

p70页, 第6题

S(SNO ,SNAME ,STATUS,CITY)

P(PNO, PNAME,COLOR,WEIGHT)

J(JNO,JNAME,CITY)

SPJ(SNO,PNO,JNO,QTY)

(1)求供应工程J1零件的供应商号码

关系代数

$$\pi_{SNO}(\sigma_{JNO='J1'}(SPJ))$$

SQL语言

SELECT **distinct** **SNO** distinct是不是必须的?
FROM SPJ
WHERE JNO='J1';

(2) 求供应工程J1零件P1的供应商号码

关系代数:

$\Pi_{Sno}(\sigma_{Jno='J1' \wedge PNO='P1'}(SPJ))$

$\Pi_{Sno}(\sigma_{Jno='J1'}(\sigma_{PNO='P1'}(SPJ)))$

SQL语言

SELECT SNO

FROM SPJ

WHERE JNO='J1' AND PNO='P1';

(3)求供应工程J1零件为红色的供应商号码

关系代数

$\Pi_{Sno}(\Pi_{Sno, PNO}(\sigma_{Jno='J1'}(SPJ)) \bowtie \Pi_{PNO}(\sigma_{COLOR='红'}(P)))$

$\Pi_{Sno}(\sigma_{Jno='J1' \wedge COLOR='红'}(SPJ \bowtie P))$

Sql:

```
SELECT SNO  
FROM SPJ
```

```
WHERE JNO='J1' AND PNO IN (注：这里不能用等号)  
    ( SELECT PNO  
      FROM P  
      WHERE COLOR='红' ) ;
```

或

```
SELECT SNO  
FROM SPJ , P  
WHERE JNO='J1'  
      AND SPJ.PNO=P.PNO  
      AND COLOR='红' ;
```

(4) 求没有使用天津供应商生产的红色零件的工程号JNO

$\Pi_{Jno}(J) - \Pi_{JNO}(\Pi_{SNO}(\sigma_{CITY='天津'}(S))) \bowtie$

$\Pi_{SNO,PNO,JNO}(SPJ) \bowtie \Pi_{PNO}(\sigma_{COLOR='红'}(P))$

$\Pi_{Jno}(J) - \Pi_{JNO}(\sigma_{CITY='天津'} \wedge COLOR='红' (S \bowtie P \bowtie SPJ))$

红色部分对不对？

```
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') ) ;
```

```
SELECT JNO
FROM J
WHERE NOT EXISTS
(SELECT *
FROM SPJ , S, P
WHERE SPJ.JNO=J.JNO
AND SPJ.SNO=S.SNO
AND SPJ.PNO=P.PNO
AND S.CITY='天津'
AND P.COLOR='红') ;
```

```
SELECT JNO
FROM J
WHERE jno not in
(SELECT spj.jno
FROM SPJ , S, P
WHERE SPJ.SNO=S.SNO
AND SPJ.PNO=P.PNO
AND S.CITY='天津'
AND P.COLOR='红') ;
```


(5)求至少用了供应商S1所供应的全部零件的工程号JNO

*二义性:

a.工程使用了S1的全部零件，但这些零件不一定由S1供应。

b.工程使用了S1的全部零件，且这些零件必须由S1供应。

a.关系代数:

$$\Pi_{JNO,PNO}(\mathbf{SPJ}) \div \Pi_{PNO}(\sigma_{Sno='S1'}(\mathbf{SPJ}))$$

前面是所有工程与该工程所用的零件,后面是S1所供应的全部零件号.

对于SPJ中的某一个JNO,如果该工程所使用的所有零件的集合包含了S1所对应的全部零件号,则该JNO符合条件

a.SQL表达（注：此题类似于P111 例47）

它所表达的语义是：不存在这样的零件y，供应商S1供应了零件y，而工程x没有使用零件y（只要S1供应了Y，工程x就使用Y）

a.SQL表达

```
SELECT DISTINCT JNO
FROM SPJ SPJZ  --（注:别名）
WHERE NOT EXISTS
  (SELECT *
   FROM SPJ SPJX /* 这里用别名将父查询与子查询中的SPJ表区别开来 */
   WHERE SNO='S1'
   AND NOT EXISTS
     (SELECT *
      FROM SPJ SPJY
      WHERE SPJY.PNO=SPJX.PNO
      AND SPJY.JNO=SPJZ.JNO));
```

b.关系代数:

$$\Pi_{JNO,PNO}(\sigma_{Sno='S1'}(SPJ)) \div \Pi_{PNO}(\sigma_{Sno='S1'}(SPJ))$$

$$\Pi_{SNO,JNO,PNO}(SPJ) \div \Pi_{SNO,PNO}(\sigma_{Sno='S1'}(SPJ))$$

b.SQL语言

```
SELECT DISTINCT JNO
FROM SPJ SPJZ
WHERE NOT EXISTS
    (SELECT *
     FROM SPJ SPJX
     WHERE SNO='S1'
     AND NOT EXISTS
        (SELECT *
         FROM SPJ SPJY
         WHERE SPJY.PNO=SPJX.PNO
         AND SPJY.JNO=SPJZ.JNO and
SPJY. SNO ='s1')));
```

b.SQL语言

```
Select A.Jno from SPJ A
  where A.sno='S1'
  group by A.Jno
  having count(pno)>=(select
count(distinct pno) From SPJ B
                        where B.sno='S1')
```

a.SQL表达

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Select distinct jno

From spj a

where not exists (

 select distinct pno from spj where sno='s1'

except

 select distinct pno from spj b where

a.jno=b.jno

)

第三章（p130-5）

5.针对习题3中的四个表用SQL 语句完成：

S(SNO ,SNAME ,STATUS,CITY)

P(PNO, PNAME,COLOR,WEIGHT)

J(JNO,JNAME,CITY)

SPJ(SNO,PNO,JNO,QTY)

(1) 找出所有供应商的姓名和所在城市;

SELECT SNAME,CITY

FROM S;

(2)找出所有零件的名称、颜色、重量

SELECT PNAME,COLOR,WEIGHT

FROM P;

(3) 找出使用供应商**S1**所供应零件的工程号码

SELECT distinct JNO

FROM SPJ

WHERE SNO='S1';

(4)找出工程项目J2使用的各种零件的名称及其数量

```
SELECT P.PNAME , SPJ.QTY
```

```
FROM P,SPJ
```

```
WHERE P.PNO=SPJ.PNO
```

```
AND    SPJ.JNO='J2';
```

考虑一个工程项目可以使用不同供应商供应的零件!!!!1

```
select distinct p.Pname, sum(QTY)
from spj, p
where spj.Jno = 'J2' and spj.Pno = p.Pno
group by p.pno, Pname;
```

(5) 找出” 上海” 厂商供应的所有零件的号码

SELECT DISTINCT PNO

FROM SPJ

WHERE SNO IN

(SELECT SNO

FROM S

WHERE CITY='上海') ;

(6) 找出使用上海产的零件的工程名称

```
SELECT JNAME  
FROM J,SPJ,S  
WHERE J.JNO=SPJ.JNO  
AND      S.SNO=SPJ.SNO  
AND      S.CITY='上海';
```

(7) 找出没有使用天津产的零件的工程号码

```
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') ) ;
```

或

```
SELECT JNO
FROM J
WHERE NOT EXISTS
(SELECT *
FROM SPJ , S
WHERE SPJ.JNO=J.JNO
AND SPJ.SNO=S.SNO
AND S.CITY='天津') ;
```


(8) 把全部红色零件的颜色改成蓝色

UPDATE P

SET COLOR='蓝'

WHERE COLOR='红';

(9) 由**S5**供给**J4**的零件**P6**改为由**S3**供应

UPDATE SPJ

SET SNO='S3'

WHERE SNO='S5'

AND JNO='J4'

AND PNO='P6';

(10) 从供应商关系中删除**S2**的记录，并从供应情况关系中删除相应的记录’

DELETE

FROM SPJ

WHERE SNO=‘S2’

DELETE

FROM S

WHERE SNO=‘S2’

(11)

Insert into spj values('s2','p4','j6',200);

Insert into spj(sno,jno,pno,qty) values (('s2',
'j6','p4', 200)

P130-9

1、为三建工程项目建立一个供应情况视图。

Create view sanjian [(sno,pno,qty)]

As

Select sno,pno,qty from spj, j

Where spj.jno=j.jno and jname='三建';

2、找出三建项目使用的各种零件代码和数量。

Select pno,qty from sanjian;

Select pno,sum(qty) from sanjian group by pno;

3、找出供应商s1的供应情况;

Select * from sanjian where sno='s1';