

Examples of SQL

(EXISTS)

量词的使用

关系模式

顾客

Customers (cid, cname, city, discnt)

供应商

Agents (aid, aname, city, percent)

产品

Products (pid, pname, city, quantity, price)

订单

Orders (ordno, month, cid, aid, pid, qty, dollars)

Customers (cid, cname, city, discnt)

Agents (aid, aname, city, percent)

Products (pid, pname, city, quantity, price)

Orders (ordno, month, cid, aid, pid, qty, dollars)

【例1】 Find cid values of customers with discnt smaller than those of all customers who live in Duluth.

【Answer 1】 量化比较查询

```
SELECT cid
FROM customers
WHERE discnt < ALL (SELECT discnt
                    FROM customers
                    WHERE city='Duluth' );
```

```
SELECT cid
FROM customers
WHERE discnt < ALL ( SELECT discnt
                     FROM customers
                     WHERE city = 'Duluth' );
```

【Answer 2】 改用 NOT EXISTS 谓词:

```
SELECT c1.cid
FROM customers c1
WHERE NOT EXISTS (
    SELECT *
    FROM customers c2
    WHERE c2.city = 'Duluth' and
          c2.discnt <= c1.discnt) ;
```

【例1】 Find cid values of customers with discnt smaller than those of all customers who live in Duluth.

```
SELECT cid
FROM customers
WHERE discnt < ALL (
    SELECT discnt
    FROM customers
    WHERE city = 'Duluth' );
```

```
SELECT c1.cid
FROM customers c1
WHERE NOT EXISTS (
    SELECT *
    FROM customers c2
    WHERE c2.city = 'Duluth' and
           c2.discnt <= c1.discnt);
```

- 必须使用带有嵌套子查询的查询表达式！
- 不使用子查询无法表示该查询请求！

Customers (cid, cname, city, discnt)

Agents (aid, aname, city, percent)

Products (pid, pname, city, quantity, price)

Orders (ordno, month, cid, aid, pid, qty, dollars)

【例2】 Find cid values of customers with discnt smaller than a customer who lives in Duluth.

【Answer 1】 表的连接查询

```
SELECT c1.cid  
FROM customers c1, customers c2  
WHERE c2.city = 'Duluth' and  
c2.discnt > c1.discnt ;
```

Customers (cid, cname, city, discnt)

Agents (aid, aname, city, percent)

Products (pid, pname, city, quantity, price)

Orders (ordno, month, cid, aid, pid, qty, dollars)

【例2】 Find cid values of customers with discnt smaller than a customer who lives in Duluth.

【Answer 2】 量化比较查询

```
SELECT cid
FROM customers
WHERE discnt < ANY( SELECT discnt
                     FROM customers
                     WHERE city = 'Duluth' );
```

Customers (cid, cname, city, discnt)

Agents (aid, aname, city, percent)

Products (pid, pname, city, quantity, price)

Orders (ordno, month, cid, aid, pid, qty, dollars)

【例2】 Find cid values of customers with discnt smaller than a customer who lives in Duluth.

【Answer 3】 改用 EXISTS 谓词查询

```
SELECT c1.cid  
FROM customers c1  
WHERE EXISTS (  
    SELECT * FROM customers c2  
    WHERE c2.city = 'Duluth' and  
          c2.discnt > c1.discnt) ;
```