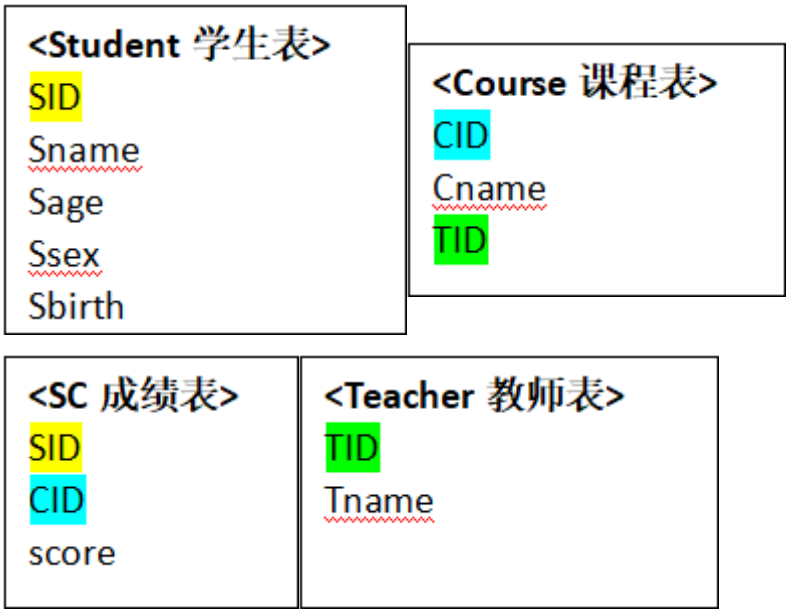
综合练习4

此套练习供《尚硅谷-MySQL数据库基础篇》使用

数据表：

- **Student(SID, Sname, Sage, Ssex,Sbirth) 学生表**
- **Course(CID, Cname, TID) 课程表**
- **SC(SID, CID, score) 成绩表**
- **Teacher(TID, Tname) 教师表**



问题：

1、查询“201”课程比“202”课程成绩高的所有学生的学号;

```
select a.SID

from (select Sid,score from SC where CID=201) a,

     (select Sid,score from SC where CID=202) b

where a.score>b.score and a.Sid=b.Sid;
```

2、查询平均成绩大于“60”分的同学的学号和平均成绩;

```
 select SID,avg(score)

 from sc

 group by SID having avg(score) >60;
```

3、查询“所有”同学的学号、姓名、选课数、总成绩;

```
select Student.SID,Student.Sname,count(SC.CID),sum(score)

from Student left Outer join SC on Student.SID=SC.SID

group by Student.SID,Sname
```

4、查询姓“李”的老师的个数;

```
select count(distinct(Tname))

from Teacher

where Tname like '李%';
```

5、查询没学过“叶平”老师课的同学的学号、姓名;

```
#方法一

select Student.SID,Student.Sname

from Student

where SID not in (

    select distinct(SC.SID)

    from SC,Course,Teacher

    where SC.CID=Course.CID and Teacher.TID=Course.TID and Teacher.Tname='叶平'

);


#方法二

select student.sid,student.sname

from student

where sid not in (

   select sid

   from sc

   where cid in (

       select cid

       from course

       where tid = (

            select tid
```

```
            from teacher
            where tname = '叶平'
        )
    )
)
```

6、查询学过“201”并且也学过编号“202”课程的同学的学号、姓名;

```
select Student.SID,Student.Sname
from Student,SC
where Student.SID=SC.SID and SC.CID='001'and exists(
    select * from SC as SC_2
    where SC_2.SID=SC.SID and SC_2.CID='002'
);
```

7、查询学过“叶平”老师所教的“所有课”的同学的学号、姓名;

```
select SID,Sname
from Student
where SID in (
    select SID from SC ,Course ,Teacher
    where SC.CID=Course.CID and Teacher.TID=Course.TID and Teacher.Tname='叶平'
    group by SID having count(SC.CID)=(
            select count(CID) from Course,Teacher
            where Teacher.TID=Course.TID and Tname='叶平'
    )
);
```

8、查询课程编号“202”的成绩比课程编号“201”课程低的所有同学的学号、姓名;

```
select SID,Sname from (
    select Student.SID,Student.Sname,score , (
        select score
```

```
        from SC SC_2
        where SC_2.SID=Student.SID and SC_2.CID='002'
    ) score2
    from Student,SC
    where Student.SID=SC.SID and CID='001'
) S_2
where score2 < score;
```

9、查询“所有课程成绩”小于60分的同学的学号、姓名；

（取反操作处理）

```
select SID,Sname
from Student
where SID not in (
    select Student.SID
    from Student,SC
    where S.SID=SC.SID and score>60
);
```

10、查询没有学全所有课的同学的学号、姓名；

（count(CID)得到课程的数目）

```
  select Student.SID,Student.Sname
  from Student,SC
  where Student.SID=SC.SID group by Student.SID,Student.Sname having
  count(CID) <(select count(CID) from Course);
```

11、查询至少有一门课与学号为“1001”的同学所学相同的同学的学号和姓名；

```
 select SID,Sname
 from Student,SC
 where Student.SID=SC.SID and CID in (
     select CID
     from SC
     where SID='1001'
 );
```

12、查询至少学过学号为“1001”同学所有一门课的其他同学学号和姓名;

```
 select distinct SC.SID,Sname
 from Student,SC
 where Student.SID=SC.SID and CID in (
     select CID
     from SC
     where SID='001'
 )
and Student.SID <> 1001;
```

13、把“SC”表中“叶平”老师教的课的成绩都更改为此课程的平均成绩;

```
update SC
set score=(
    select avg(SC_2.score)
    from SC SC_2
    where SC_2.CID=SC.CID
)
where cid = (
     select cid
     from Course,Teacher
     where Course.CID=SC.CID and Course.TID=Teacher.TID and Teacher.Tname='叶平'
)
```

14、查询和“1002”号的同学学习的课程完全相同的其他同学学号和姓名;

```
select SID

from SC

where CID in (select CID from SC where SID='1002')

group by SID having count(*)=(select count(*) from SC where SID='1002');
```

15、删除学习“叶平”老师课的SC表记录;

```
  Delete from sc

  where cid = (

        select cid

        from course ,Teacher

        where Course.CID=SC.CID and Course.TID= Teacher.TID and Tname='叶平'

  )
```

16、向SC表中插入一些记录，这些记录要求符合以下条件：没有上过编号“003”课程的同学学号、“002”号课的平均成绩;

```
Insert  into SC

as select SID,'002',(

    Select avg(score)

    from SC where CID='002'
)

from Student

where SID not in (Select SID from SC where CID='002');
```

17、按学生平均成绩从高到低显示所有学生的“数据库”、“企业管理”、“英语”三门的课程成绩，按如下形式显示：学生ID,数据库,企业管理,英语,有效课程数,有效平均分

(默认数据库是004，企业管理是001，英语是006)

```
  SELECT SID as 学生ID

    ,(SELECT score FROM SC WHERE SC.SID=t.SID AND CID='004') AS 数据库

    ,(SELECT score FROM SC WHERE SC.SID=t.SID AND CID='001') AS 企业管理

    ,(SELECT score FROM SC WHERE SC.SID=t.SID AND CID='006') AS 英语
```

```
    ,COUNT(*) AS 有效课程数, AVG(t.score) AS 平均成绩
  FROM SC AS t
  GROUP BY SID
  ORDER BY avg(t.score)
```

18、查询各科成绩最高和最低的分，以及对应的学号：以如下形式显示：课程ID，最高分，学号，最低分，学号

```
SELECT L.CID courseID,L.score 最高分,L.sid 学号,R.score 最低分,R.sid 学号
FROM SC L ,SC R
WHERE L.CID = R.CID and
   L.score = (SELECT MAX(IL.score)
         FROM SC IL,Student IM
         WHERE L.CID = IL.CID and IM.SID=IL.SID
         GROUP BY IL.CID)
AND
   R.Score = (SELECT MIN(IR.score)
         FROM SC IR
         WHERE R.CID = IR.CID
         GROUP BY IR.CID)
```

19、查询课程号，课程名称，平均成绩和及格率，并按各科平均成绩从低到高和及格率的百分数从高到低顺序

```
 SELECT t.CID AS 课程号,
        max(course.Cname)AS 课程名,
        isnull(AVG(score),0) AS 平均成绩,
        100 * SUM(CASE WHEN isnull(score,0)>=60 THEN 1 ELSE 0 END)/COUNT(*) AS 及格百分
数
 FROM SC T,Course
 where t.CID=course.CID
 GROUP BY t.CID
 ORDER BY 100 * SUM(CASE WHEN isnull(score,0)>=60 THEN 1 ELSE 0 END)/COUNT(*) DESC
```

20、查询如下课程平均成绩和及格率的百分数(用"1行"显示): 企业管理（001），马克思（002），OO&UML （003），数据库（004）

```
 SELECT SUM(CASE WHEN CID ='001' THEN score ELSE 0 END)/SUM(CASE CID WHEN '001' THEN 1 ELSE 0 END) AS 企业管理平均分

    ,100 * SUM(CASE WHEN CID = '001' AND score >= 60 THEN 1 ELSE 0 END)/SUM(CASE WHEN CID = '001' THEN 1 ELSE 0 END) AS 企业管理及格百分数

    ,SUM(CASE WHEN CID = '002' THEN score ELSE 0 END)/SUM(CASE CID WHEN '002' THEN 1 ELSE 0 END) AS 马克思平均分

    ,100 * SUM(CASE WHEN CID = '002' AND score >= 60 THEN 1 ELSE 0 END)/SUM(CASE WHEN CID = '002' THEN 1 ELSE 0 END) AS 马克思及格百分数

    ,SUM(CASE WHEN CID = '003' THEN score ELSE 0 END)/SUM(CASE CID WHEN '003' THEN 1 ELSE 0 END) AS UML平均分

    ,100 * SUM(CASE WHEN CID = '003' AND score >= 60 THEN 1 ELSE 0 END)/SUM(CASE WHEN CID = '003' THEN 1 ELSE 0 END) AS UML及格百分数

    ,SUM(CASE WHEN CID = '004' THEN score ELSE 0 END)/SUM(CASE CID WHEN '004' THEN 1 ELSE 0 END) AS 数据库平均分

    ,100 * SUM(CASE WHEN CID = '004' AND score >= 60 THEN 1 ELSE 0 END)/SUM(CASE WHEN CID = '004' THEN 1 ELSE 0 END) AS 数据库及格百分数

    FROM SC
```

21、查询不同老师所教不同课程平均分从高到低显示

```
SELECT max(Z.TID) AS 教师ID,

       MAX(Z.Tname) AS 教师姓名,

       C.CID AS 课程ＩＤ,

       MAX(C.Cname) AS 课程名称,

       AVG(Score) AS 平均成绩

FROM SC AS T,Course AS C ,Teacher AS Z

WHERE T.CID=C.CID and C.TID=Z.TID

GROUP BY C.CID

ORDER BY AVG(Score) DESC
```

22、查询如下课程成绩第 3 名到第 6 名的学生成绩单：企业管理（001），马克思（002），UML （003），数据库（004）

```
  [学生ID],[学生姓名],企业管理,马克思,UML,数据库,平均成绩

  SELECT DISTINCT top 3

   SC.SID As 学生学号,

   Student.Sname AS 学生姓名 ,

   T1.score AS 企业管理,

   T2.score AS 马克思,

   T3.score AS UML,

   T4.score AS 数据库,

   ISNULL(T1.score,0) + ISNULL(T2.score,0) + ISNULL(T3.score,0) + ISNULL(T4.score,0)
as 总分

   FROM Student,SC LEFT JOIN SC AS T1

            ON SC.SID = T1.SID AND T1.CID = '001'

      LEFT JOIN SC AS T2

            ON SC.SID = T2.SID AND T2.CID = '002'

      LEFT JOIN SC AS T3

            ON SC.SID = T3.SID AND T3.CID = '003'

      LEFT JOIN SC AS T4

            ON SC.SID = T4.SID AND T4.CID = '004'

   WHERE student.SID=SC.SID and

   ISNULL(T1.score,0) + ISNULL(T2.score,0) + ISNULL(T3.score,0) + ISNULL(T4.score,0)

   NOT IN

   (SELECT

      DISTINCT

      TOP 15 WITH TIES

      ISNULL(T1.score,0) + ISNULL(T2.score,0) + ISNULL(T3.score,0) +
ISNULL(T4.score,0)

   FROM sc

      LEFT JOIN sc AS T1
```

```
            ON sc.SID = T1.SID AND T1.CID = 'k1'
      LEFT JOIN sc AS T2
            ON sc.SID = T2.SID AND T2.CID = 'k2'
      LEFT JOIN sc AS T3
            ON sc.SID = T3.SID AND T3.CID = 'k3'
      LEFT JOIN sc AS T4
            ON sc.SID = T4.SID AND T4.CID = 'k4'
   ORDER BY ISNULL(T1.score,0) + ISNULL(T2.score,0) + ISNULL(T3.score,0) +
ISNULL(T4.score,0) DESC);
```

23、统计各科成绩,各分数段人数:课程ID,课程名称,[100-85],[85-70],[70-60],[<60]

```
  SELECT SC.CID as 课程ID, Cname as 课程名称
    ,SUM(CASE WHEN score BETWEEN 85 AND 100 THEN 1 ELSE 0 END) AS [100 - 85]
    ,SUM(CASE WHEN score BETWEEN 70 AND 85 THEN 1 ELSE 0 END) AS [85 - 70]
    ,SUM(CASE WHEN score BETWEEN 60 AND 70 THEN 1 ELSE 0 END) AS [70 - 60]
    ,SUM(CASE WHEN score < 60 THEN 1 ELSE 0 END) AS [60 -]
  FROM SC,Course
  where SC.CID=Course.CID
  GROUP BY SC.CID,Cname;
```

24、查询学生平均成绩及其名次

```
SELECT 1+(SELECT COUNT( distinct 平均成绩)
       FROM (SELECT SID,AVG(score) AS 平均成绩
           FROM SC
         GROUP BY SID
         ) AS T1
      WHERE 平均成绩> T2.平均成绩) as 名次,
   SID as 学生学号,平均成绩
  FROM (SELECT SID,AVG(score) 平均成绩
      FROM SC
```

```
    GROUP BY SID
    ) AS T2
ORDER BY 平均成绩desc;
```

25、查询各科成绩前三名的记录:(不考虑成绩并列情况)

```
SELECT t1.SID as 学生ID,t1.CID as 课程ID,Score as 分数
 FROM SC t1
 WHERE score IN (SELECT TOP 3 score
     FROM SC
     WHERE t1.CID= CID
    ORDER BY score DESC
     )
 ORDER BY t1.CID;
```

26、查询每门课程被选修的学生数

```
select Cid,count(SID) from sc group by CID;
```

27、查询出只选修了一门课程的全部学生的学号和姓名

```
select SC.SID,Student.Sname,count(CID) AS 选课数
from SC ,Student
where SC.SID=Student.SID group by SC.SID ,Student.Sname having count(CID)=1;
```

28、查询男生、女生人数

```
 Select count(Ssex) as 男生人数 from Student group by Ssex having Ssex='男';
 Select count(Ssex) as 女生人数 from Student group by Ssex having Ssex='女';
```

29、查询姓“张”的学生名单

```
SELECT Sname FROM Student WHERE Sname like '张%';
```

30、查询同名学生名单，并统计同名人数

```
select Sname,count(*) from Student group by Sname having count(*)>1;
```

31、1981年出生的学生名单(注：Student表中Sage列的类型是datetime)

```
select Sname, CONVERT(char (11),DATEPART(year,Sage)) as age

from student

where CONVERT(char(11),DATEPART(year,Sage))='1981';
```

32、查询每门课程的平均成绩，结果按平均成绩升序排列，平均成绩相同时，按课程号降序排列

```
 select CID,Avg(score) from SC group by CID order by Avg(score),CID DESC ;
```

33、查询平均成绩大于85的所有学生的学号、姓名和平均成绩

```
 select Sname,SC.SID ,avg(score)

 from Student,SC

 where Student.SID=SC.SID group by SC.SID,Sname having   avg(score)>85;
```

34、查询课程名称为“数据库”，且分数低于60的学生姓名和分数

```
select Sname,isnull(score,0)

from Student,SC,Course

where SC.SID=Student.SID and SC.CID=Course.CID and Course.Cname='数据库'and score <60;
```

35、查询所有学生的选课情况；（学号，姓名，课程编号，课程名字）

```
SELECT SC.SID,SC.CID,Sname,Cname

FROM SC,Student,Course

where SC.SID=Student.SID and SC.CID=Course.CID ;
```

36、查询任何一门课程成绩在70分以上的学号、姓名、课程编号和分数;

```
SELECT distinct student.SID,student.Sname,SC.CID,SC.score

FROM student,Sc

WHERE SC.score>=70 AND SC.SID=student.SID;
```

37、查询学生学号，以及其不及格的课程，并按课程号从大到小排列

```
select sid,Cid from sc where score <60 order by CID ;
```

38、查询课程编号为003且课程成绩在80分以上的学生的学号和姓名；

```
select SC.SID,Student.Sname

from SC,Student

where SC.SID=Student.SID and Score>80 and CID='003';
```

39、求选了课程的学生人数

```
  select count(*) from sc;
```

40、查询选修“叶平”老师所授课程的学生中，成绩最高的学生姓名及其成绩

```
 select Student.Sname,score

 from Student,SC,CourseC,Teacher

 where Student.SID=SC.SID and SC.CID=C.CID and C.TID=Teacher.TID and Teacher.Tname='叶平' and SC.score=(select max(score)from SC where CID=C.CID );
```

41、查询各个课程及相应的选修人数

```
 select count(*) from sc group by CID;
```

42、查询不同课程成绩相同的学生的学号、课程号、学生成绩

```
 select distinct A.SID,B.score

 from SC A ,SC B

 where A.Score=B.Score and A.CID <>B.CID ;
```

43、查询每门功成绩最好的前两名

```
  SELECT t1.SID as 学生ID,t1.CID as 课程ID,Score as 分数

  FROM SC t1

  WHERE score IN (SELECT TOP 2 score

       FROM SC

       WHERE t1.CID= CID

       ORDER BY score DESC

  )

  ORDER BY t1.CID;
```

44、统计每门课程的学生选修人数（超过10人的课程才统计）。要求输出课程号和选修人数，查询结果按人数降序排列，查询结果按人数降序排列，若人数相同，按课程号升序排列

```
select CID as 课程号,count(*) as 人数

from sc

group by CID

order by count(*) desc,Cid
```

45、检索至少选修两门课程的学生学号

```
select SID

from sc

group by Sid

having count(*) > = 2
```

46、查询全部学生都选修的课程的课程号和课程名

```
select CID,Cname

from Course

where CID in (select Cid from sc group by Cid)
```

47、查询没学过“叶平”老师讲授的任一门课程的学生姓名

```
 select Sname

 from Student

 where SID not in (

     select SID

     from Course,Teacher,SC

     where Course.TID=Teacher.TID and SC.CID=course.CID and Tname='叶平'
);
```

48、查询两门以上不及格课程的同学的学号及其平均成绩

```
select SID,avg(isnull(score,0))

from SC where SID in (

    select SID
```

```
    from SC
    where score <60
    group by SID having count(*)>2
)
group by SID;
```