

# 实验报告 第二、三次实验

*Hollow Man*

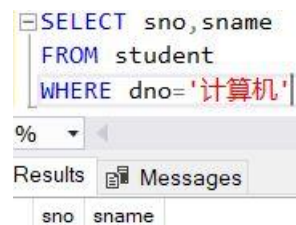
## 一、实验七

### 1. 问题 1

①. SQL 语句如下:

```
SELECT sno,sname  
FROM student  
WHERE dno='计算机';
```

查询结果:



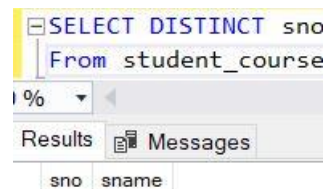
The screenshot shows a SQL query editor with the query: `SELECT sno,sname FROM student WHERE dno='计算机';`. Below the editor, there are tabs for 'Results' and 'Messages'. The 'Results' tab is active, showing a table with two columns: 'sno' and 'sname'.

sno	sname
-----	-------

②. SQL 语句如下:

```
SELECT DISTINCT sno  
From student_course;
```

查询结果:



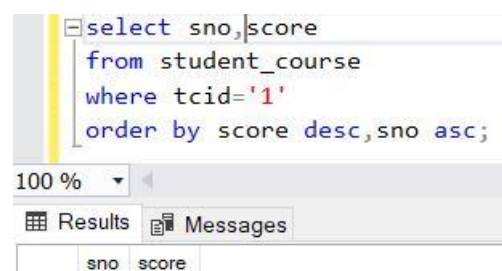
The screenshot shows a SQL query editor with the query: `SELECT DISTINCT sno From student_course;`. Below the editor, there are tabs for 'Results' and 'Messages'. The 'Results' tab is active, showing a table with two columns: 'sno' and 'sname'.

sno	sname
-----	-------

③. SQL 语句如下:

```
select sno,score  
from student_course  
where tcid='1'  
order by score desc,sno asc;
```

查询结果:



The screenshot shows a SQL query editor with the query: `select sno,score from student_course where tcid='1' order by score desc,sno asc;`. Below the editor, there are tabs for 'Results' and 'Messages'. The 'Results' tab is active, showing a table with two columns: 'sno' and 'score'.

sno	score
-----	-------

④. SQL 语句如下:

```
select sno,0.75*score
from student_course
where tcid='1' and (score between 80 and 90);
```

查询结果:



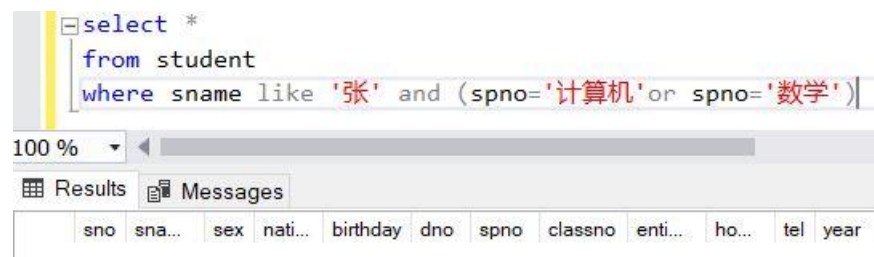
The screenshot shows a SQL query editor with the query: `select sno,0.75*score from student_course where tcid='1' and (score between 80 and 90);`. Below the editor, the 'Results' tab is active, displaying a table with one column named 'sno' and one row with the value '(No column name)'.

sno
(No column name)

⑤. SQL 语句如下:

```
select *
from student
where sname like '张' and (spno='计算机' or spno='数学');
```

查询结果:



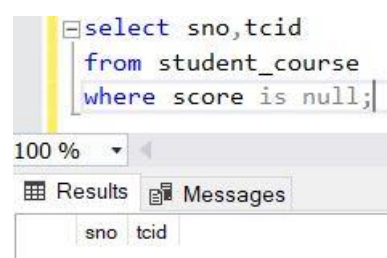
The screenshot shows a SQL query editor with the query: `select * from student where sname like '张' and (spno='计算机' or spno='数学');`. Below the editor, the 'Results' tab is active, displaying a table with columns: sno, sname, sex, nationality, birthday, dno, spno, classno, entrance\_exam, home\_address, telephone, and year.

sno	sname	sex	nati...	birthday	dno	spno	classno	enti...	ho...	tel	year
-----	-------	-----	---------	----------	-----	------	---------	---------	-------	-----	------

⑥. SQL 语句如下:

```
select sno,tcid
from student_course
where score is null;
```

查询结果:



The screenshot shows a SQL query editor with the query: `select sno,tcid from student_course where score is null;`. Below the editor, the 'Results' tab is active, displaying a table with two columns: 'sno' and 'tcid'.

sno	tcid
-----	------

## 2. 问题 2

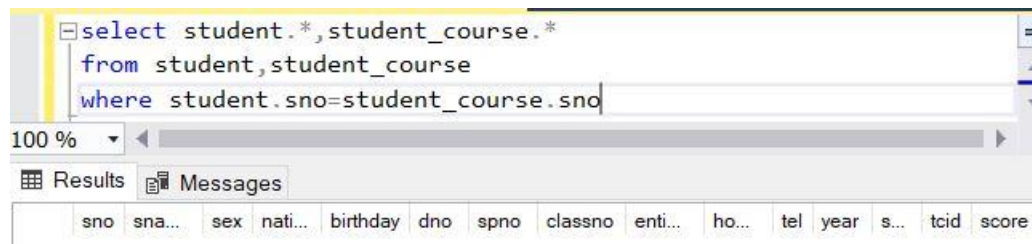
①.

方法一:

SQL 语句如下:

```
select student.*,student_course.*
from student,student_course
where student.sno=student_course.sno;
```

查询结果:



### 方法二：（自然连接）

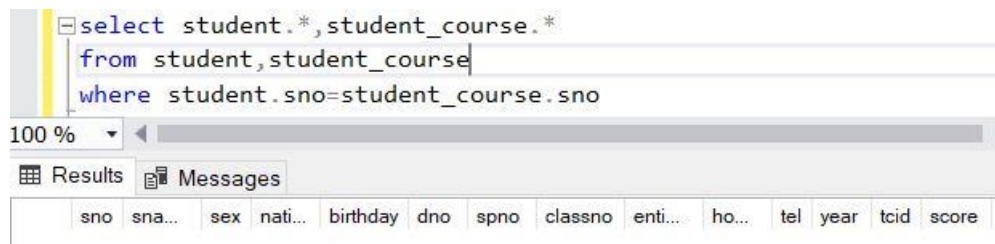
SQL 语句如下：

```

select student.*, student_course.tcid, student_course.score
from student, student_course
where student.sno=student_course.sno;

```

查询结果：



### 方法三：（外连接）

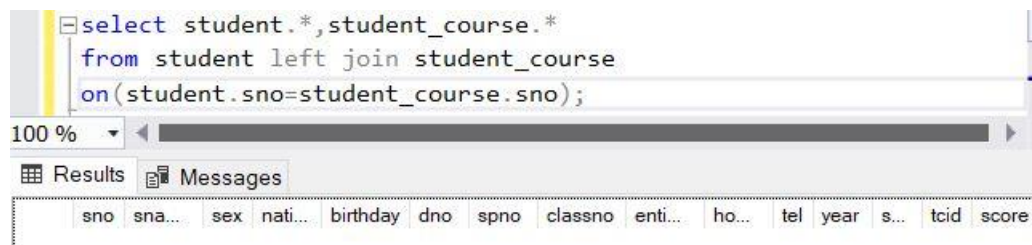
SQL 语句如下：

```

select student.*, student_course.*
from student left join student_course
on(student.sno=student_course.sno);

```

查询结果：



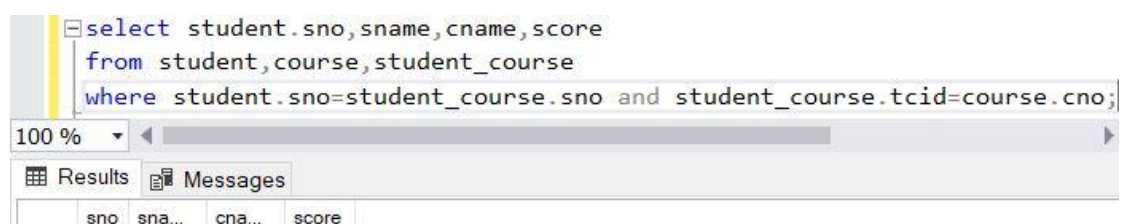
### ②. SQL 语句如下：

```

select student.sno, sname, cname, score
from student, course, student_course
where student.sno=student_course.sno and student_course.tcid=course.cno;

```

查询结果：



### ③. SQL 语句如下：

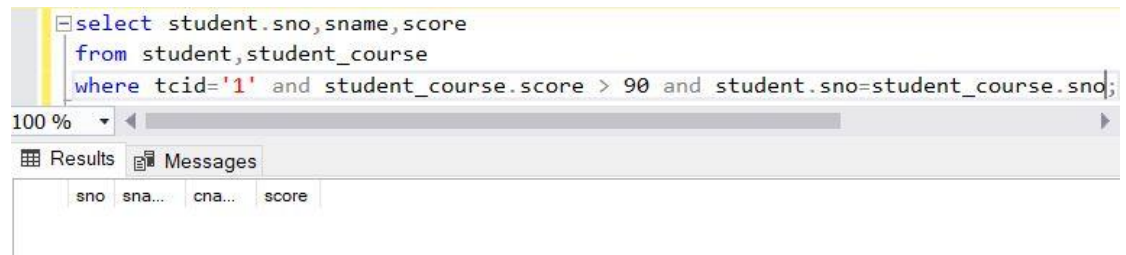
```

select student.sno, sname, score
from student, student_course

```

```
where tcid='1' and student_course.score > 90 and  
student.sno=student_course.sno;
```

查询结果:



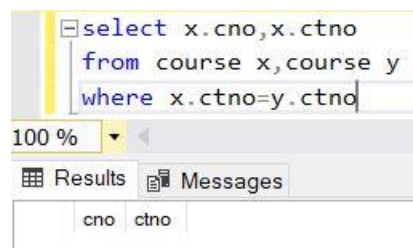
The screenshot shows a SQL query execution window. The query is: `select student.sno,sname,score  
from student,student_course  
where tcid='1' and student_course.score > 90 and student.sno=student_course.sno;`. The results tab is active, showing a table with columns: sno, sname, cno, and score. The table is currently empty.

sno	sname	cno	score
-----	-------	-----	-------

④. SQL 语句如下:

```
select x.cno,x.ctno  
from course x,course y  
where x.ctno=y.ctno;
```

查询结果:



The screenshot shows a SQL query execution window. The query is: `select x.cno,x.ctno  
from course x,course y  
where x.ctno=y.ctno;`. The results tab is active, showing a table with columns: cno and ctno. The table is currently empty.

cno	ctno
-----	------

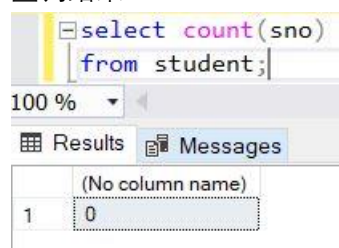
## 二、实验八

### 1. 问题 1

1) SQL 语句如下:

```
select count(sno)  
from student;
```

查询结果:



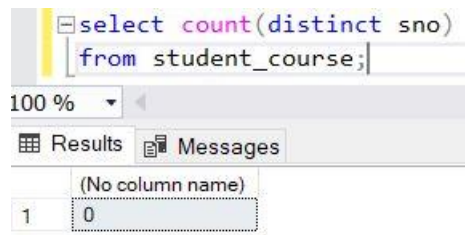
The screenshot shows a SQL query execution window. The query is: `select count(sno)  
from student;`. The results tab is active, showing a table with columns: (No column name). The table has one row with the value 0.

(No column name)
0

2) SQL 语句如下:

```
select count(distinct sno)  
from student_course;
```

查询结果:



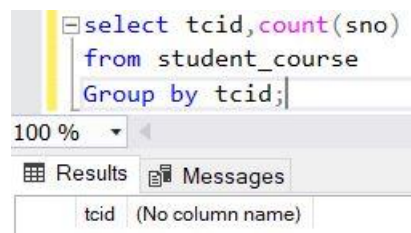
```
select count(distinct sno)
from student_course;
```

	(No column name)
1	0

3) SQL 语句如下:

```
select tcid, count(sno)
from student_course
Group by tcid;
```

查询结果:



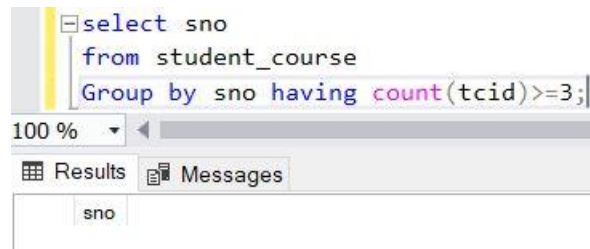
```
select tcid, count(sno)
from student_course
Group by tcid;
```

tcid	(No column name)
------	------------------

4) SQL 语句如下:

```
select sno
from student_course
Group by sno having count(tcid)>=3;
```

查询结果:



```
select sno
from student_course
Group by sno having count(tcid)>=3;
```

sno
-----

## 2. 问题 2

首先使用以下 SQL 语句创建表格:

CREATE TABLE 图书

```
(
  书号 char(10) not null primary key,
  类别 char(12),
  出版社 char(50) not null,
  作者 char(20),
  书名 char(50) not null,
  定价 money
)
```

CREATE TABLE 读者

```
(
  编号 char(10) not null primary key,
```

```
    姓名 char(8)not null,  
    单位 char(50),  
    性别 char(2),  
    电话 char(15),  
    CHECK (性别= '男' or 性别='女')  
)  
  
CREATE TABLE 借阅  
(  
    串号 char(10) not null primary key,  
    书号 char(10) not null,  
    读者编号 char(10) not null,  
    借阅日期 datetime not null,  
    foreign key(书号) references 图书(书号),  
    foreign key(读者编号) references 读者(编号),  
    unique(书号,读者编号)  
)  
运行结果:
```

```
CREATE TABLE 图书
(
    书号 char(10) not null primary key,
    类别 char(12),
    出版社 char(50) not null,
    作者 char(20),
    书名 char(50) not null,
    定价 money
)

CREATE TABLE 读者
(
    编号 char(10) not null primary key,
    姓名 char(8) not null,
    单位 char(50),
    性别 char(2),
    电话 char(15),
    CHECK (性别= '男' or 性别='女')
)

CREATE TABLE 借阅
(
    串号 char(10) not null primary key,
    书号 char(10) not null,
    读者编号 char(10) not null,
    借阅日期 datetime not null,
    foreign key(书号) references 图书(书号),
    foreign key(读者编号) references 读者(编号),
    unique(书号,读者编号)
)

100 %
Messages
Commands completed successfully.

Completion time: 2019-10-17T20:51:52.8719392+08:00
```

然后使用以下 SQL 语句插入数据:

```
insert into 图书(书号,类别,出版社,作者,书名,定价)values
('1001','计算机','机械工业出版社','王民','数据结构',80),
('1002','计算机','机械工业出版社','张建平','计算机应用',20),
('1003','计算机','电子工业出版社','王敏','数据库技术',15),
('1004','计算机','电子工业出版社','谭浩强','C 语言',25),
('1005','英语','中国人民大学出版社','张锦芯','应用文写作',25),
('1006','管理','高等教育出版社','Robison','管理学',15),
('1007','管理','机械工业出版社','Fayol','工业管理',70),
('1008','数学','机械工业出版社','李平','线性代数',50),
('1009','管理','机械工业出版社','Durark','公司的概念',14),
('1010','数学','机械工业出版社','徐新国','统计学',15);
```

```
insert into 读者(编号,姓名,单位,性别,电话)values
('1001','丁一','数学院','男','81234567'),
```

```
( '1002', '赵二', '经济学院', '男', '82234567'),  
( '1003', '张三', '管理学院', '女', '83234567'),  
( '1004', '李四', '文学院', '男', '84234567'),  
( '1005', '王五', '历史文化学院', '女', '85234567'),  
( '1006', '孙六', '物理学院', '男', '86234567'),  
( '1007', '周七', '生命科学院', '女', '87234567'),  
( '1008', '徐八', '化学院', '男', '88234567'),  
( '1009', '宋九', '信息学院', '女', '89234567'),  
( '1010', '刘十', '计算机学院', '女', '80234567');
```

```
insert into 借阅(串号,书号,读者编号,借阅日期)values
```

```
( '01', '1001', '1003', 2000-1-1),  
( '02', '1002', '1005', 2002-3-5),  
( '03', '1003', '1008', 1998-6-18),  
( '04', '1004', '1003', 1997-12-8),  
( '05', '1005', '1010', 2001-5-4),  
( '06', '1006', '1001', 2005-7-25),  
( '07', '1007', '1010', 1997-11-3),  
( '08', '1008', '1009', 2004-2-1),  
( '09', '1009', '1004', 1996-9-1),  
( '10', '1010', '1008', 2000-6-4);
```

运行结果:



```

insert into 图书(书号,类别,出版社,作者,书名,定价)values
('1001','计算机','机械工业出版社','王民','数据结构',80),
('1002','计算机','机械工业出版社','张建平','计算机应用',20),
('1003','计算机','电子工业出版社','王敏','数据库技术',15),
('1004','计算机','电子工业出版社','谭浩强','C 语言',25),
('1005','英语','中国人民大学出版社','张锦芯','应用文写作',25),
('1006','管理','高等教育出版社','Robison','管理学',15),
('1007','管理','机械工业出版社','Fayol','工业管理',70),
('1008','数学','机械工业出版社','李平','线性代数',50),
('1009','管理','机械工业出版社','Durark','公司的概念',14),
('1010','数学','机械工业出版社','徐新国','统计学',15);

insert into 读者(编号,姓名,单位,性别,电话)values
('1001','丁一','数学院','男','81234567'),
('1002','赵二','经济学院','男','82234567'),
('1003','张三','管理学院','女','83234567'),
('1004','李四','文学院','男','84234567'),
('1005','王五','历史文化学院','女','85234567'),
('1006','孙六','物理学院','男','86234567'),
('1007','周七','生命科学院','女','87234567'),
('1008','徐八','化学院','男','88234567'),
('1009','宋九','信息学院','女','89234567'),
('1010','刘十','计算机学院','女','80234567');

insert into 借阅(串号,书号,读者编号,借阅日期)values
('01','1001','1003',2000-1-1),
('02','1002','1005',2002-3-5),
('03','1003','1008',1998-6-18),
('04','1004','1003',1997-12-8),
('05','1005','1010',2001-5-4),

```

100 %

Messages

(10 rows affected)

(10 rows affected)

(10 rows affected)

1) SQL 语句如下:

select 类别

from 图书

group by 类别

having max(定价)&gt;= all(select avg(定价)\*2 from 图书 group by 类别);

查询结果:

```

select 类别
from 图书
group by 类别
having max(定价)>= all(select avg(定价)*2 from 图书 group by 类别)

```

100 %

Results Messages

	类别
1	管理
2	计算机

2)

- SQL 语句如下(group by):

```
select distinct 类别, avg(定价) 平均定价
from 图书
where 出版社 = '机械工业出版社'
group by 类别;
```

查询结果:

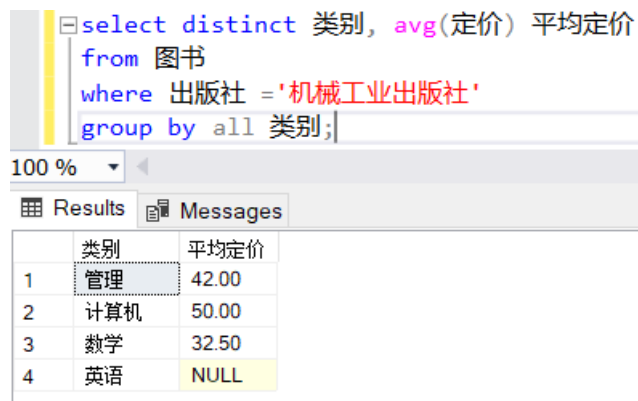


	类别	平均定价
1	管理	42.00
2	计算机	50.00
3	数学	32.50

- SQL 语句如下(group by all):

```
select distinct 类别, avg(定价) 平均定价
from 图书
where 出版社 = '机械工业出版社'
group by all 类别;
```

查询结果:



	类别	平均定价
1	管理	42.00
2	计算机	50.00
3	数学	32.50
4	英语	NULL

3) SQL 语句如下:

**错误:**

```
SELECT 书号, 书名, 定价
FROM 图书
WHERE 类别='计算机' ORDER BY 书号 ASC
COMPUTE count (书号), SUM(定价)
```

查询结果:

```

SELECT 书号,书名,定价
FROM 图书
WHERE 类别='计算机' ORDER BY 书号 ASC
COMPUTE count (书号),SUM(定价)

```

100 %

Messages

Msg 156, Level 15, State 1, Line 2  
Incorrect syntax near the keyword 'COMPUTE'.

Completion time: 2019-10-24T19:09:00.3799702+08:00

查询后发现 SQL Server 2012 以后已经不支持 compute 函数了，只能采用 with rollup，所以采用以下方法：

**正确：**

```

SELECT 书号,书名,定价,count(书号) 册数,sum(定价) 总价格
FROM 图书
WHERE 类别='计算机'
GROUP BY 书号,书名,定价 with ROLLUP;

```

查询结果：

```

SELECT 书号,书名,定价,count(书号) 册数,sum(定价) 总价格
FROM 图书
WHERE 类别='计算机'
GROUP BY 书号,书名,定价 with ROLLUP;

```

100 %

Results Messages

	书号	书名	定价	册数	总价格
1	1001	数据结构	80.00	1	80.00
2	1001	数据结构	NULL	1	80.00
3	1001	NULL	NULL	1	80.00
4	1002	计算机应...	20.00	1	20.00
5	1002	计算机应...	NULL	1	20.00
6	1002	NULL	NULL	1	20.00
7	1003	数据库技...	15.00	1	15.00
8	1003	数据库技...	NULL	1	15.00
9	1003	NULL	NULL	1	15.00
10	1004	C语言	25.00	1	25.00
11	1004	C语言	NULL	1	25.00
12	1004	NULL	NULL	1	25.00
13	NULL	NULL	NULL	4	140.00

4) 同 3，使用 with rollup 函数 SQL 语句如下：

1 列出计算机类图书的书号、名称及价格，并求出各出版社这类书的总价格

```

select 书号,书名,定价,sum(定价) 总价格
from 图书
where 类别='计算机'
group by 书号,书名,定价 with rollup

```

查询结果：

```

select 书号,书名,定价,SUM(定价) 总价格
from 图书
where 类别='计算机'
group by 书号,书名,定价 with rollup

```

100 %

Results Messages

	书号	书名	定价	总价格
1	1001	数据结构	80.00	80.00
2	1001	数据结构	NULL	80.00
3	1001	NULL	NULL	80.00
4	1002	计算机应...	20.00	20.00
5	1002	计算机应...	NULL	20.00
6	1002	NULL	NULL	20.00
7	1003	数据库技...	15.00	15.00
8	1003	数据库技...	NULL	15.00
9	1003	NULL	NULL	15.00
10	1004	C语言	25.00	25.00
11	1004	C语言	NULL	25.00
12	1004	NULL	NULL	25.00
13	NULL	NULL	NULL	140....

2 列出计算机类图书的书号、名称及价格，并求出各出版社这类书的总价格

```

select 书号,书名,定价,SUM(定价) 总价格
from 图书
where 类别='计算机'
group by 书号,书名,定价 with rollup

```

查询结果：

```

select 书号,书名,定价,SUM(定价) 总价格
from 图书
group by 书号,书名,定价 with rollup

```

	书号	书名	定价	总价格
1	1001	数据结构	80.00	80.00
2	1001	数据结构	NULL	80.00
3	1001	NULL	NULL	80.00
4	1002	计算机应用	20.00	20.00
5	1002	计算机应用	NULL	20.00
6	1002	NULL	NULL	20.00
7	1003	数据库技术	15.00	15.00
8	1003	数据库技术	NULL	15.00
9	1003	NULL	NULL	15.00
10	1004	C 语言	25.00	25.00
11	1004	C 语言	NULL	25.00
12	1004	NULL	NULL	25.00
13	1005	应用文写作	25.00	25.00
14	1005	应用文写作	NULL	25.00
15	1005	NULL	NULL	25.00
16	1006	管理学	15.00	15.00
17	1006	管理学	NULL	15.00
18	1006	NULL	NULL	15.00
19	1007	工业管理	70.00	70.00
20	1007	工业管理	NULL	70.00
21	1007	NULL	NULL	70.00
22	1008	线性代数	50.00	50.00
23	1008	线性代数	NULL	50.00
24	1008	NULL	NULL	50.00
25	1009	公司的概念	14.00	14.00
26	1009	公司的概念	NULL	14.00
27	1009	NULL	NULL	14.00
28	1010	统计学	15.00	15.00
29	1010	统计学	NULL	15.00
30	1010	NULL	NULL	15.00
31	NULL	NULL	NULL	329.00

5) SQL 语句如下:

```

select 书号,书名
from 图书
where 类别='计算机' and 出版社='机械工业出版社'

```

查询结果:

```

select 书号,书名
from 图书
where 类别='计算机' and 出版社='机械工业出版社'

```

	书号	书名
1	1001	数据结构
2	1002	计算机应用

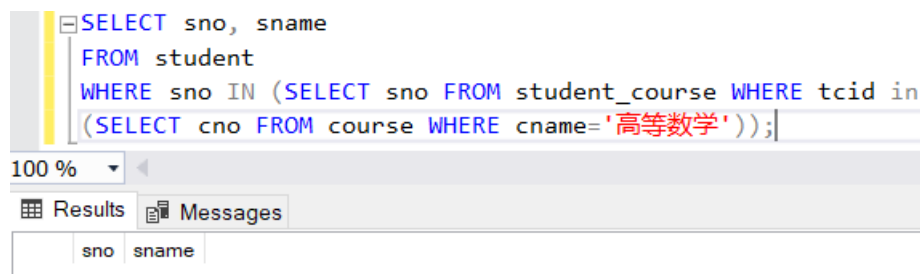
## 三、实验九

### 1. 问题 1

1) SQL 语句如下:

```
SELECT sno, sname
FROM student
WHERE sno IN (SELECT sno FROM student_course WHERE tcid in
(SELECT cno FROM course WHERE cname='高等数学'));
```

查询结果:



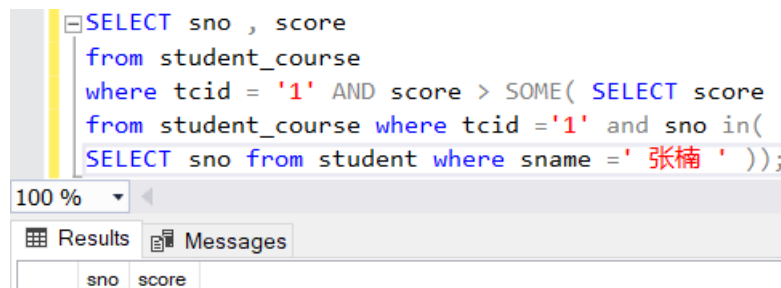
The screenshot shows a SQL query editor with the following text: `SELECT sno, sname FROM student WHERE sno IN (SELECT sno FROM student_course WHERE tcid in (SELECT cno FROM course WHERE cname='高等数学'));`. Below the editor, the 'Results' tab is active, displaying a table with two columns: 'sno' and 'sname'.

sno	sname
-----	-------

2) SQL 语句如下:

```
SELECT sno , score
from student_course
where tcid = '1' AND score > SOME( SELECT score
from student_course where tcid ='1' and sno in(
SELECT sno from student where sname = ' 张楠 ' ));
```

查询结果:



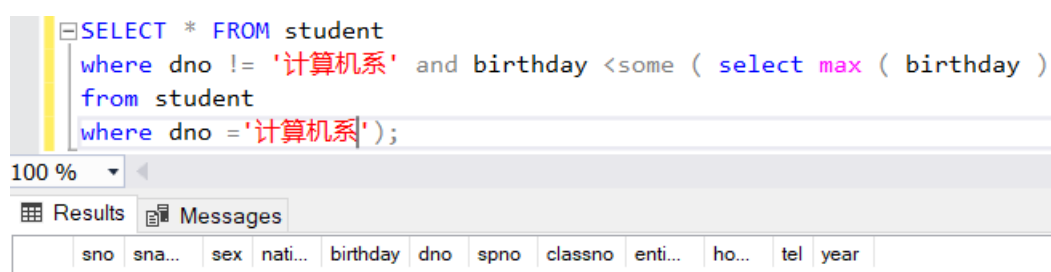
The screenshot shows a SQL query editor with the following text: `SELECT sno , score from student_course where tcid = '1' AND score > SOME( SELECT score from student_course where tcid ='1' and sno in( SELECT sno from student where sname = ' 张楠 ' ));`. Below the editor, the 'Results' tab is active, displaying a table with two columns: 'sno' and 'score'.

sno	score
-----	-------

3) SQL 语句如下:

```
SELECT * FROM student
where dno != '计算机系' and birthday <some ( select max ( birthday )
from student
where dno ='计算机系');
```

查询结果:



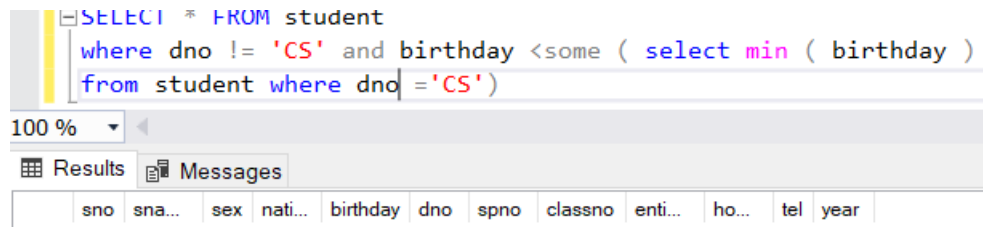
The screenshot shows a SQL query editor with the following text: `SELECT * FROM student where dno != '计算机系' and birthday <some ( select max ( birthday ) from student where dno ='计算机系');`. Below the editor, the 'Results' tab is active, displaying a table with multiple columns: 'sno', 'sna...', 'sex', 'nati...', 'birthday', 'dno', 'spno', 'classno', 'enti...', 'ho...', 'tel', and 'year'.

sno	sna...	sex	nati...	birthday	dno	spno	classno	enti...	ho...	tel	year
-----	--------	-----	---------	----------	-----	------	---------	---------	-------	-----	------

4) SQL 语句如下:

```
SELECT * FROM student
where dno != 'CS' and birthday < some ( select min ( birthday )
from student where dno = 'CS' )
```

查询结果:

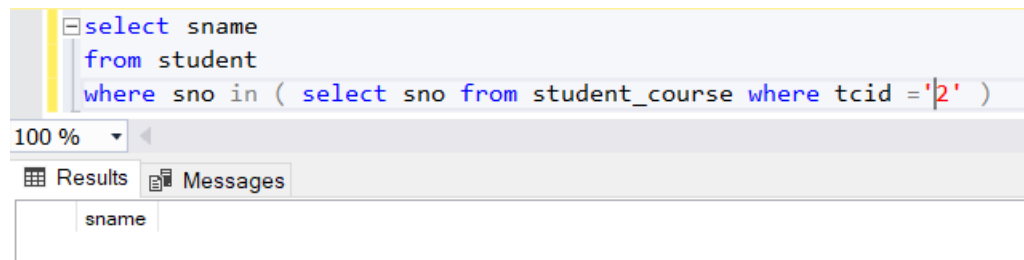


sno	sname	sex	nati...	birthday	dno	spno	classno	enti...	ho...	tel	year
-----	-------	-----	---------	----------	-----	------	---------	---------	-------	-----	------

5) SQL 语句如下:

```
select sname
from student
where sno in ( select sno from student_course where tcid = '2' )
```

查询结果:

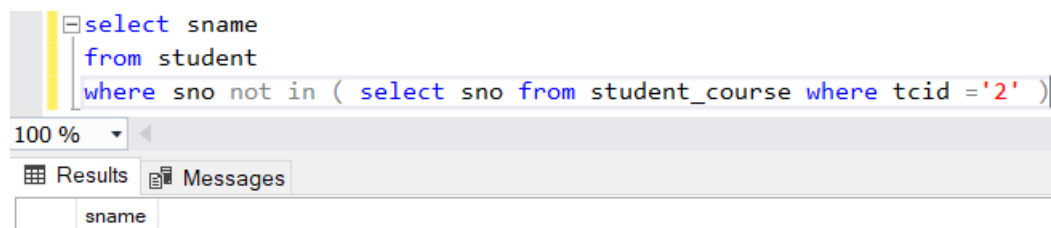


sname
-------

6) SQL 语句如下:

```
select sname
from student
where sno not in ( select sno from student_course where tcid = '2' )
```

查询结果:



sname
-------

7) SQL 语句如下:

```
select sname
from student
where sno in ( select sno from student_course where tcid is not null)
```

查询结果:

```
select sname
from student
where sno in ( select sno from student_course where tcid is not null)
```

100 %

Results Messages

sname
-------

8) SQL 语句如下:

```
select sno , sname from student where sno in (
select sno from student_course where tcid in (
select tcid from student_course where sno = '2'))
```

查询结果:

```
select sno , sname from student where sno in (
select sno from student_course where tcid in (
select tcid from student_course where sno = '2'))
```

100 %

Results Messages

sno	sname
-----	-------

## 2. 问题 2

首先使用以下 SQL 语句创建表格:

```
CREATE TABLE 供应商
```

```
(
    供应商代码 Char(5) NOT NULL,
    姓名 Char(50) NOT NULL,
    所在城市 Char(20) NOT NULL,
    联系电话 Char(20) NOT NULL
)
```

```
CREATE TABLE 工程
```

```
(
    工程代码 Char(5) NOT NULL,
    工程名 Char(50) NOT NULL,
    负责人 Char(10) NOT NULL,
    预算 Char(8) NOT NULL
)
```

```
CREATE TABLE 零件
```

```
(
    零件代码 Char(5) NOT NULL,
    零件名 Char(50) NOT NULL,
    规格 Char(10) NOT NULL,
    产地 Char(20) NOT NULL,
    颜色 Char(10) NOT NULL
)
```



```
CREATE TABLE 供应零件
(
    供应商代码 Char(5) NOT NULL,
    工程代码 Char(5) NOT NULL,
    零件代码 Char(5) NOT NULL,
    数量 Int NOT NULL
)
```

成功:



```
CREATE TABLE 供应商
(
    供应商代码 Char(5) NOT NULL,
    姓名 Char(50) NOT NULL,
    所在城市 Char(20) NOT NULL,
    联系电话 Char(20) NOT NULL
)

CREATE TABLE 工程
(
    工程代码 Char(5) NOT NULL,
    工程名 Char(50) NOT NULL,
    负责人 Char(10) NOT NULL,
    预算 Char(8) NOT NULL
)

CREATE TABLE 零件
(
    零件代码 Char(5) NOT NULL,
    零件名 Char(50) NOT NULL,
    规格 Char(10) NOT NULL,
    产地 Char(20) NOT NULL,
    颜色 Char(10) NOT NULL
)

CREATE TABLE 供应零件
(
    供应商代码 Char(5) NOT NULL,
    工程代码 Char(5) NOT NULL,
    零件代码 Char(5) NOT NULL,
    数量 Int NOT NULL
)
```

100 %

Messages

Commands completed successfully.

Completion time: 2019-10-24T20:36:17.3482952+08:00

然后使用以下 SQL 语句插入数据:

```
insert into 供应商(供应商代码,姓名,所在城市,联系电话) values
('S1','北京供应商','北京','0108888888'),
('S2','天津供应商','天津','0228888888'),
('S3','重庆供应商','重庆','0238888888'),
```

```
( 'S4', '上海供应商1', '上海', '0218888888'),  
( 'S5', '广州供应商', '广州', '0208888888'),  
( 'S6', '上海供应商2', '上海', '0216666666');
```

```
insert into 工程(工程代码,工程名,负责人,预算)values  
( 'J1', '工程1', '丁一', '200000'),  
( 'J2', '工程2', '赵二', '60000'),  
( 'J3', '工程3', '张三', '70000'),  
( 'J4', '工程4', '李四', '80000'),  
( 'J5', '工程5', '王五', '150000');
```

```
insert into 零件(零件代码,零件名,规格,产地,颜色)values  
( 'P1', '螺丝', '中', '济南', '红色'),  
( 'P2', '主板', '集成', '深圳', '绿色'),  
( 'P3', '显卡', '独立', '香港', '蓝色'),  
( 'P4', '声卡', '集成', '天津', '红色'),  
( 'P5', '网卡', '100M', '上海', '黑色'),  
( 'P6', '鼠标', '无线', '上海', '黑色');
```

```
insert into 供应零件(供应商代码,工程代码,零件代码,数量)values  
( 'S1', 'J2', 'P4', 50),  
( 'S1', 'J3', 'P5', 100),  
( 'S2', 'J2', 'P6', 500),  
( 'S4', 'J1', 'P3', 150),  
( 'S4', 'J5', 'P1', 200),  
( 'S5', 'J4', 'P6', 100),  
( 'S6', 'J4', 'P2', 90);
```

成功:

```
insert into 供应商(供应商代码,姓名,所在城市,联系电话)values
('S1','北京供应商','北京','0108888888'),
('S2','天津供应商','天津','0228888888'),
('S3','重庆供应商','重庆','0238888888'),
('S4','上海供应商1','上海','0218888888'),
('S5','广州供应商','广州','0208888888'),
('S6','上海供应商2','上海','0216666666');

insert into 工程(工程代码,工程名,负责人,预算)values
('J1','工程1','丁一','20000'),
('J2','工程2','赵二','60000'),
('J3','工程3','张三','70000'),
('J4','工程4','李四','80000'),
('J5','工程5','王五','150000');

insert into 零件(零件代码,零件名,规格,产地,颜色)values
('P1','螺丝','中','济南','红色'),
('P2','主板','集成','深圳','绿色'),
('P3','显卡','独立','香港','蓝色'),
('P4','声卡','集成','天津','红色'),
('P5','网卡','100M','上海','黑色'),
('P6','鼠标','无线','上海','黑色');

insert into 供应零件(供应商代码,工程代码,零件代码,数量)values
('S1','J2','P4',50),
('S1','J3','P5',100),
('S2','J2','P6',500),

100 %
Messages

(6 rows affected)

(5 rows affected)

(6 rows affected)

(7 rows affected)

Completion time: 2019-10-24T20:46:38.9608503+08:00
```

1) SQL 语句如下:

```
select 供应商.供应商代码,姓名 from 供应商,工程,零件,供应零件
where 供应商.供应商代码=供应零件.供应商代码
and 工程.工程代码=供应零件.工程代码
and 零件.零件代码=供应零件.零件代码
and 工程.工程代码='J4'
and 颜色='红色'
```

查询结果:

```

select 供应商.供应商代码,姓名 from 供应商,工程,零件,供应零件
where 供应商.供应商代码=供应零件.供应商代码
and 工程.工程代码=供应零件.工程代码
and 零件.零件代码=供应零件.零件代码
and 工程.工程代码='J4'
and 颜色='红色'

```

100 %

Results Messages

供应商代码	姓名
-------	----

2) SQL 语句如下:

```

select distinct g1.工程代码 from 供应零件 g1
where g1.工程代码 not in (
select 工程代码 from 供应零件 g2,供应商
where g2.供应商代码=供应商.供应商代码 and 供应商.所在城市='上海');

```

查询结果:

```

select distinct g1.工程代码 from 供应零件 g1
where g1.工程代码 not in (
select 工程代码 from 供应零件 g2,供应商
where g2.供应商代码=供应商.供应商代码 and 供应商.所在城市='上海');

```

100 %

Results Messages

	工程代码
1	J2
2	J3

3) SQL 语句如下:

```

select g1.工程代码 from 供应零件 g1 where g1.零件代码>=all(
select g2.零件代码 from 供应零件 g2 where g2.供应商代码='S5');

```

查询结果:

```

select distinct g1.工程代码 from 供应零件 g1
where g1.工程代码 not in (
select 工程代码 from 供应零件 g2,供应商
where g2.供应商代码=供应商.供应商代码 and 供应商.所在城市='上海');

```

100 %

Results Messages

	工程代码
1	J2
2	J3