# 嵌套SQL查询的实验报告

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## 一、实验目的

掌握嵌套SQL查询用法.

## 二、实验内容

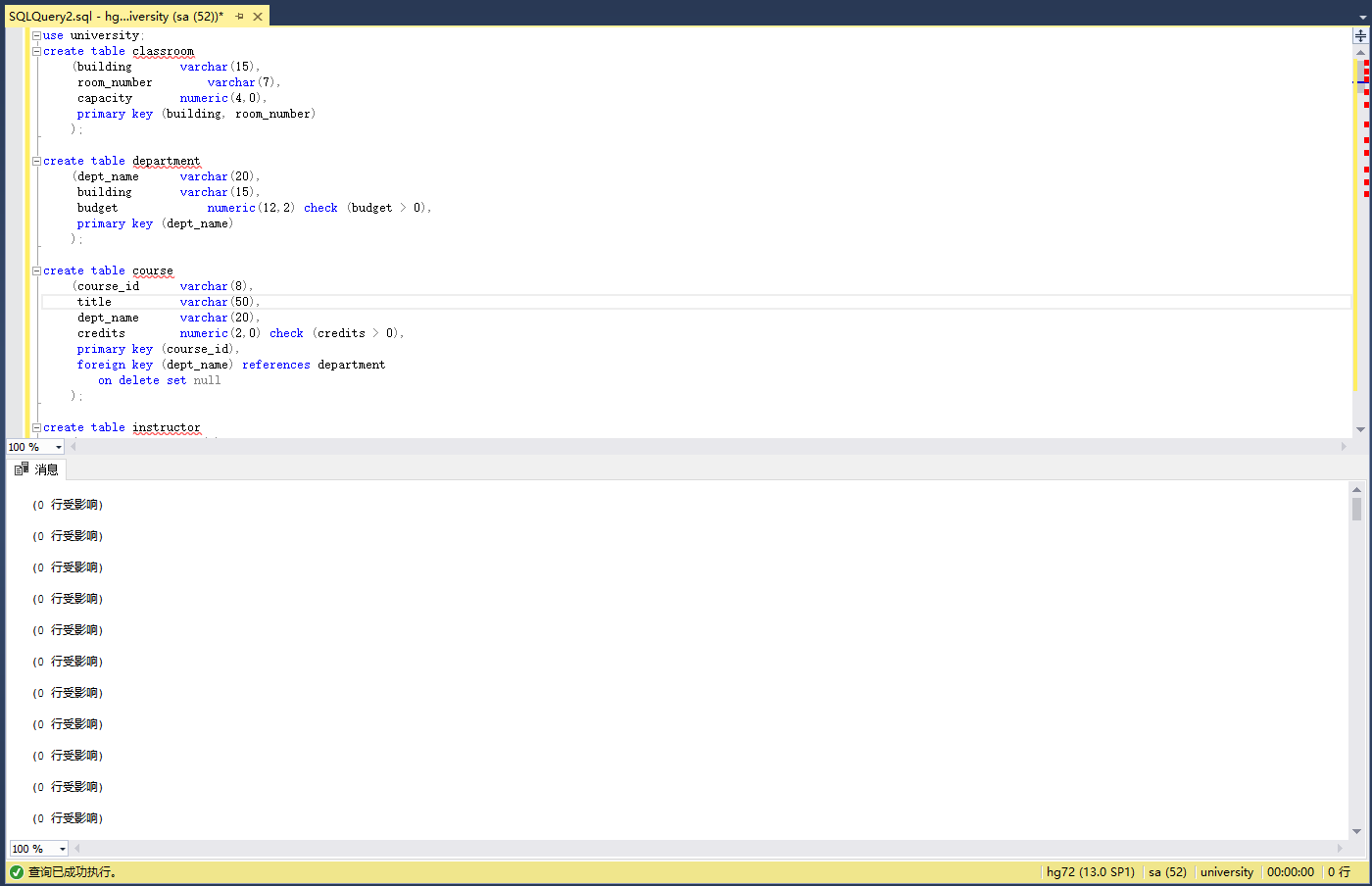
1. 运行脚本smallRelationsInsertFile.sql 或者 largeRelationsInsertFile.sql (见教学在线) 创建一个名为university数据库及其表格和数据.
2. 任选以上步骤中创建好的表格, 自己设计问题, 逐一展示如下命令的用法. 某些情况, 可能需要插入新的数据. 可参考教材例子.
   1. Set Operations: union, intersect, except
   2. Set Comparison: some, all
   3. Test for Empty Relations: exists
   4. Test Duplicate Tuples: unique
   5. from 后接子查询
   6. with ... as ...

## 三、实验环境

1. 操作系统: Windows 10，version 1607
2. 数据库: Microsoft SQL Server Management Studio 17

## 四、实验步骤

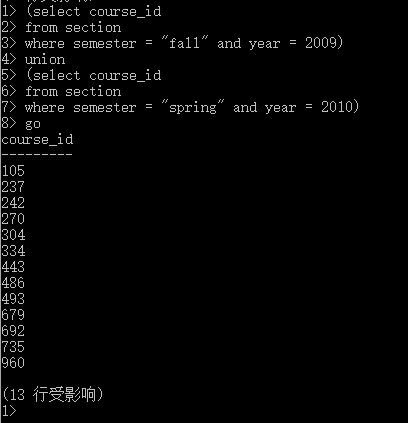
1. 建立数据库并插入数据



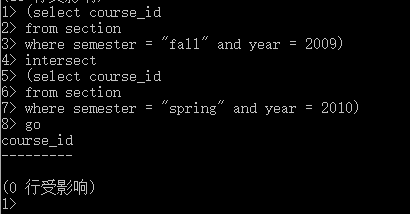
2. 命令执行

（1）Set Operations：

Union：



Intersect：

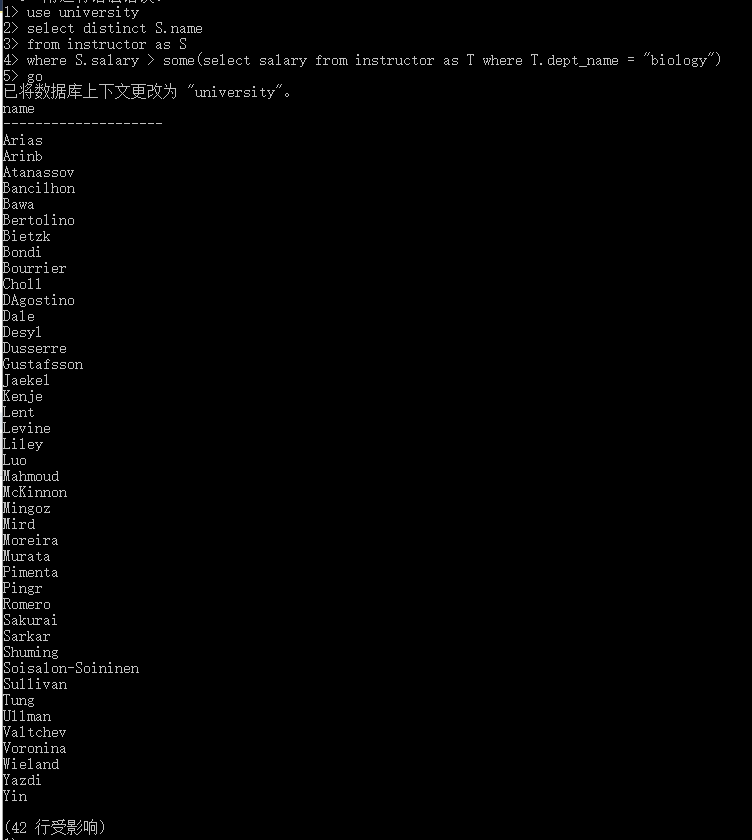


Except：

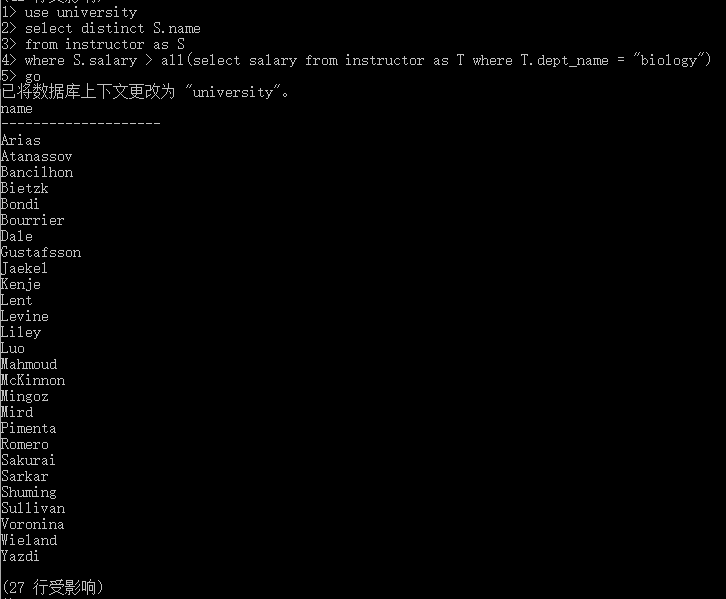


1. Set Comparison

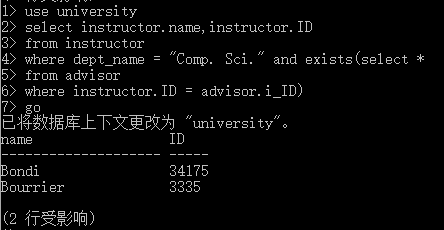
Some:



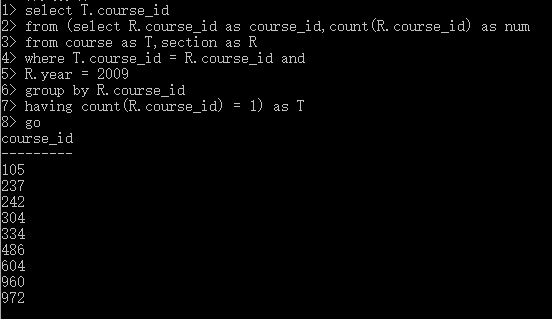
All:



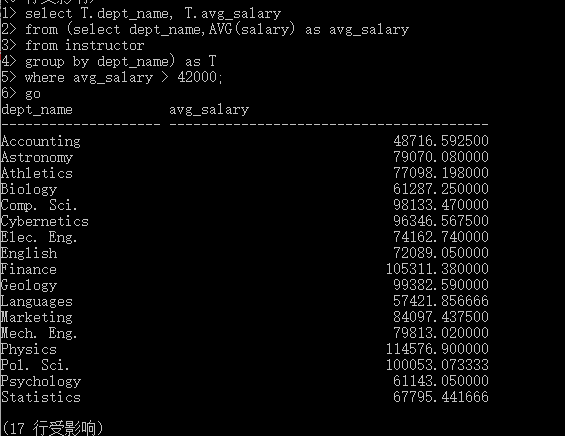
1. Exists



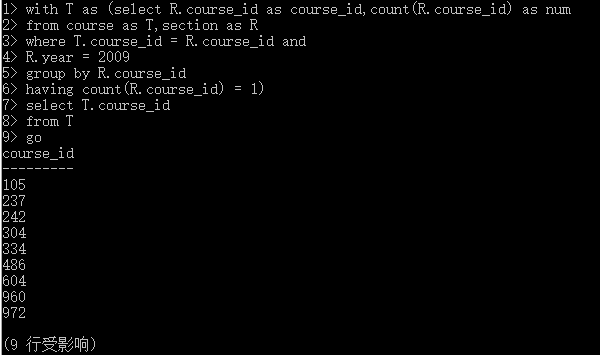
1. Unique



（5）from 后接子查询



1. With……As



代码：

// Union

(select course\_id

from section

where semester = "fall" and year = 2009)

union

(select course\_id

from section

where semester = "spring" and year = 2010)

// Intersect

(select course\_id

from section

where semester = "fall" and year = 2009)

intersect

(select course\_id

from section

where semester = "spring" and year = 2010)

// Except

(select course\_id

from section

where semester = "fall" and year = 2009)

except

(select course\_id

from section

where semester = "spring" and year = 2010)

// Some

use university

select distinct S.name

from instructor as S

where S.salary > some(select salary from instructor as T where T.dept\_name = "biology")

// All

use university

select distinct S.name

from instructor as S

where S.salary > all(select salary from instructor as T where T.dept\_name = "biology")

// Exists

use university

select instructor.name,instructor.ID

from instructor

where dept\_name = "Comp. Sci." and exists(select \*

from advisor

where instructor.ID = advisor.i\_ID)

// Unique

use university

select i\_id,count(i\_id) as students

from advisor

group by i\_id

having count(i\_id) = 1

// Not unique

use university

select i\_id,count(i\_id) as students

from advisor

group by i\_id

having count(i\_id) > 1 or count (i\_id) < 1

//

select T.course\_id

from (select R.course\_id as course\_id,count(R.course\_id) as num

from course as T,section as R

where T.course\_id = R.course\_id and

R.year = 2009

group by R.course\_id

having count(R.course\_id) = 1) as T

//

select T.dept\_name, T.avg\_salary

from (select dept\_name,AVG(salary) as avg\_salary

from instructor

group by dept\_name) as T

where avg\_salary > 42000;

//With as

with T as (select R.course\_id as course\_id,count(R.course\_id) as num

from course as T,section as R

where T.course\_id = R.course\_id and

R.year = 2009

group by R.course\_id

having count(R.course\_id) = 1)

select T.course\_id

from T

## 五、实验总结

相同的功能在不同的数据库系统中可能有一些细小的语法差别，要善于试错，以及有查询资料的能力，如果一味照搬教材，可能会出现很多错误。