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

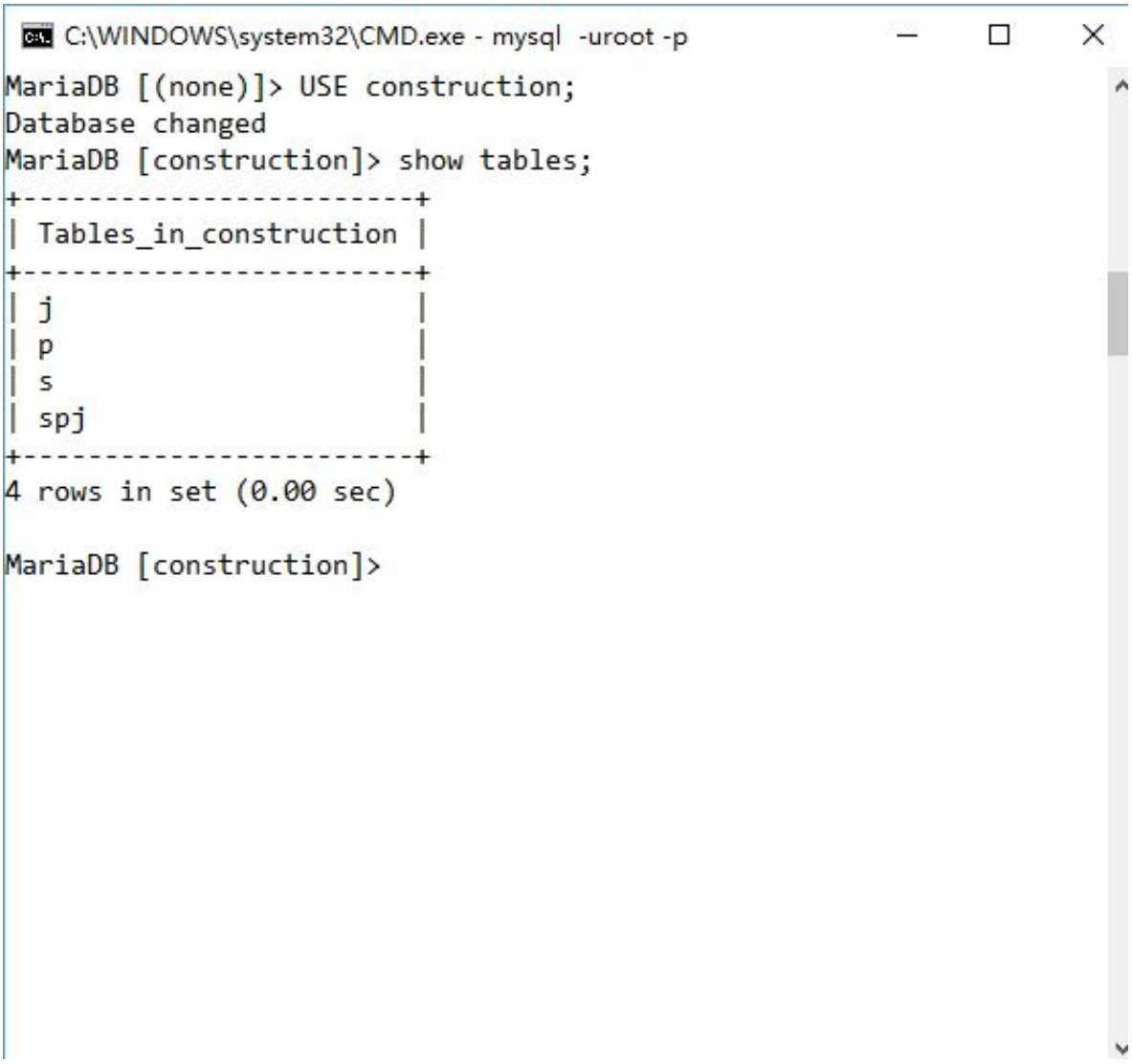
首先，登陆mysql后，建立一个新的数据库供此次联系使用：

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

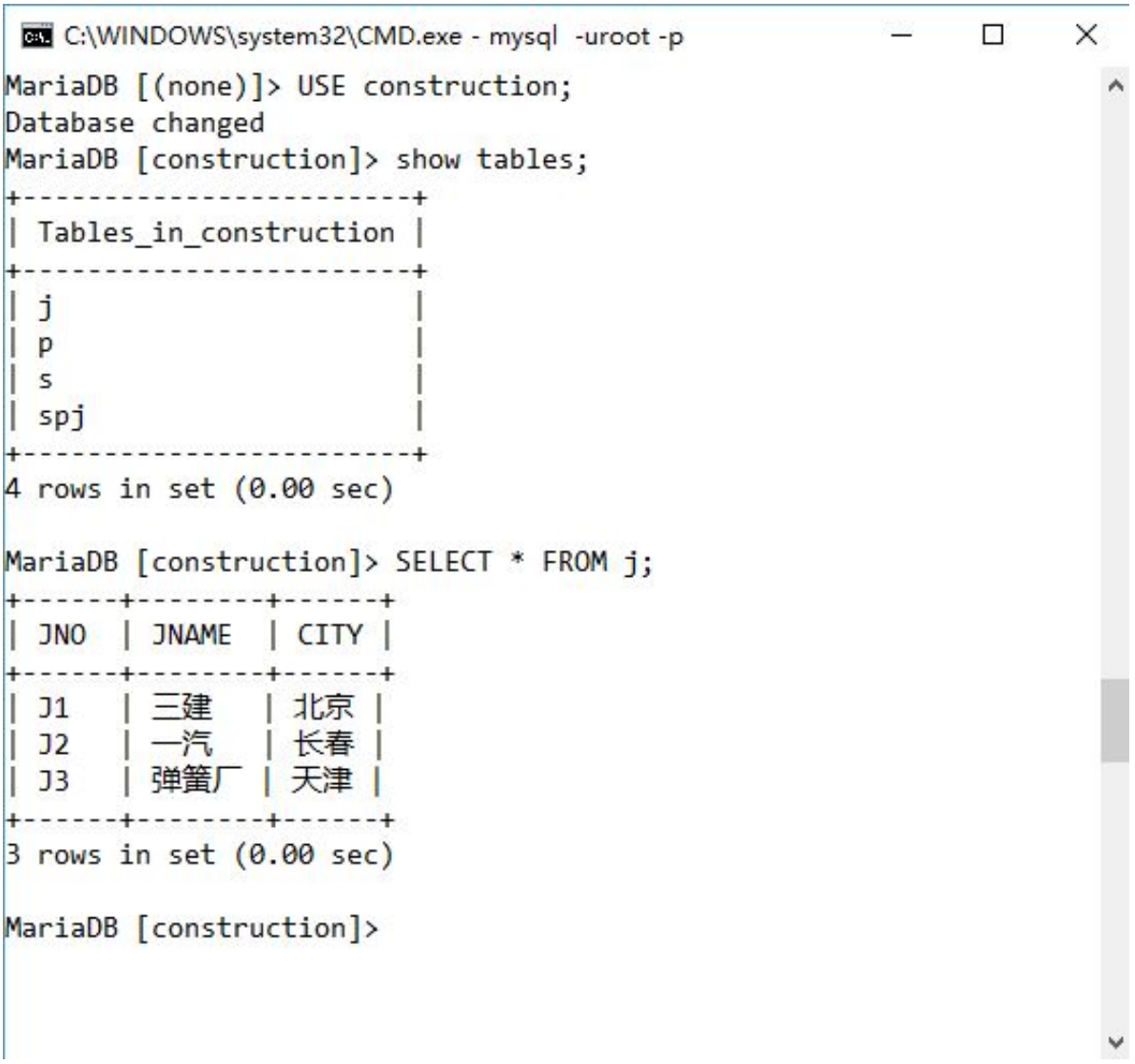
然后按照要求，建立4个表：

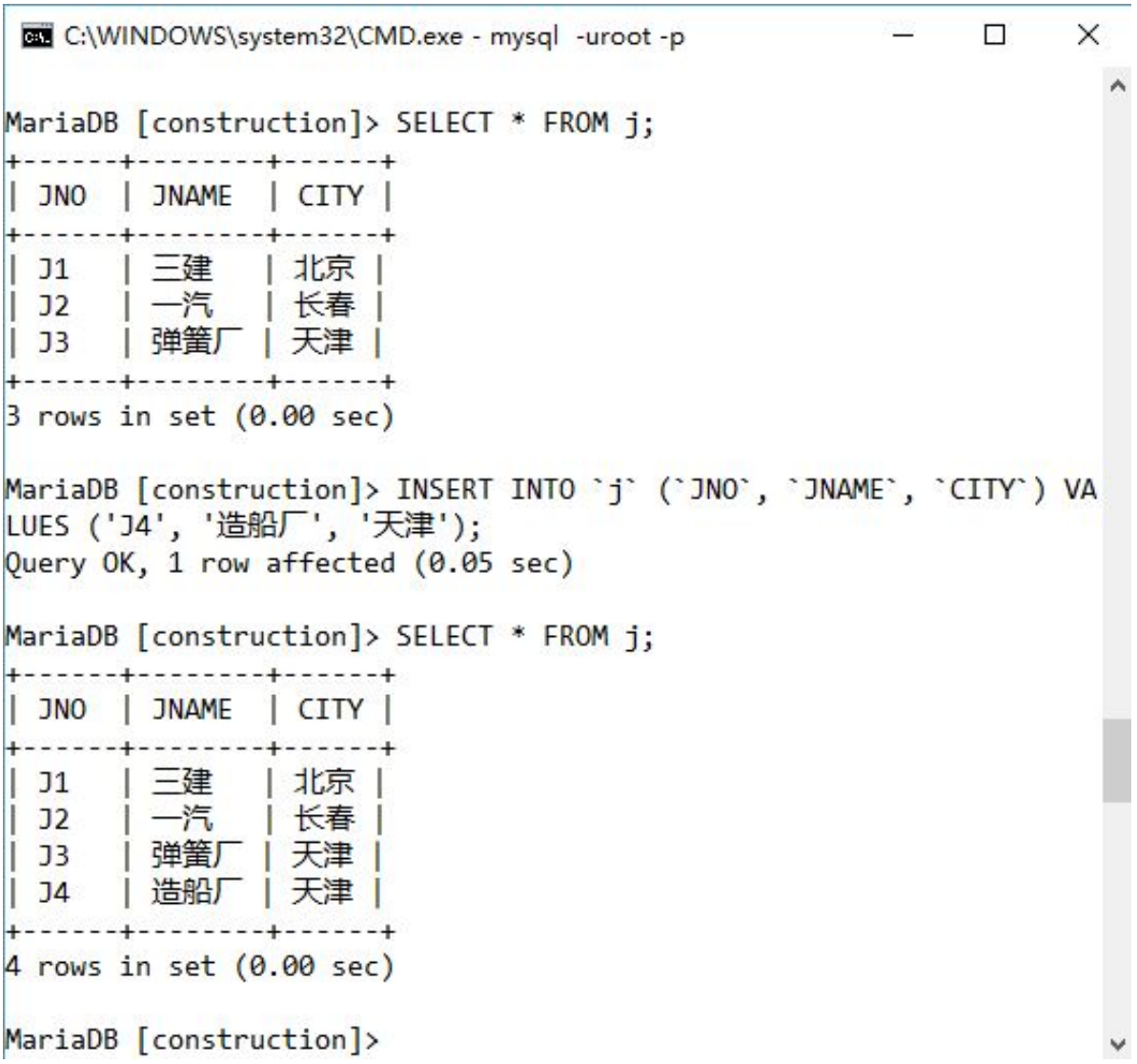
```
CREATE TABLE S (SNO CHAR(3), SNAME CHAR(10), STATUS CHAR(2), CITY C
HAR(10));
CREATE TABLE P (PNO CHAR(3),PNAME CHAR(10),COLOR CHAR(4),WEIGHT IN
T);
CREATE TABLE J (JNO CHAR(3),JNAME CHAR(10),CITY CHAR(10));
CREATE TABLE SPJ(SNO CHAR(3),PNO CHAR(3),JNO CHAR(3),QTY INT);
```

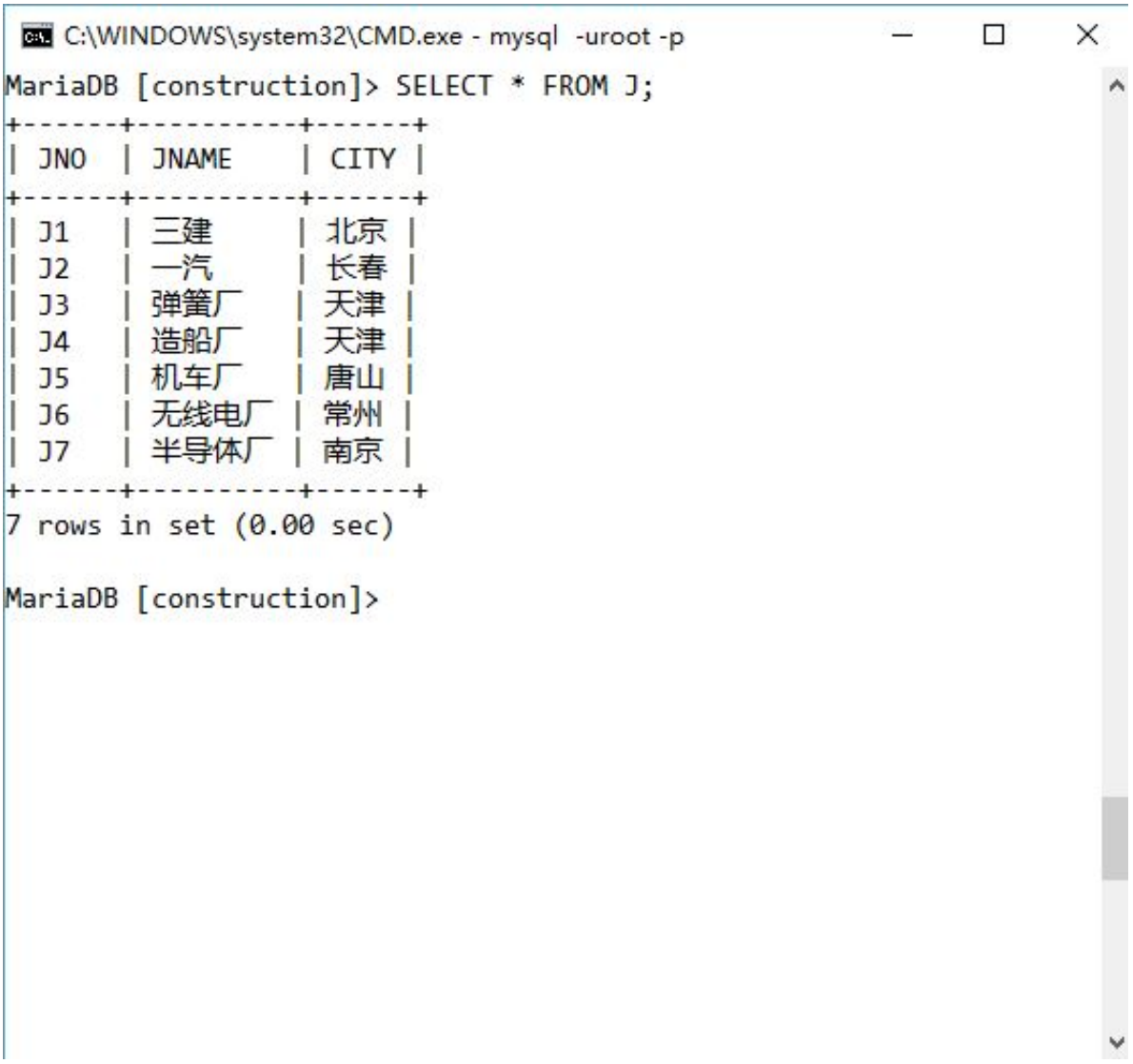
运行show tables；，即可查看该库中所有的表，如图：



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
MariaDB [(none)]> USE construction;
Database changed
MariaDB [construction]> show tables;
+------------------------+
| Tables_in_construction |
+------------------------+
| j |
| p |
| s |
| spj |
+------------------------+
4 rows in set (0.00 sec)
MariaDB [construction]> SELECT * FROM j;
+------+--------+------+
| JNO | JNAME | CITY |
+------+--------+------+
J1	三建	北京
J2	一汽	长春
J3	弹簧厂	天津
+------+--------+------+
3 rows in set (0.00 sec)
MariaDB [construction]>


C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
MariaDB [construction]> SELECT * FROM j;
+------+--------+------+
| JNO | JNAME | CITY |
+------+--------+------+
J1	三建	北京
J2	一汽	长春
J3	弹簧厂	天津
+------+--------+------+
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
J2	一汽	长春
J3	弹簧厂	天津
J4	造船厂	天津
+------+--------+------+
4 rows in set (0.00 sec)
MariaDB [construction]>

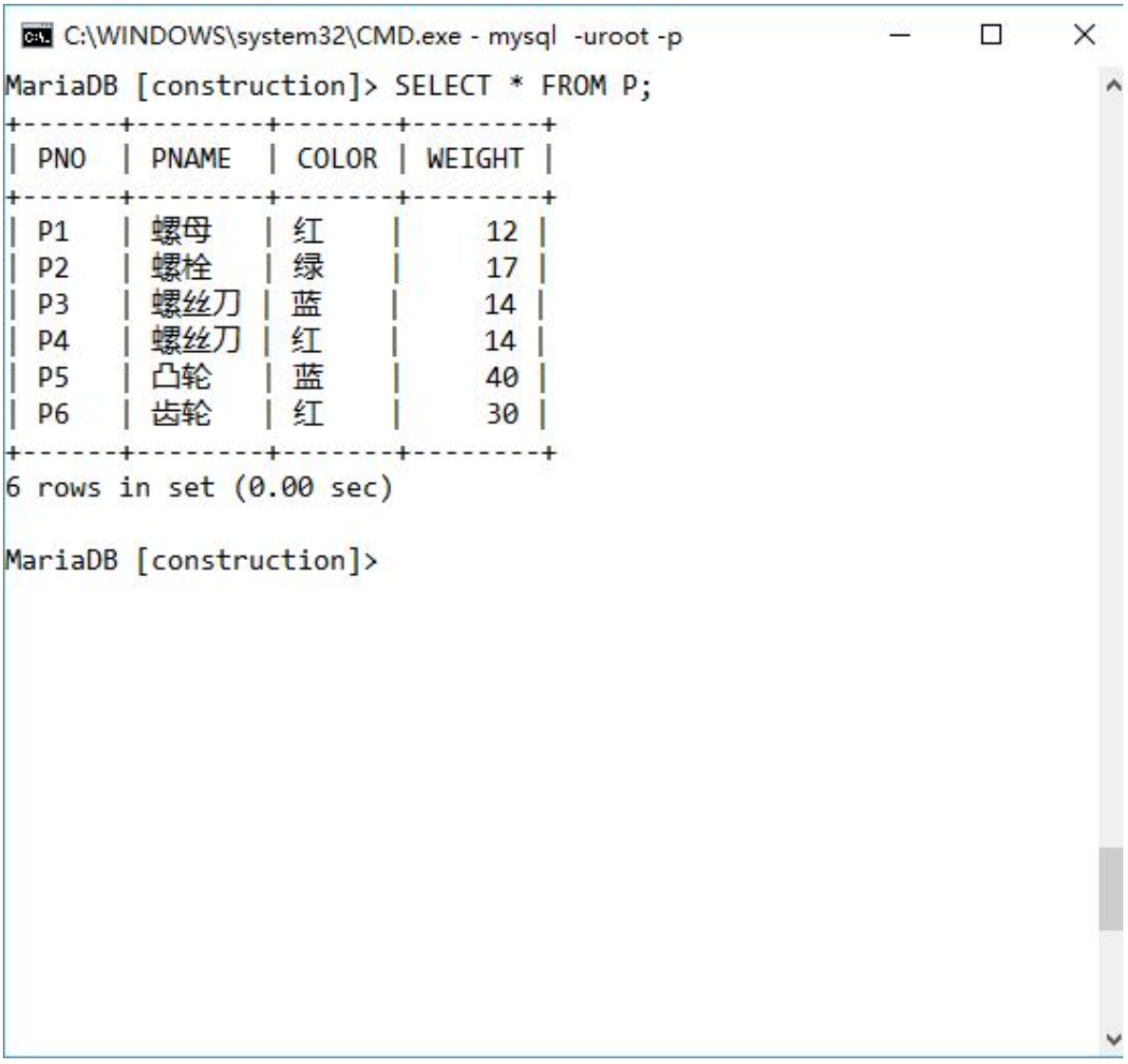


至此，整个J表就建完了。事实上，可以将所有插入操作整合为一句，直接将数据一次性插入。以P表为例：

运行语句

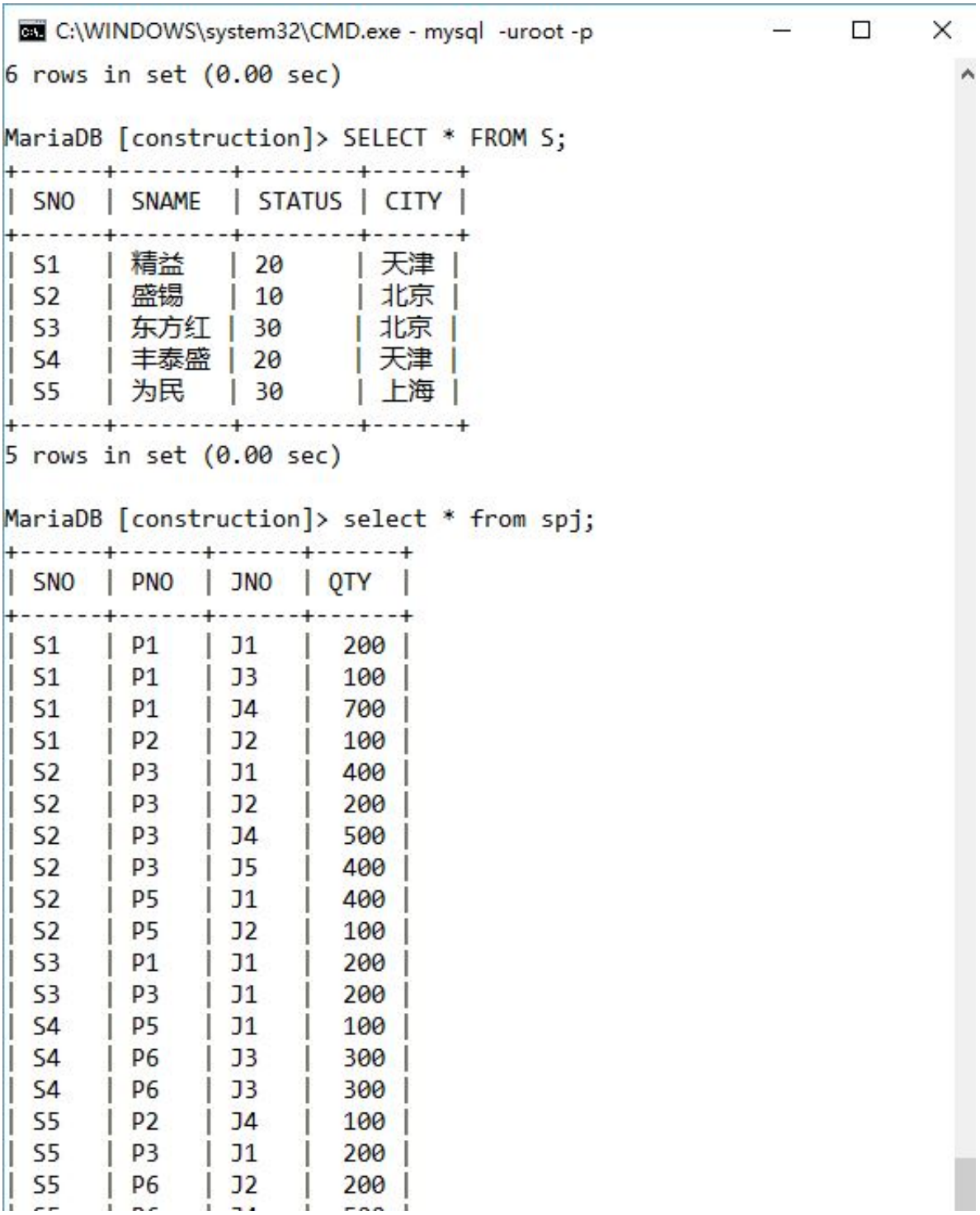
```
INSERT INTO `p` (`PNO`, `PNAME`, `COLOR`, `WEIGHT`)
VALUES ('P1', '螺母', '红', '12'), ('P2', '螺栓', '绿', '17'), ('P3',
'螺丝刀', '蓝', '14'), ('P4', '螺丝刀', '红', '14'), ('P5', '凸轮',
'蓝', '40'), ('P6', '齿轮', '红', '30');
SELECT * FROM `p`;
```

即可看到如图所示现象：



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');
```


C:\WINDOWS\system32\CMD.exe - mysql -uroot -p
6 rows in set (0.00 sec)
MariaDB [construction]> SELECT * FROM S;
+------+--------+--------+------+
| SNO | SNAME | STATUS | CITY |
+------+--------+--------+------+
S1	精益	20	天津
S2	盛锡	10	北京
S3	东方红	30	北京
S4	丰泰盛	20	天津
S5	为民	30	上海
+------+--------+--------+------+
5 rows in set (0.00 sec)
MariaDB [construction]> select * from spj;
+------+------+------+------+
| SNO | PNO | JNO | QTY |
+------+------+------+------+
S1	P1	J1	200
S1	P1	J3	100
S1	P1	J4	700
S1	P2	J2	100
S2	P3	J1	400
S2	P3	J2	200
S2	P3	J4	500
S2	P3	J5	400
S2	P5	J1	400
S2	P5	J2	100
S3	P1	J1	200
S3	P3	J1	200
S4	P5	J1	100
S4	P6	J3	300
S4	P6	J3	300
S5	P2	J4	100
S5	P3	J1	200
S5	P6	J2	200

```
| S5   | P6   | J4   |  500 |
+------+------+------+------+
19 rows in set (0.00 sec)

MariaDB [construction]>
```

完成第二章习题6中的查询

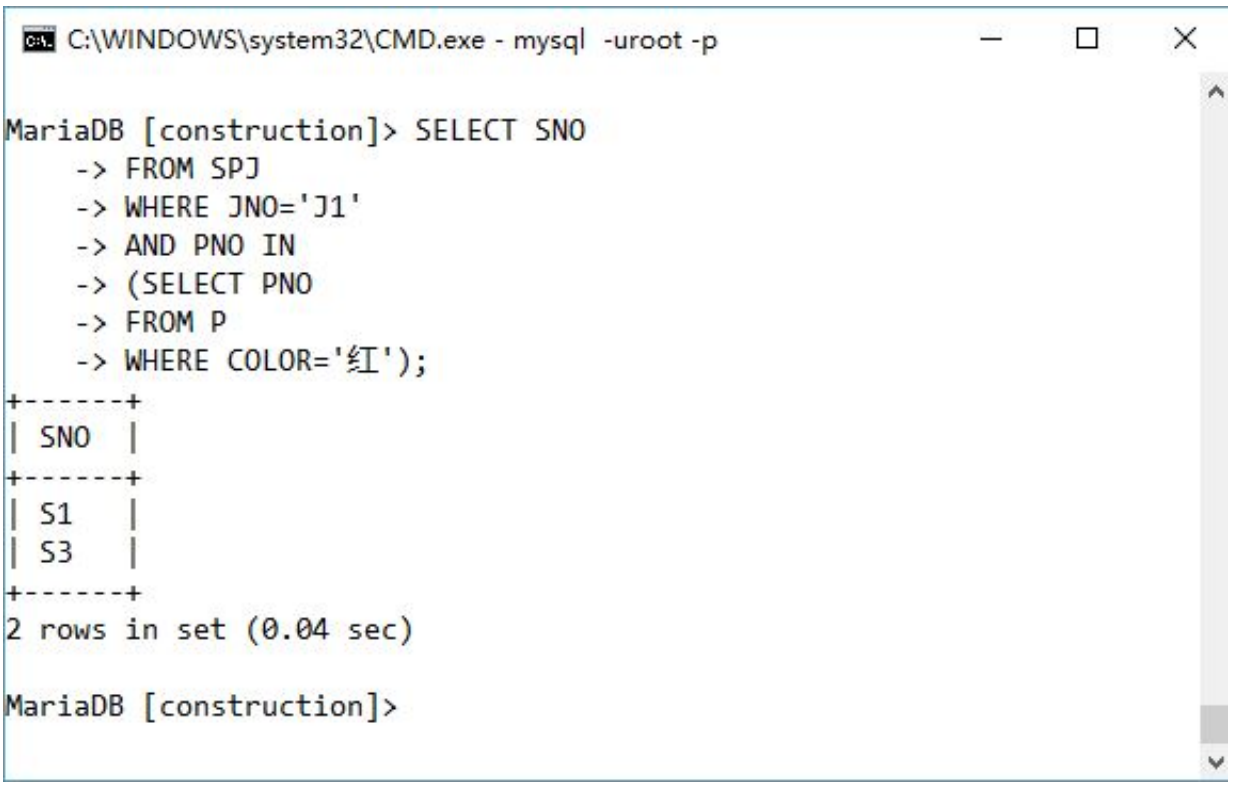
1.求供应工程J1零件的供应商号码SNO

```
C:\WINDOWS\system32\CMD.exe - mysql  -uroot -p
MariaDB [construction]> SELECT SNO
    -> FROM SPJ
    -> WHERE JNO='J1';
+------+
| SNO  |
+------+
| S1   |
| S2   |
| S2   |
| S3   |
| S3   |
| S4   |
| S5   |
+------+
7 rows in set (0.00 sec)

MariaDB [construction]>
```

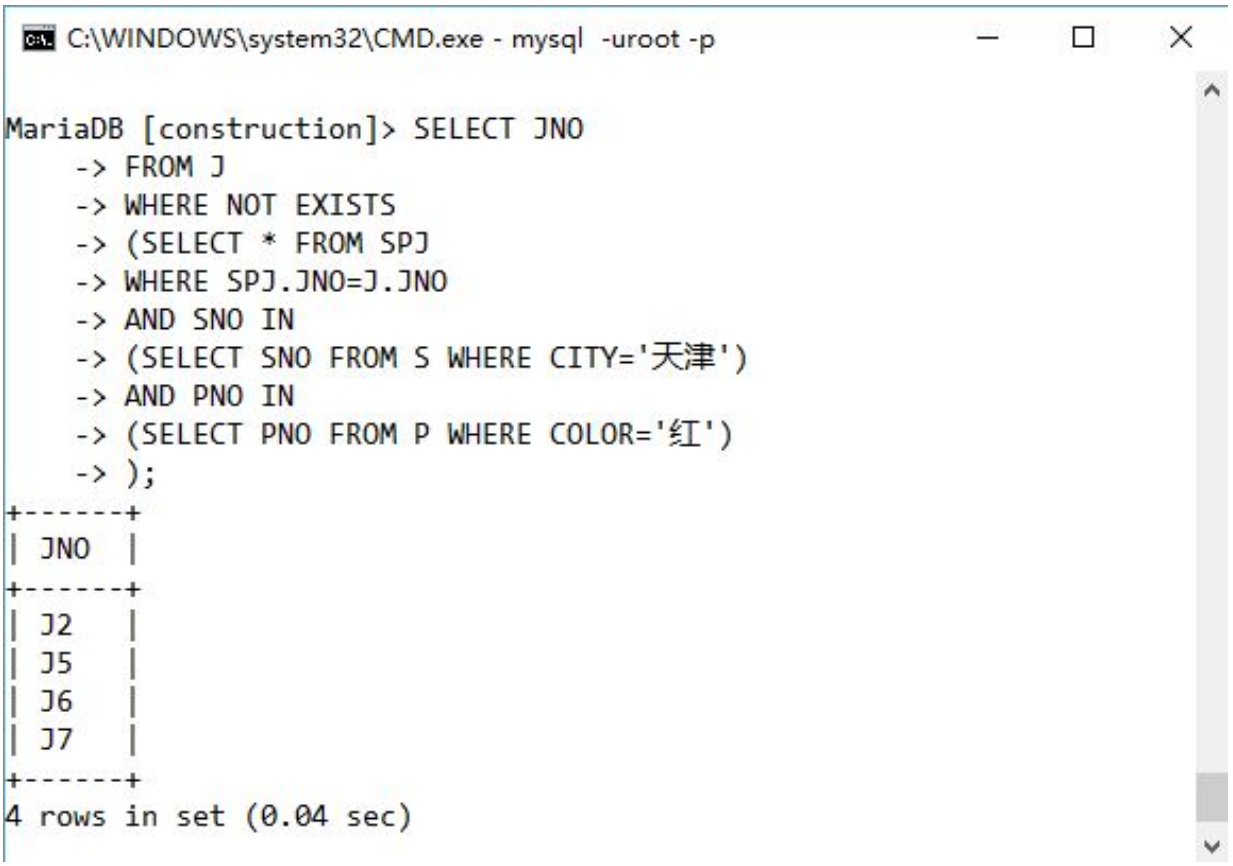
2.求供工程J1零件P1的供应商号码SNO

```
C:\WINDOWS\system32\CMD.exe - mysql  -uroot -p

MariaDB [construction]> SELECT SNO
    -> FROM SPJ
    -> WHERE JNO='J1' AND PNO='P1';
+------+
| SNO  |
+------+
| S1   |
| S3   |
+------+
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



4.求没有使用天津供应商生产的红色零件的工程号JNO



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：

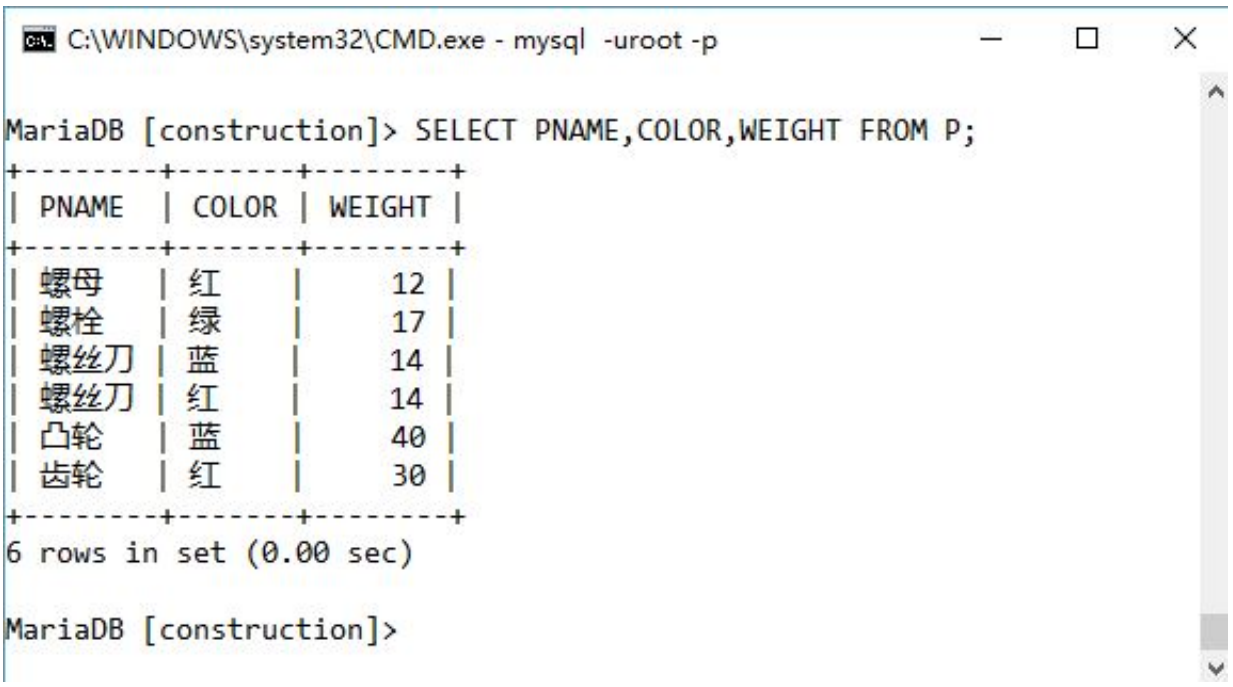
```
C:\WINDOWS\system32\CMD.exe - mysql  -uroot -p
4 rows in set (0.04 sec)

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

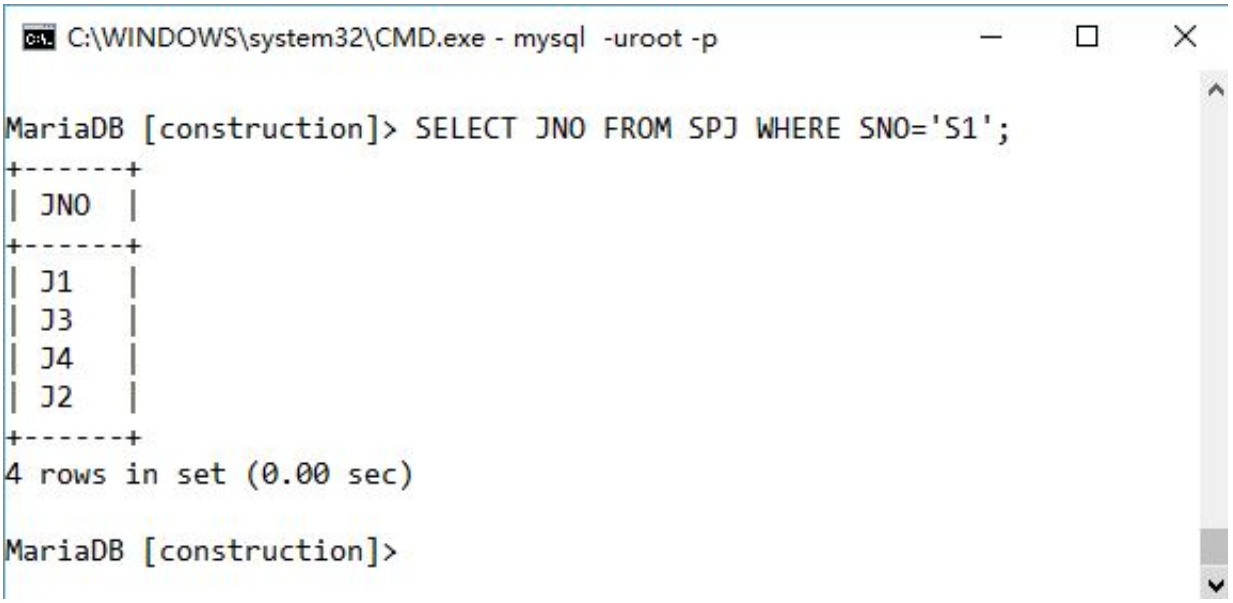
1.找出所有供应商姓名和所在城市

```
C:\WINDOWS\system32\CMD.exe - mysql  -uroot -p
MariaDB [construction]> SELECT SNAME,CITY FROM S;
+--------+------+
| SNAME  | CITY |
+--------+------+
| 精益   | 天津 |
| 盛锡   | 北京 |
| 东方红 | 北京 |
| 丰泰盛 | 天津 |
| 为民   | 上海 |
+--------+------+
5 rows in set (0.00 sec)

MariaDB [construction]>
```

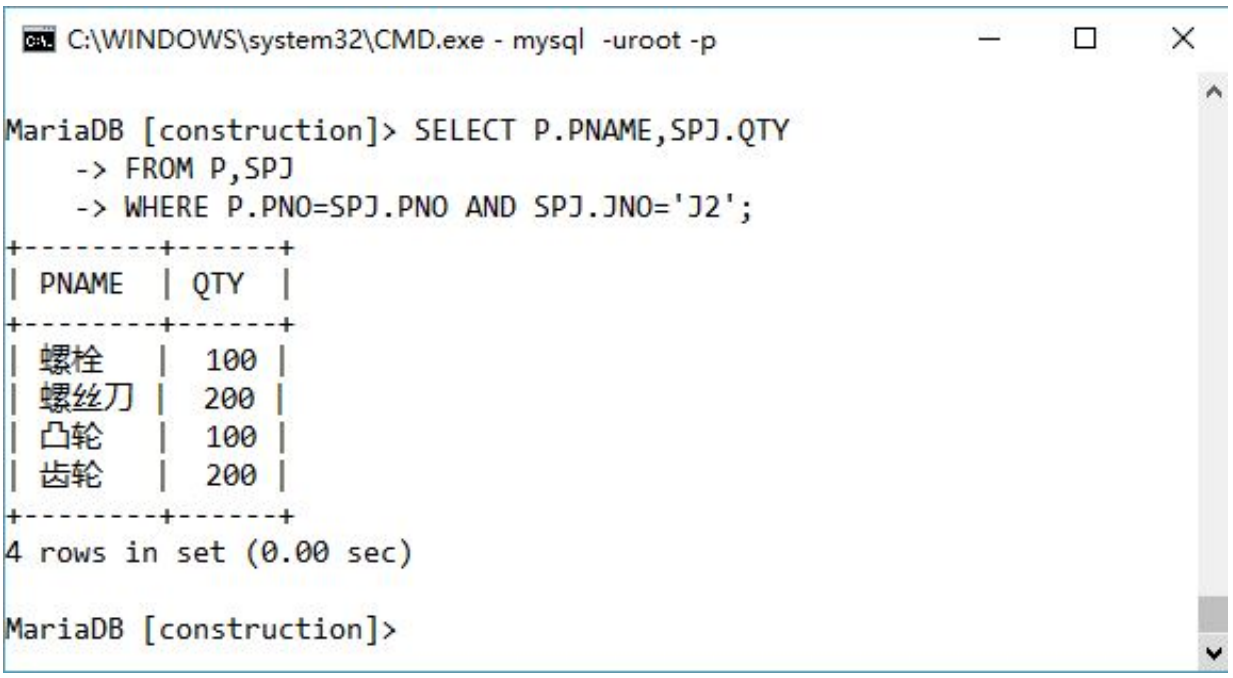
2.找出所有零件的名称、颜色、重量



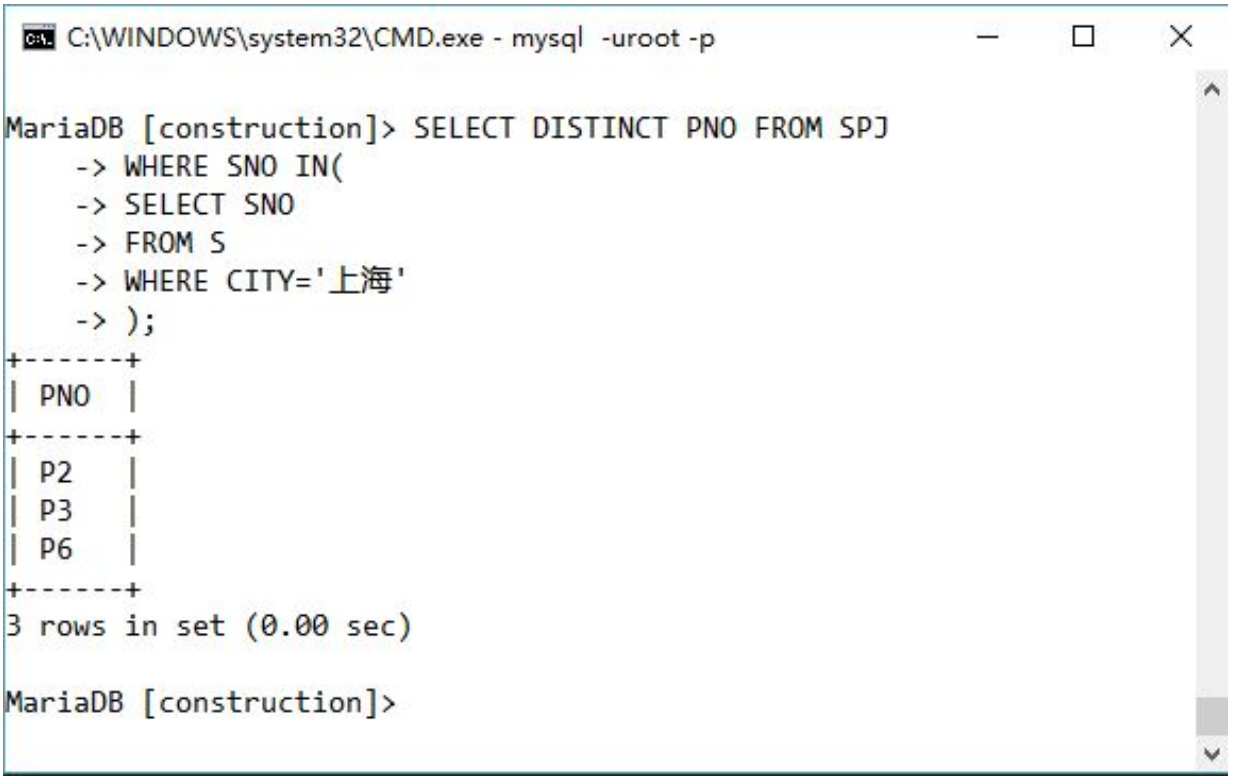
3.找出使用供应商S1所供应零件的工程号码



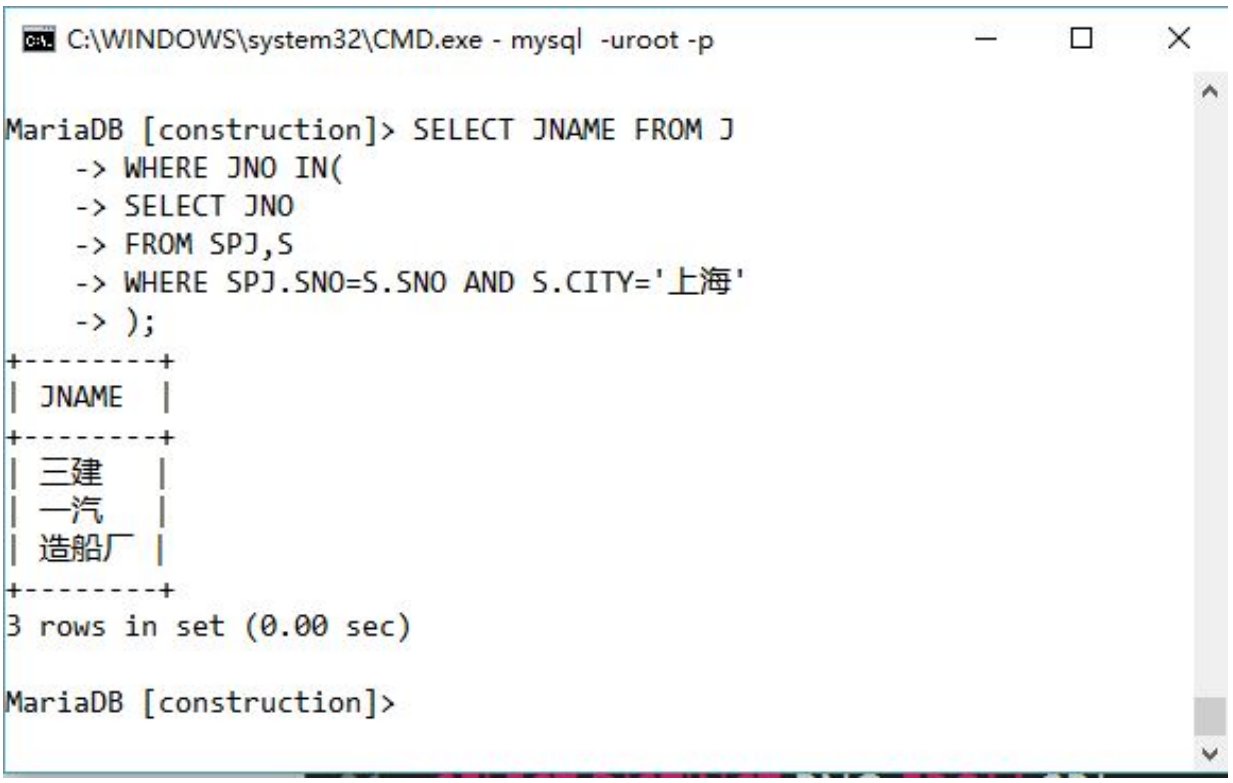
4.找出工程项目J2使用的各种零件名称及其数量



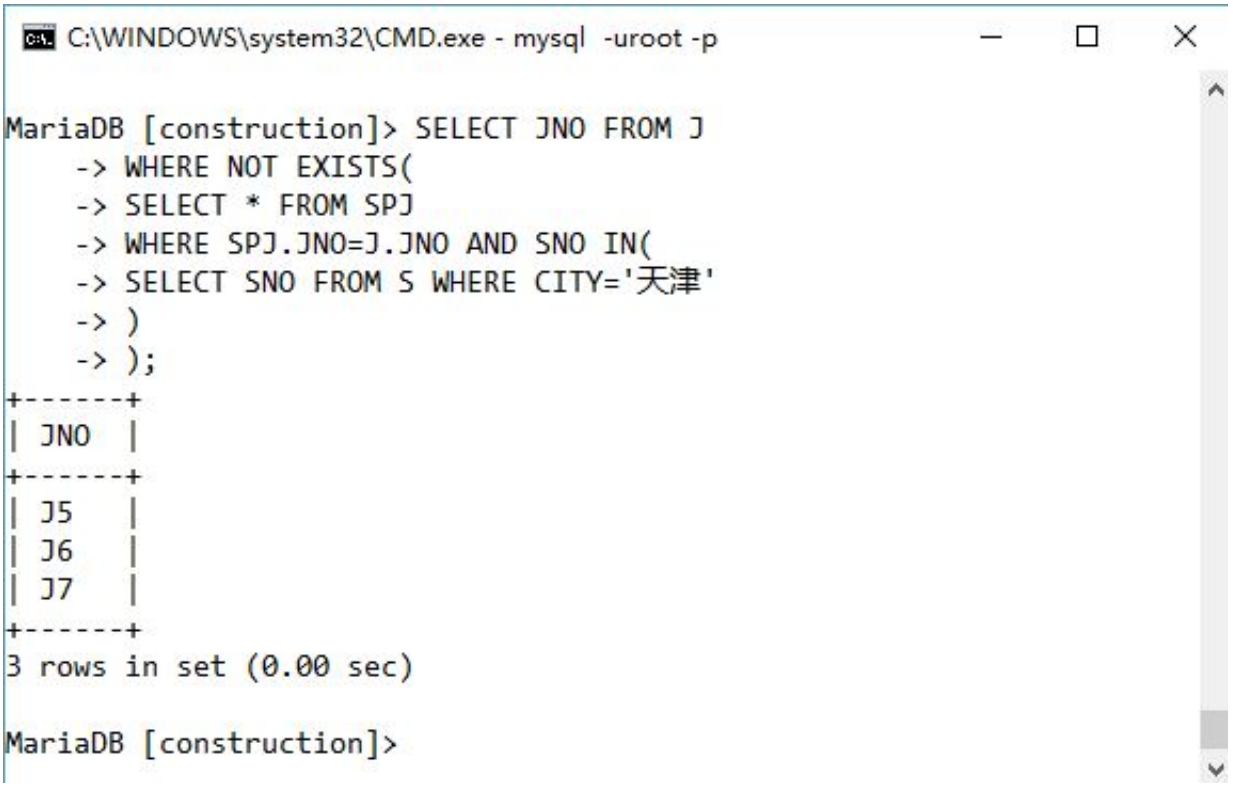
5.找出上海厂商供应的所有零件号码



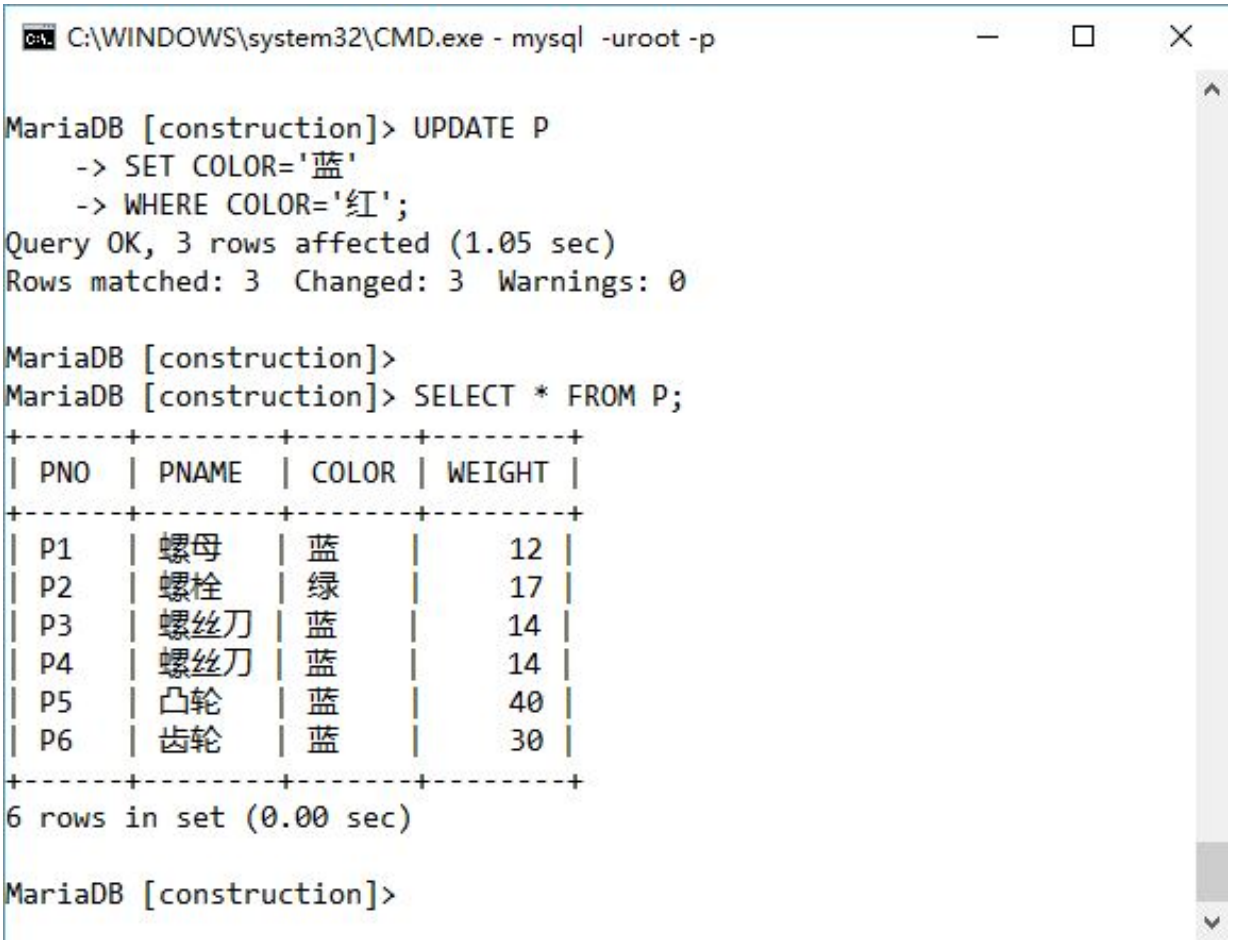
6.找出使用上海产的零件的工程号码



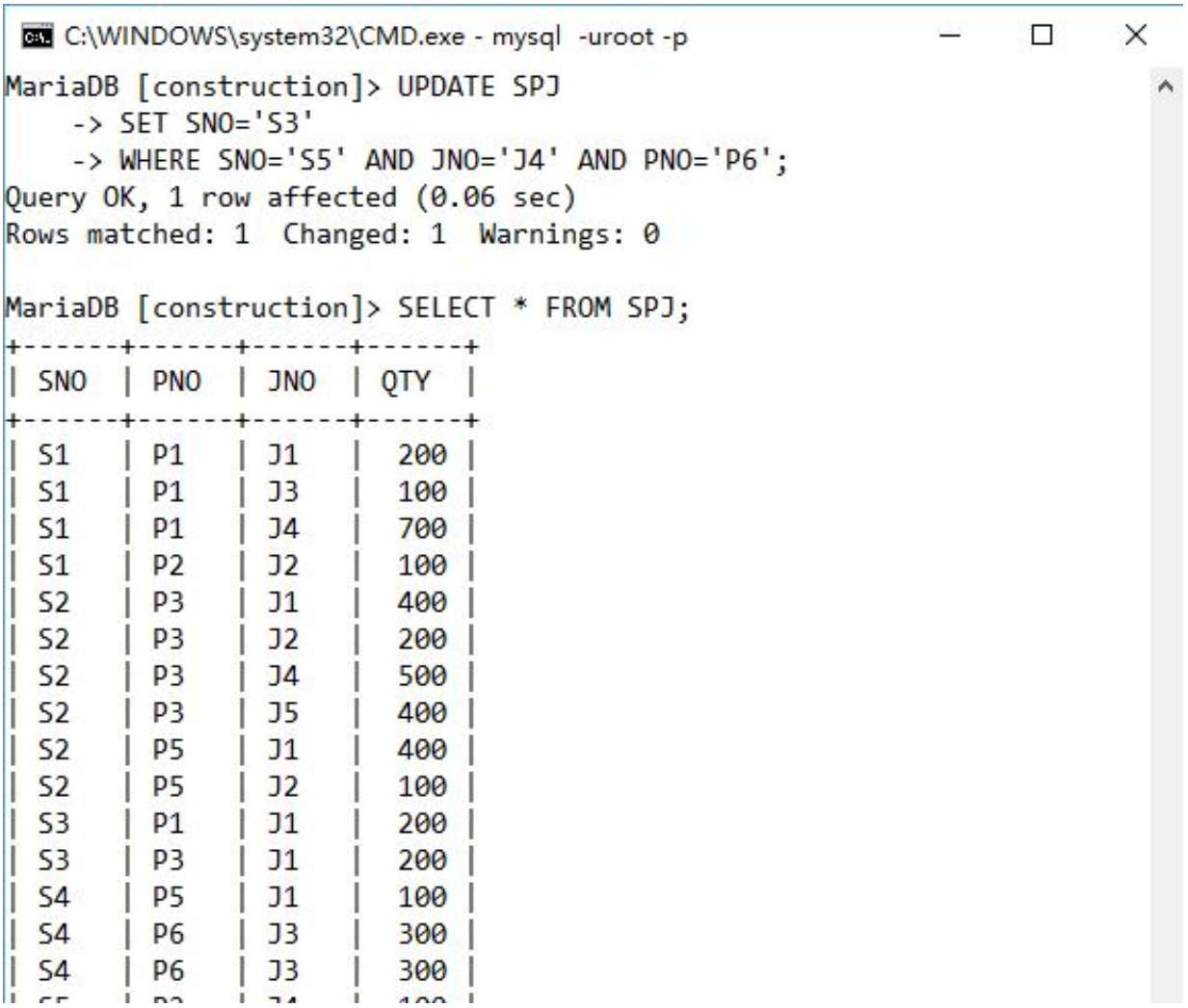
7.找出没有使用天津产的零件的工程号码



8.把全部红色零件的颜色改成蓝色



9.由S5供给J4的零件P6改为由S3供应，请做必要的修改



```
| S5   | P2   | J4   |  100 |
| S5   | P3   | J1   |  200 |
| S5   | P6   | J2   |  200 |
| S3   | 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

```
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 |
+------+------+------+------+------+--------+--------+------+
| S1   | P1   | J1   |  200 | S1   | 精益   | 20     | 天津 |
| S1   | P1   | J1   |  200 | S3   | 东方红 | 30     | 北京 |
| S1   | P1   | J1   |  200 | S4   | 丰泰盛 | 20     | 天津 |
| S1   | P1   | J1   |  200 | S5   | 为民   | 30     | 上海 |
| S1   | P1   | J3   |  100 | S1   | 精益   | 20     | 天津 |
| S1   | P1   | J3   |  100 | S3   | 东方红 | 30     | 北京 |
| S1   | P1   | J3   |  100 | S4   | 丰泰盛 | 20     | 天津 |
| S1   | P1   | J3   |  100 | S5   | 为民   | 30     | 上海 |
| S1   | P1   | J4   |  700 | S1   | 精益   | 20     | 天津 |
| S1   | P1   | J4   |  700 | S3   | 东方红 | 30     | 北京 |
| S1   | P1   | J4   |  700 | S4   | 丰泰盛 | 20     | 天津 |
| S1   | P1   | J4   |  700 | S5   | 为民   | 30     | 上海 |
| S1   | P2   | J2   |  100 | S1   | 精益   | 20     | 天津 |
| S1   | P2   | J2   |  100 | S3   | 东方红 | 30     | 北京 |
| S1   | P2   | J2   |  100 | S4   | 丰泰盛 | 20     | 天津 |
| S1   | P2   | J2   |  100 | S5   | 为民   | 30     | 上海 |
| S4   | P5   | J1   |  100 | S1   | 精益   | 20     | 天津 |
| S4   | P5   | J1   |  100 | S3   | 东方红 | 30     | 北京 |
| S4   | P5   | J1   |  100 | S4   | 丰泰盛 | 20     | 天津 |
| S4   | P5   | J1   |  100 | S5   | 为民   | 30     | 上海 |
| S4   | P6   | J3   |  300 | S1   | 精益   | 20     | 天津 |
| S4   | P6   | J3   |  300 | S3   | 东方红 | 30     | 北京 |
| S4   | P6   | J3   |  300 | S4   | 丰泰盛 | 20     | 天津 |
| S4   | P6   | J3   |  300 | S5   | 为民   | 30     | 上海 |
```

```
| S4   | P6   | J3   |  300 | S1   | 精益   | 20   | 天津 |
| S4   | P6   | J3   |  300 | S3   | 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

```
C:\WINDOWS\system32\CMD.exe - mysql  -uroot -p

MariaDB [construction]> INSERT INTO `spj` (`SNO`, `PNO`, `JNO`, `QTY`
) VALUES ('S2', 'P4', 'J6', '200');
Query OK, 1 row affected (0.07 sec)

MariaDB [construction]> SELECT * FROM SPJ;
+------+------+------+------+
| SNO  | PNO  | JNO  | QTY  |
+------+------+------+------+
| S1   | P1   | J1   |  200 |
| S1   | P1   | J3   |  100 |
| S1   | P1   | J4   |  700 |
| S1   | P2   | J2   |  100 |
| S4   | P5   | J1   |  100 |
| S4   | P6   | J3   |  300 |
| S4   | P6   | J3   |  300 |
| S5   | P2   | J4   |  100 |
| S5   | P3   | J1   |  200 |
| S5   | P6   | J2   |  200 |
| S3   | P1   | J1   |  200 |
| S3   | P3   | J1   |  200 |
| S2   | P4   | J6   |  200 |
+------+------+------+------+
13 rows in set (0.00 sec)

MariaDB [construction]>
```

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
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);


/*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');
```