实验二：MySQL 中表的创建与查询

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1. **首先创建四张表，命令如下：**

```
mysql> CREATE TABLE S
    -> (SNO CHAR(4) NOT NULL,
    -> SNAME CHAR(20) NOT NULL,
    -> SADDR CHAR(20),
    -> PRIMARY KEY(SNO));
Query OK, 0 rows affected (0.02 sec)
```

```
mysql> CREATE TABLE S
    -> (SNO CHAR(4) NOT NULL,
    -> SNAME CHAR(20) NOT NULL,
    -> SADDR CHAR(20),
    -> PRIMARY KEY(SNO));
Query OK, 0 rows affected (0.02 sec)
```

```
mysql> CREATE TABLE J
    -> (JNO CHAR(4) NOT NULL,
    -> JNAME CHAR(20),
    -> JCITY CHAR(20),
    -> BALANCE NUMERIC(7,2),
    -> PRIMARY KEY(JNO));
Query OK, 0 rows affected (0.02 sec)
```

```
mysql> CREATE TABLE SPJ
    -> (SNO CHAR(4) NOT NULL,
    -> PNO CHAR(4) NOT NULL,
    -> JNO CHAR(4) NOT NULL,
    -> PRICE NUMERIC(7,2),
    -> QTY SMALLINT,
    -> PRIMARY KEY(SNO, PNO, JNO),
    -> FOREIGN KEY(SNO) REFERENCES S(SNO),
    -> FOREIGN KEY(PNO) REFERENCES P(PNO),
    -> FOREIGN KEY(JNO) REFERENCES J(JNO),
    -> CONSTRAINT C_QTY CHECK(QTY BETWEEN 0 AND 10000));
Query OK, 0 rows affected (0.03 sec)
```

2. **插入相应的数据。**
3. **执行相应的查询。**

3.1 检索供应零件编号为 J1 的工程的供应商编号 SNO。

```
mysql> SELECT DISTINCT SNO
    -> from spj
    -> where JNO = 'J1';
+------+
| SNO  |
+------+
| S1   |
| S3   |
| S5   |
| S6   |
+------+
4 rows in set (0.00 sec)
```

3.2 检索供应零件给工程 J1，且零件编号为 P1 的供应商编号 SNO。

```
mysql> SELECT SNO
    -> FROM spj
    -> where JNO = 'J1' AND PNO = 'P1';
+------+
| SNO  |
+------+
| S1   |
+------+
1 row in set (0.00 sec)
```

3.3 查询没有正余额的工程编号、名称及城市，结果按工程编号升序排列。

```
mysql> select JNO, JNAME, JCITY
    -> FROM j
    -> where BALANCE <= 0
    -> order by JNO ASC;
+------+-----------------+-----------+
| JNO  | JNAME           | JCITY     |
+------+-----------------+-----------+
| J1   | Dongfangmingzhu | Shanghai  |
| J2   | Lianyouchang    | Changchun |
+------+-----------------+-----------+
2 rows in set (0.00 sec)
```

3.4 求使用零件数量为 100 到 1000 的工程编号、零件号和数量。

```
mysql> SELECT JNO, PNO, QTY FROM spj WHERE QTY BETWEEN 100 AND 1000;
+------+------+------+
| JNO  | PNO  | QTY  |
+------+------+------+
| J1   | P3   |  100 |
| J5   | P3   |  100 |
+------+------+------+
2 rows in set (0.00 sec)
```

3.5 查询上海的供应商名称，假设供应商关系 SADDR 列的值都以城市名开 头。

```
mysql> select SNAME
    -> FROM s
    -> WHERE SADDR LIKE 'Shanghai%';
+-----------+
| SNAME     |
+-----------+
| Company_B |
+-----------+
1 row in set (0.01 sec)
```

3.6 检索使用了 P3 零件的工程名称。

```
mysql> select DISTINCT j.JNAME FROM spj join j on spj.JNO = j.JNO where spj.PNO = 'P3';
+----------------+
| JNAME          |
+----------------+
| Dongfangmingzhu |
| Mingzhuxian     |
| Lianyougongdi   |
| Nanpudaqiao     |
+----------------+
4 rows in set (0.00 sec)
```

3.7 检索供应零件给工程 J1，且零件颜色为红色的供应商编号 SNO。

```
mysql> SELECT DISTINCT spj.SNO FROM spj join p on spj.PNO = p.PNO WHERE spj.JNO = 'j1' and p.
COLOR = 'red';
+------+
| SNO  |
+------+
| S1   |
| S5   |
| S6   |
+------+
3 rows in set (0.00 sec)
```

3.8 检索至少使用了零件编号为 P3 和 P5 的工程编号 JNO。

```
mysql> select JNO
    -> from spj
    -> where PNO IN ('P3','P5')
    -> GROUP BY JNO
    -> HAVING COUNT(DISTINCT PNO) = 2;
+------+
| JNO  |
+------+
| J1   |
| J4   |
| J6   |
+------+
3 rows in set (0.00 sec)
```

3.9 检索不使用编号为 P3 零件的工程编号 JNO 和名称 JNAME。

```
mysql> select j.JNO, j.JNAME
    -> from j
    -> where j.JNO NOT IN (
    -> select distinct spj.jno
    -> from spj
    -> where spj.PNO = 'P3'
    -> );
+------+-------------+
| JNO  | JNAME       |
+------+-------------+
| J2   | Lianyouchang |
| J3   | MTR3        |
| J7   | Shuinichang  |
+------+-------------+
3 rows in set (0.00 sec)
```