数据库SQL语句练习

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用SQL语句建立第二章习题6中的4个表

首先,登陆mysql后,建立一个新的数据库供此次联系使用:

```
CREATE DATABASE `construction` DEFAULT CHARACTER SET gb2312 COLLATE gb2312_chinese_ci;
```

然后按照要求,建立4个表:

```
CREATE TABLE S (SNO CHAR(3), SNAME CHAR(10), STATUS CHAR(2), CITY C HAR(10));
CREATE TABLE P (PNO CHAR(3), PNAME CHAR(10), COLOR CHAR(4), WEIGHT IN T);
CREATE TABLE J (JNO CHAR(3), JNAME CHAR(10), CITY CHAR(10));
CREATE TABLE SPJ(SNO CHAR(3), PNO CHAR(3), JNO CHAR(3), QTY INT);
```

运行show tables; ,即可查看该库中所有的表,如图:

接下来,需要将数据插入到表中,在这里以J表为例,具体步骤和变化如图所示:

```
C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
                                                     X
MariaDB [(none)]> USE construction;
Database changed
MariaDB [construction]> show tables;
+-----+
| Tables_in_construction |
l j
p
S
spj
4 rows in set (0.00 sec)
MariaDB [construction]> SELECT * FROM j;
+----+
| JNO | JNAME | CITY |
      | 三建
              | 北京 |
11
      一汽
              | 春 |
 J2
13
      | 弹簧厂 | 天津 |
3 rows in set (0.00 sec)
MariaDB [construction]>
```

```
X
C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
MariaDB [construction]> SELECT * FROM j;
+-----+
JNO | JNAME | CITY |
     | 三建
J1
             | 北京 |
             | 春計 |
      一汽
J2
     | 弾簧厂 | 天津 |
J3
+----+
3 rows in set (0.00 sec)
MariaDB [construction]> INSERT INTO `j` (`JNO`, `JNAME`, `CITY`) VA
LUES ('J4', '造船厂', '天津');
Query OK, 1 row affected (0.05 sec)
MariaDB [construction]> SELECT * FROM j;
+----+
| JNO | JNAME | CITY |
| J1 | 三建
             | 北京 |
| ]2 | 一汽
             | 春 |
     | 弾簧厂 | 天津 |
J3
| J4 | 造船厂 | 天津 |
+----+
4 rows in set (0.00 sec)
MariaDB [construction]>
```

```
C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
                                                X
MariaDB [construction]> SELECT * FROM J;
JNO JNAME
              CITY
 01 | 三建
              | 北京
     | 一汽
              | 长春
 J2
 ] 3 | 弹簧厂
               天津
     造船厂
 14
              | 天津 |
     | 机车厂
 J5
              | 唐山 |
 J6
     | 无线电厂
               常州
     | 半导体厂 | 南京 |
J7
+-----+
7 rows in set (0.00 sec)
MariaDB [construction]>
```

至此,整个J表就建完了。事实上,可以将所有插入操作整合为一句,直接将数据一次性插入。以P表为例:

运行语句

```
INSERT INTO `p` (`PNO`, `PNAME`, `COLOR`, `WEIGHT`)
VALUES ('P1', '螺母', '红', '12'), ('P2', '螺栓', '绿', '17'), ('P3', '螺丝刀', '蓝', '14'), ('P4', '螺丝刀', '红', '14'), ('P5', '凸轮', '蓝', '40'), ('P6', '齿轮', '红', '30');
SELECT * FROM `p`;
```

即可看到如图所示现象:

```
X
C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
MariaDB [construction]> SELECT * FROM P;
| PNO | PNAME | COLOR | WEIGHT |
 P1 | 螺母 | 红
                         12
 P2 | 螺栓 | 绿
                        17
 P3 | 螺丝刀 | 蓝
                        14
                        14
 P4
     | 螺丝刀 | 红
P5
      一凸轮
            一蓝
                         40
P6
      | 齿轮
             | 红
                        30
6 rows in set (0.00 sec)
MariaDB [construction]>
```

S表和SPJ表的建立同理,这里不再赘述,只给出最后的现象:

```
INSERT INTO `s` (`SNO`, `SNAME`, `STATUS`, `CITY`)
VALUES ('S1', '精益', '20', '天津'), ('S2', '盛锡', '10', '北京'), ('S
3', '东方红', '30', '北京'), ('S4', '丰泰盛', '20', '天津'), ('S5', '为民', '30', '上海');
```

```
X
 C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
6 rows in set (0.00 sec)
MariaDB [construction]> SELECT * FROM S;
               | STATUS | CITY |
      SNAME
      | 精益
               20
                       | 天津
51
 52
      盛锡
             10
                       | 北京
 53
      | 东方红 | 30
                       | 北京
       | 丰泰盛 | 20
                       | 天津
 54
                       上海
      |为民
               30
5 rows in set (0.00 sec)
MariaDB [construction]> select * from spj;
SNO PNO JNO QTY
 51
      P1
             J1
                      200
      P1
             J 3
                      100
51
 51
      P1
             134
                      700
 51
      | P2
             J2
                      100
 52
      | P3
             J1
                      400
 52
        P3
             J2
                      200
 52
      | P3
             134
                      500
 52
      | P3
             35
                      400
 52
      P5
             J1
                      400
 52
        P5
             J2
                      100
 53
        P1
             J1
                      200
 53
      | P3
             J1
                      200
                      100
 54
        P5
             J1
 54
             | 33
        P6
                      300
 54
      P6
             13
                      300
 55
      | P2
             ] ]4
                      100
 55
        P3
              J1
                      200
 55
        P<sub>6</sub>
               J2
                      200
```

完成第二章习题6中的查询

1.求供应工程J1零件的供应商号码SNO

```
X
C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
                                                             MariaDB [construction]> SELECT SNO
   -> FROM SPJ
   -> WHERE JNO='J1';
SNO
 51
52
52
53
 53
 54
S5
7 rows in set (0.00 sec)
MariaDB [construction]>
```

2.求供工程J1零件P1的供应商号码SNO

```
MariaDB [construction] > SELECT SNO
-> FROM SPJ
-> WHERE JNO='J1' AND PNO='P1';
+----+
| SNO |
+----+
2 rows in set (0.00 sec)

MariaDB [construction] >
```

3.求供应工程J1零件为红色的供应商号码SNO

```
MariaDB [construction] > SELECT SNO
-> FROM SPJ
-> WHERE JNO='J1'
-> AND PNO IN
-> (SELECT PNO
-> FROM P
-> WHERE COLOR='红');
+-----+
| SNO |
+-----+
2 rows in set (0.04 sec)

MariaDB [construction] >
```

4.求没有使用天津供应商生产的红色零件的工程号JNO

```
X
C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
                                                               MariaDB [construction]> SELECT JNO
   -> FROM J
   -> WHERE NOT EXISTS
   -> (SELECT * FROM SPJ
   -> WHERE SPJ.JNO=J.JNO
   -> AND SNO IN
   -> (SELECT SNO FROM S WHERE CITY='天津')
   -> AND PNO IN
   -> (SELECT PNO FROM P WHERE COLOR='红')
   -> );
 JNO
 J2
35
 J6
] ]7
4 rows in set (0.04 sec)
```

5.求至少使用了供应商S1所提供的全部零件的工程号JNO

换一种说法,该题语义实际上是:如果供应商S1生产了y零件,那么工程x就要选用y零件, 求这样的x工程的JNO,即对与工程x,不存在这样的y:S1生产了y而x却没有使用。如图:

```
C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
                                                                    X
                                                              4 rows in set (0.04 sec)
MariaDB [construction]> SELECT DISTINCT JNO
   -> FROM SPJ SPJC
   -> WHERE NOT EXISTS
   -> (SELECT * FROM SPJ SPJA
   -> WHERE SNO='S1'
   -> AND NOT EXISTS
   -> (SELECT * FROM SPJ SPJB
   -> WHERE SPJB.PNO=SPJA.PNO AND SPJB.JNO=SPJC.JNO)
   -> );
JNO
J4 |
+----+
1 row in set (0.00 sec)
MariaDB [construction]>
```

使用SQL完成各项操作

1.找出所有供应商姓名和所在城市

2.找出所有零件的名称、颜色、重量

```
X
C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
MariaDB [construction]> SELECT PNAME, COLOR, WEIGHT FROM P;
| PNAME | COLOR | WEIGHT |
 螺母
       | 红
                   12
 螺栓 |绿
                   17
 螺丝刀 | 蓝
                   14
| 螺丝刀 | 红
                   14
 凸轮
      蓝
                    40
齿轮
      | 红
                   30
6 rows in set (0.00 sec)
MariaDB [construction]>
```

3.找出使用供应商S1所供应零件的工程号码

4.找出工程项目J2使用的各种零件名称及其数量

```
X
C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
MariaDB [construction]> SELECT P.PNAME, SPJ.QTY
   -> FROM P, SPJ
   -> WHERE P.PNO=SPJ.PNO AND SPJ.JNO='J2';
PNAME QTY
 螺栓 |
          100
| 螺丝刀 | 200 |
| 凸轮 |
          100
| 齿轮
      200
4 rows in set (0.00 sec)
MariaDB [construction]>
```

5.找出上海厂商供应的所有零件号码

```
MariaDB [construction]> SELECT DISTINCT PNO FROM SPJ
-> WHERE SNO IN(
-> SELECT SNO
-> FROM S
-> WHERE CITY='上海'
-> );
+----+
| PNO |
+----+
| P2 |
| P3 |
| P6 |
+----+
3 rows in set (0.00 sec)
```

6.找出使用上海产的零件的工程号码

```
MariaDB [construction] > SELECT JNAME FROM J
-> WHERE JNO IN(
-> SELECT JNO
-> FROM SPJ,S
-> WHERE SPJ.SNO=S.SNO AND S.CITY='上海'
-> );
+-----+
| JNAME |
+-----+
| 三建 |
| 一汽 |
| 造船厂 |
+-----+
3 rows in set (0.00 sec)
```

7.找出没有使用天津产的零件的工程号码

```
C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
                                                               X
MariaDB [construction]> SELECT JNO FROM J
    -> WHERE NOT EXISTS(
    -> SELECT * FROM SPJ
    -> WHERE SPJ.JNO=J.JNO AND SNO IN(
    -> SELECT SNO FROM S WHERE CITY='天津'
    -> )
    -> );
 JNO
 J5
 J6
1 37
3 rows in set (0.00 sec)
MariaDB [construction]>
```

8.把全部红色零件的颜色改成蓝色

```
X
C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
MariaDB [construction]> UPDATE P
   -> SET COLOR='蓝'
   -> WHERE COLOR='红';
Query OK, 3 rows affected (1.05 sec)
Rows matched: 3 Changed: 3 Warnings: 0
MariaDB [construction]>
MariaDB [construction] > SELECT * FROM P;
+----+
| PNO | PNAME | COLOR | WEIGHT |
+----+
| P1 | 螺母 | 蓝
                      12
| P2 | 螺栓 | 绿
                     17
| P3 | 螺丝刀 | 蓝 |
                     14
| P4 | 螺丝刀 | 蓝
                     14
     凸轮
          蓝
P5
                      40
| P6 | 齿轮 | 蓝
                      30
+----+
6 rows in set (0.00 sec)
MariaDB [construction]>
```

9.由S5供给J4的零件P6改为由S3供应,请做必要的修改

C:\WINDOWS\system32\CMD.exe - mysql -uroot -p						
ariaDB [construction]> UPDATE SPJ -> SET SNO='S3' -> WHERE SNO='S5' AND JNO='J4' AND PNO='P6'; uery OK, 1 row affected (0.06 sec) ows matched: 1 Changed: 1 Warnings: 0 ariaDB [construction]> SELECT * FROM SPJ;						
10	+ PNO	+ JNO	++ QTY			
	+ P1	J1	200			
1	P1	J 3	100			
1	P1	1 34	700			
51	P2	J 2	100			
52	P3	j J1	400			
52	P3	J 32	200			
52	P3	J4	500			
52	P3	j 35	400			
52	P5	j J1	400			
52	P5	J 32	100			
53	P1	j 31	200			
53	P3	J1	200			
54	P5	j J1	100			
54	P6	J 3	300			
54	P6	J3	300			
CE	1 00	1 74	100			

```
| PZ
 22
             J4
                       100
 55
        P3
               J1
                       200
 55
        P6
               J2
                       200
 53
       P6
              J4
                       500
19 rows in set (0.00 sec)
MariaDB [construction]>
```

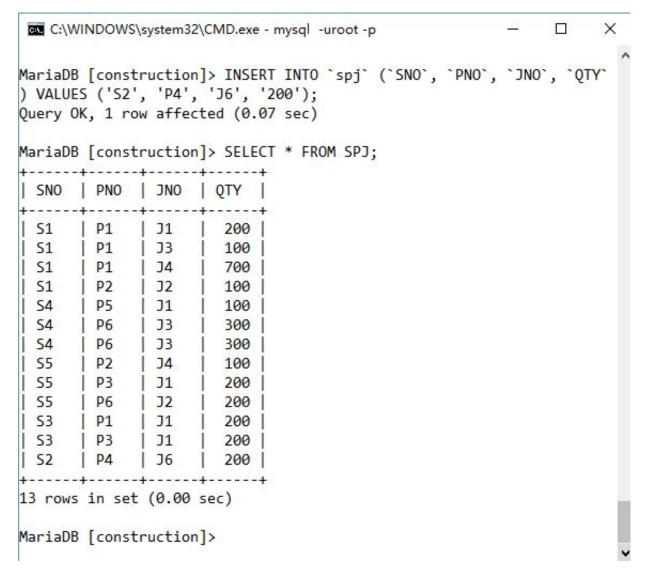
10.从供应商关系中删除S2的记录,并从供应关系中删除相应的记录

```
X
C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
                                                        MariaDB [construction]> DELETE FROM SPJ
   -> WHERE SNO='S2';
Query OK, 0 rows affected (0.00 sec)
MariaDB [construction]>
MariaDB [construction]> DELETE FROM S
   -> WHERE SNO='S2';
Query OK, 0 rows affected (0.00 sec)
MariaDB [construction]> SELECT * FROM SPJ,S;
 SNO PNO
            JNO | QTY
                         SNO
                                SNAME
                                       | STATUS | CITY |
                                                天津
 51
      P1
            1 11
                     200
                          51
                                精益
                                        20
            J1
                               | 东方红 |
                                                北京
 51
      P1
                     200
                          53
                                        30
                               | 丰泰盛 |
                                        20
                                                天津
      P1
 51
            J1
                     200
                          54
                                为民
                                                上海
      P1
            J1
                     200
                          55
                                        30
 51
 51
      P1
            1 33
                     100
                          51
                               |精益
                                       20
                                               | 天津
            J3
                               | 东方红 |
 51
       P1
                     100
                          53
                                        30
                                               | 北京
            J 3
                               | 丰泰盛 |
                                               | 天津
 51
      P1
                     100
                          54
                                        20
            J3
                               | 为民
                                                上海
 51
      P1
                     100
                          55
                                        30
      P1
            1 34
                     700
                               | 精益
                                        20
                                               | 天津
 51
                          51
 51
      P1
            ] ]4
                     700
                          53
                               | 东方红 |
                                        30
                                               北京
            134
                               | 丰泰盛 |
                                               | 天津
 51
      P1
                     700
                          54
                                        20
 51
      P1
            14
                     700
                          55
                               |为民
                                        30
                                               | 上海
                                                天津
                                精益
 51
       P2
            12
                     100
                          51
                                        20
      P2
 51
            J2
                     100
                          53
                               | 东方红 |
                                        30
                                                北京
      P2
                               | 丰泰盛
                                        20
                                                天津
            J 2
 51
                     100
                          54
      P2
 51
            J2
                     100
                          55
                                为民
                                        30
                                                上海
 54
      P5
            J1
                          51
                                精益
                                        20
                                                天津
                     100
 54
      P5
            J1
                     100
                          53
                               东方红
                                        30
                                                北京
      P5
                               | 丰泰盛 |
                                               | 天津
 54
            J1
                     100
                          54
                                        20
                                为民
                                                上海
       P5
            J1
                     100
                                        30
 54
                          55
                               | 精益
                                                天津
 54
       P6
            1 33
                     300
                          51
                                        20
       P<sub>6</sub>
 54
              J3
                     300
                          53
                                东方红
                                        30
                                                北京
             J3
                                                天津
 54
       P6
                     300
                          54
                               | 丰泰盛 |
                                        20
 54
      P6
            13
                     300
                          55
                               1 为民
                                       30
                                               | | | | | | | | |
```

1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	1. 1970	1707		1 4444 1 75		
54	P6	J 3	300 51	精益 20	天津	
54	P6	J 3	300 53	东方红 30	北京	~

表的内容较多,截图只展示了一部分。整体效果就是关于S2的记录在S和SPJ表中都不存在了。

11.请将(S2,J6,P4,200)插入到供应情况关系



代码附录

```
CREATE DATABASE `construction` DEFAULT CHARACTER SET gb2312 COLLATE
gb2312_chinese_ci;
CREATE TABLE S (SNO CHAR(3), SNAME CHAR(10), STATUS CHAR(2), CITY C
HAR(10));
CREATE TABLE P (PNO CHAR(3), PNAME CHAR(10), COLOR CHAR(4), WEIGHT IN
CREATE TABLE J (JNO CHAR(3), JNAME CHAR(10), CITY CHAR(10));
CREATE TABLE SPJ(SNO CHAR(3), PNO CHAR(3), JNO CHAR(3), QTY INT);
/*P: */
INSERT INTO `p` (`PNO`, `PNAME`, `COLOR`, `WEIGHT`) VALUES ;
INSERT INTO `p` (`PNO`, `PNAME`, `COLOR`, `WEIGHT`) VALUES ('P1',
'螺母', '红', '12'), ('P2', '螺栓', '绿', '17'), ('P3', '螺丝刀', '蓝',
'14'),('P4','螺丝刀','红','14'),('P5','凸轮','蓝','40'),('P
6', '齿轮', '红', '30');
SELECT * FROM 'p'
/*6.*/
SELECT SNAME, CITY FROM S;
SELECT PNAME, COLOR, WEIGHT FROM P;
SELECT JNO FROM SPJ WHERE SNO='S1';
SELECT P.PNAME, SPJ.QTY
FROM P, SPJ
WHERE P.PNO=SPJ.PNO AND SPJ.JNO='J2';
SELECT DISTINCT PNO FROM SPJ
WHERE SNO IN(
SELECT SNO
FROM S
WHERE CITY='上海'
);
SELECT JNAME FROM J
WHERE JNO IN(
SELECT JNO
FROM SPJ,S
```

```
WHERE SPJ.SNO=S.SNO AND S.CITY='上海'
);
SELECT JNO FROM J
WHERE NOT EXISTS(
SELECT * FROM SPJ
WHERE SPJ.JNO=J.JNO AND SNO IN(
    SELECT SNO FROM S WHERE CITY='天津'
);
UPDATE P
SET COLOR='蓝'
WHERE COLOR='红';
SELECT * FROM P; /*view the result after alter*/
UPDATE SPJ
SET SNO='S3'
WHERE SNO='S5' AND JNO='J4' AND PNO='P6';
/*10*/
DELETE FROM SPJ
WHERE SNO='S2';
DELETE FROM S
WHERE SNO='S2';
/*11*/
INSERT INTO `spj` (`SNO`, `PNO`, `JNO`, `QTY`) VALUES ('S2', 'P4',
'J6', '200');
```