

数据库第三次作业——SQL 查询

1、--查询每个制造商及其生产的最低价格的笔记本型号

```
SELECT A.maker, A.model, A.price
FROM (
    SELECT p.maker, l.price, p.model
    FROM Product p, Laptop l
    WHERE p.model = l.model
    UNION
    SELECT p.maker, pc.price, p.model
    FROM Product p, PC pc
    WHERE p.model = pc.model
) A
WHERE EXISTS (
    SELECT 1
    FROM (
        SELECT maker, MIN(price) as min_price
        FROM (
            SELECT p.maker, l.price
            FROM Product p, Laptop l
            WHERE p.model = l.model
            UNION
            SELECT p.maker, pc.price
            FROM Product p, PC pc
            WHERE p.model = pc.model
        ) B
        GROUP BY maker
    ) C
    WHERE C.maker = A.maker AND C.min_price = A.price
)
ORDER BY A.maker;
```

查询结果为：

	maker	model	price
1	A	1003	478.00
2	B	1005	630.00
3	C	1007	510.00
4	D	1009	650.00
5	E	1013	529.00
6	F	2009	680.00
7	G	2010	2300.00

```

执行 SELECT p.maker, l.price, p.model
      FROM Product p,Laptop l
      WHERE p.model = l.model
      UNION
      SELECT p.maker, pc.price, p.model
      FROM Product p,PC pc
      WHERE p.model = pc.model

```

查看所有生产商，产品，价格元组，对照结果，验证正确

	maker	price	model
1	A	478.00	1003
2	A	995.00	1002
3	A	1150.00	2004
4	A	1700.00	2006
5	A	2114.00	1001
6	A	2500.00	2005
7	B	630.00	1005
8	B	649.00	1004
9	B	1049.00	1006
10	B	1429.00	2007
11	C	510.00	1007
12	D	650.00	1009
13	D	770.00	1008
14	D	770.00	1010
15	E	529.00	1013
16	E	549.00	2003
17	E	649.00	1012
18	E	949.00	2002
19	E	959.00	1011
20	E	3673.00	2001
21	F	680.00	2009
22	F	900.00	2008
23	G	2300.00	2010

2、--查询生产的笔记本的硬盘容量不小于 100GB 的制造商

```

SELECT DISTINCT A.maker
FROM(
      SELECT maker,hd
      FROM Product,Laptop
      WHERE Product.model=Laptop.model
)A
WHERE A.hd>=100;

```

查询结果为：

maker	
1	A
2	B
3	E
4	F
5	G

验证：运行

```
SELECT p.maker, l.hd
FROM Product p, Laptop l
WHERE p.model = l.model
```

得到所有制造商和 hd 的元组

	maker	hd
1	E	240
2	E	80
3	E	60
4	A	60
5	A	120
6	A	80
7	B	120
8	F	100
9	F	80
10	G	160

比对结果确认结果中的制造商都有生产 hd 不小于 100GB 的产品

3、--查询生产最快速度的计算机的制造商

```
SELECT DISTINCT A.maker
FROM (
    SELECT maker, price
    FROM Product, PC
    WHERE Product.model=PC.model
) A
WHERE price IN (
    SELECT MAX(price)
    FROM PC
)
```

查询结果为：

maker	
1	B

验证：运行

```
SELECT p.maker, pc.speed  
FROM Product p, PC pc  
WHERE p.model = pc.model
```

得到所有制造商和其所生产的计算机的速度的元组

	maker	speed
1	A	2.66
2	A	2.10
3	A	1.42
4	B	2.80
5	B	3.20
6	B	3.20
7	C	2.20
8	D	2.20
9	D	2.00
10	D	2.80
11	E	1.86
12	E	2.80
13	E	3.06

比对确认制造商 B 生产最快速度的计算机

4--用差集法查询选修了全部课程的学生姓名

```
SELECT DISTINCT Sname  
FROM Student  
EXCEPT  
SELECT DISTINCT Sname  
FROM Student  
WHERE EXISTS (  
    SELECT *  
    FROM Course  
    WHERE NOT EXISTS (  
        SELECT *  
        FROM SC  
        WHERE SC.Sno = Student.Sno  
        AND SC.Cno = Course.Cno  
    )  
)
```