO INT PRIMARY KEY, JNAME VARCHAR(50), CITY VARCHAR(50));

INSERT INTO SPROJECT VALUES (201, 'Project Alpha', 'New York');
INSERT INTO SPROJECT VALUES (202, 'Project Beta', 'Los Angeles');
INSERT INTO SPROJECT VALUES (203, 'Project Gamma', 'Chicago');
INSERT INTO SPROJECT VALUES (204, 'Project Delta', 'San Francisco');
INSERT INTO SPROJECT VALUES (205, 'Project Epsilon', 'New York');
INSERT INTO SPROJECT VALUES (206, 'Project Zeta', 'Los Angeles');
INSERT INTO SPROJECT VALUES (207, 'Project Eta', 'Chicago');
INSERT INTO SPROJECT VALUES (208, 'Project Theta', 'San Francisco');

SELECT * FROM SPROJECT;

JNO	JNAME	CITY
201	Project Alpha	New York
202	Project Beta	Los Angeles
203	Project Gamma	Chicago
204	Project Delta	San Francisco
205	Project Epsilon	New York
206	Project Zeta	Los Angeles
207	Project Eta	Chicago
208	Project Theta	San Francisco

CREATE TABLE SSPJ (SNO INT, PNO INT, JNO INT, QTY INT, PRIMARY KEY (SNO, PNO, JNO), FOREIGN KEY (SNO) REFERENCES SSUPPLIER(SNO), FOREIGN KEY (PNO) REFERENCES SPARTS(PNO), FOREIGN KEY (JNO) REFERENCES SPROJECT(JNO));

INSERT INTO SSPJ VALUES (1, 101, 201, 100);
INSERT INTO SSPJ VALUES (1, 102, 202, 150);
INSERT INTO SSPJ VALUES (2, 103, 203, 200);
INSERT INTO SSPJ VALUES (2, 104, 204, 250);
INSERT INTO SSPJ VALUES (3, 105, 205, 300);
INSERT INTO SSPJ VALUES (3, 106, 207, 175);
INSERT INTO SSPJ VALUES (4, 107, 208, 225);
INSERT INTO SSPJ VALUES (4, 108, 206, 125);

```
INSERT INTO SSPJ VALUES (5, 101, 204, 50);
INSERT INTO SSPJ VALUES (5, 106, 208, 75);
INSERT INTO SSPJ VALUES (6, 102, 203, 125);
INSERT INTO SSPJ VALUES (6, 105, 207, 100);
INSERT INTO SSPJ VALUES (7, 103, 205, 200);
INSERT INTO SSPJ VALUES (7, 107, 208, 150);
INSERT INTO SSPJ VALUES (8, 104, 202, 175);
INSERT INTO SSPJ VALUES (8, 108, 208, 200);
```

SELECT * FROM SSPJ;

SNO	PNO	JNO	QTY
1	101	201	100
1	102	202	150
2	104	204	250
2	103	203	200
3	106	207	175
3	105	205	300
4	108	206	125
4	107	208	225
5	101	204	50
5	106	208	75
More than 10 rows available. Increase rows selector to view more rows.			

Question:

Perform the following queries on the tables just created :

1. Get sno values for suppliers who supply project j201.
   - SELECT SNO FROM SSPJ WHERE JNO = 201;

SNO
1

2. Get sno values for suppliers who supply project j201 with part p101.
   - SELECT DISTINCT SNO FROM SSPJ WHERE JNO = 201 AND PNO = 101;

SNO
1

3. Get jname values for projects supplied by supplier s1.
   - SELECT DISTINCT J.JNAME FROM SPROJECT J JOIN SSPJ S ON J.JNO = S.JNO WHERE S.SNO = 1;

JNAME
Project Beta
Project Alpha

4. Get color values for parts supplied by supplier s1.
   - SELECT DISTINCT P.COLOR FROM SPARTS P JOIN SSPJ S ON P.PNO = S.PNO WHERE S.SNO = 1;

COLOR
Blue
Red

5. Get pno values for parts supplied to any project in New York.
   - SELECT DISTINCT P.PNO FROM SPARTS P JOIN SSPJ S ON P.PNO = S.PNO JOIN SPROJECT J ON S.JNO = J.JNO WHERE J.CITY = 'New York';

PNO
101
105
103

6. Get sno values for suppliers who supply project j1 with a red part.
   - SELECT DISTINCT S.SNO FROM SSUPPLIER S JOIN SSPJ SP ON S.SNO = SP.SNO JOIN SPARTS P ON SP.PNO = P.PNO WHERE SP.JNO = 1 AND P.COLOR = 'Red';

no data found

7. Get sno values for suppliers who supply a New York or Chicago project with a red part.
   - SELECT DISTINCT S.SNO FROM SSUPPLIER S JOIN SSPJ SP ON S.SNO = SP.SNO JOIN SPARTS P ON SP.PNO = P.PNO JOIN SPROJECT J ON SP.JNO = J.JNO WHERE (J.CITY = 'New York' OR J.CITY = 'Chicago') AND P.COLOR = 'Red';

SNO
1

8. Get pno values for parts supplied to any project by a supplier in the same city.
   - SELECT DISTINCT P.PNO FROM SPARTS P JOIN SSPJ SP ON P.PNO = SP.PNO JOIN SSUPPLIER S ON SP.SNO = S.SNO JOIN SPROJECT J ON SP.JNO = J.JNO WHERE S.CITY = J.CITY;

PNO
108
101
106

9. Get pno values for parts supplied to any project in New York by a supplier in New York.
   - SELECT DISTINCT P.PNO FROM SPARTS P JOIN SSPJ SP ON P.PNO = SP.PNO JOIN SSUPPLIER S ON SP.SNO = S.SNO JOIN SPROJECT J ON SP.JNO = J.JNO WHERE J.CITY = 'New York' AND S.CITY = 'New York';

PNO
101

10. Get jno values for projects supplied by at least one supplier not in the same city.
    - SELECT DISTINCT J.JNO FROM SPROJECT J JOIN SSPJ SP ON J.JNO = SP.JNO JOIN SSUPPLIER S ON SP.SNO = S.SNO WHERE J.CITY <> S.CITY;

JNO
207
205
206
202
203
204
208

11. Get all pairs of city values such that a supplier in the first city supplies a project in the second city.
    - SELECT DISTINCT S.CITY AS SupplierCity, J.CITY AS ProjectCity FROM SSUPPLIER S JOIN SSPJ SP ON S.SNO = SP.SNO JOIN SPROJECT J ON SP.JNO = J.JNO WHERE S.CITY <> J.CITY;

SUPPLIERCITY	PROJECTCITY
Los Angeles	Chicago
Los Angeles	San Francisco
New York	San Francisco
New York	Los Angeles
Chicago	New York
San Francisco	Los Angeles
Chicago	San Francisco

12. Get sno values for suppliers who supply the same part to all projects.
    - SELECT S.SNO FROM SSUPPLIER S JOIN SSPJ SP ON S.SNO = SP.SNO GROUP BY S.SNO HAVING COUNT(DISTINCT SP.JNO) = (SELECT COUNT(DISTINCT J.JNO) FROM SPROJECT J);

no data found

13. Get pno values for parts supplied to all projects in New York.
    - SELECT P.PNO FROM SPARTS P JOIN SSPJ SP ON P.PNO = SP.PNO JOIN SPROJECT J ON SP.JNO = J.JNO WHERE J.CITY = 'New York' GROUP BY P.PNO HAVING COUNT(DISTINCT J.JNO) = (SELECT COUNT(DISTINCT J.JNO) FROM SPROJECT J WHERE J.CITY = 'New York');

no data found

14. Get sname values for suppliers who supplies at least one red part to any project.
    - SELECT DISTINCT S.SNAME FROM SSUPPLIER S JOIN SSPJ SP ON S.SNO = SP.SNO JOIN SPARTS P ON SP.PNO = P.PNO WHERE P.COLOR = 'Red';

SNAME
Supplier E
Supplier A

15. Get total quantity of part p1 supplied by supplier s1.
    - SELECT SUM(QTY) AS TotalQuantity FROM SSPJ WHERE PNO = 101 AND SNO = 1;

TOTALQUANTITY
100

16. Get the total number of projects supplied by supplier s3.
    - SELECT COUNT(DISTINCT JNO) AS TotalProjects FROM SSPJ WHERE SNO = 3;

TOTALPROJECTS
2

17. Change color of all red parts to orange.
    - UPDATE SPARTS SET COLOR = 'Orange' WHERE COLOR = 'Red';

1 row(s) updated.

18. Get sname values for suppliers who supply to both projects j1 and j2.
    - SELECT S.SNAME FROM SSUPPLIER S JOIN SSPJ SP ON S.SNO = SP.SNO WHERE SP.JNO IN (1, 2) GROUP BY S.SNAME HAVING COUNT(DISTINCT SP.JNO) = 2;

no data found

19. Get jnames for those project which are supplied by supplier XYZ.
    - SELECT DISTINCT J.JNAME FROM SPROJECT J JOIN SSPJ SP ON J.JNO = SP.JNO JOIN SSUPPLIER S ON SP.SNO = S.SNO WHERE S.SNAME = 'XYZ';

no data found

20. Get all city, pno, city triples such that a supplier in the first city supplies the specified part to a project in the second city.
    - SELECT DISTINCT S.CITY AS SupplierCity, P.PNO, J.CITY AS ProjectCity FROM SSUPPLIER S JOIN SSPJ SP ON S.SNO = SP.SNO JOIN SPARTS P ON SP.PNO = P.PNO JOIN SPROJECT J ON SP.JNO = J.JNO;

SUPPLIERCITY	PNO	PROJECTCITY
Los Angeles	102	Chicago
Chicago	106	Chicago
Chicago	105	New York
Los Angeles	105	Chicago
New York	107	San Francisco
Los Angeles	104	San Francisco
Chicago	103	New York
New York	102	Los Angeles
Los Angeles	103	Chicago
San Francisco	101	San Francisco
More than 10 rows available. Increase rows selector to view more rows.		