

# 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.**

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**【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.**

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**【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.

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**【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) ;
```