```
create table Student(SId varchar(10),Sname varchar(10),Sage datetime,Ssex varchar(10));
insert into Student values('01' , '赵雷' , '1990-01-01' , '男');
insert into Student values('02' , '钱电' , '1990-12-21' , '男');
insert into Student values('03' , '孙风' , '1990-12-20' , '男');
insert into Student values('04' , '李云' , '1990-12-06' , '男');
insert into Student values('05' , '周梅' , '1991-12-01' , '女');
insert into Student values('06' , '吴兰' , '1992-01-01' , '女');
insert into Student values('07' , '郑竹' , '1989-01-01' , '女');
insert into Student values('09' , '张三' , '2017-12-20' , '女');
insert into Student values('10' , '李四' , '2017-12-25' , '女');
insert into Student values('11' , '李四' , '2012-06-06' , '女');
insert into Student values('12' , '赵六' , '2013-06-13' , '女');
insert into Student values('13' , '孙七' , '2014-06-01' , '女');

create table Course(CId varchar(10),Cname nvarchar(10),TId varchar(10));
insert into Course values('01' , '语文' , '02');
insert into Course values('02' , '数学' , '01');
insert into Course values('03' , '英语' , '03');

create table Teacher(TId varchar(10),Tname varchar(10));
insert into Teacher values('01' , '张三');
insert into Teacher values('02' , '李四');
insert into Teacher values('03' , '王五');

create table SC(SId varchar(10),CId varchar(10),score decimal(18,1));
insert into SC values('01' , '01' , 80);
insert into SC values('01' , '02' , 90);
insert into SC values('01' , '03' , 99);
insert into SC values('02' , '01' , 70);
insert into SC values('02' , '02' , 60);
insert into SC values('02' , '03' , 80);
insert into SC values('03' , '01' , 80);
insert into SC values('03' , '02' , 80);
insert into SC values('03' , '03' , 80);
insert into SC values('04' , '01' , 50);
insert into SC values('04' , '02' , 30);
insert into SC values('04' , '03' , 20);
insert into SC values('05' , '01' , 76);
insert into SC values('05' , '02' , 87);
insert into SC values('06' , '01' , 31);
insert into SC values('06' , '03' , 34);
insert into SC values('07' , '02' , 89);
insert into SC values('07' , '03' , 98);
```

```sql
# 1.查询" 01 "课程比" 02 "课程成绩高的学生的信息及课程分数
SELECT
  c.SId as '学号',
  c.Sname as '姓名',
  a.score as '01分数',
  b.score as '02分数'
FROM
(SELECT SId, score FROM SC WHERE CId = '01') as a
INNER JOIN
(SELECT SId, score FROM SC WHERE CId = '02') as b
ON a.SId = b.SId
INNER JOIN Student as c
ON c.SId = a.SId
WHERE a.score > b.score
```

```sql
# 2.查询平均成绩大于等于 60 分的同学的学生编号和平均成绩
SELECT SId, avg(score)
FROM SC
GROUP BY SId
HAVING avg(score) >= 60
```

```sql
#3.查询所有学生的学号，姓名，选课数，总成绩
SELECT a.SId,a.Sname,count(b.CId),
sum(case when b.score is null then 0 else b.score END)
FROM Student as a
LEFT JOIN SC as b ON a.SId = b.SId
LEFT JOIN Course as c  ON b.CId = c.CId
LEFT JOIN Teacher as d ON c.TId = d.TId
GROUP BY a.SId
```

```sql
#4.查询张姓老师的数量
SELECT count(Tname)
FROM Teacher
WHERE Tname like "张%"
```

```sql
#5.查询没上过张三老师课的学生的学号和姓名
Select
  Student.SId, Student.Sname
From Student
Where SId not IN
(
SELECT d.SId
FROM SC as a
INNER JOIN Course as b ON b.CId = a.CId
INNER JOIN Teacher as c ON c.TId = b.TId
INNER JOIN Student as d ON d.SId = a.SId
WHERE c.Tname = '张三'
)
```

```sql
#6.查询上过张三老师课的学生的学号和姓名
SELECT d.SId,d.Sname
FROM SC as a
INNER JOIN Course as b ON b.CId = a.CId
INNER JOIN Teacher as c ON c.TId = b.TId
INNER JOIN Student as d ON d.SId = a.SId
WHERE c.Tname = '张三'
```

```sql
#7.查询学过01,02课程的同学的学号和姓名
SELECT
  c.SId, c.Sname
FROM
(SELECT SId FROM SC WHERE CId = '01') as a
INNER JOIN
(SELECT SId FROM SC WHERE CId = '02') as b
ON a.SId = b.SId
INNER JOIN Student as c
ON c.SId = a.SId
```

```sql
#8.查询01,02,03课程的总成绩,均分
SELECT CId,sum(score),avg(score)
FROM SC
GROUP BY CId
```

```sql
#9.查询所有课程成绩小于60分的学生的学号和姓名
Select distinct(Student.SId),Student.Sname
From Student
left join SC on Student.SId = SC.SId
where Student.SId not in
(
Select distinct(SId)
from SC
Where SC.score >= 60
)
AND SC.score is not null
```

```sql
#9.查询所有课程成绩小于60分的学生的学号和姓名
Select distinct(Student.SId),Student.Sname
From Student
left join SC on Student.SId = SC.SId
where Student.SId in
(
Select SId
From SC
group by SId
having max(score) < 60
)
```

```sql
#10.查询没有学全所有课程的学生的学号和姓名
Select SId,Sname
From Student
Where SId not in
(
select SId
from SC
group by SId
having count(CId) = (select count(CId) from Course)
)
```

```sql
#11.查询至少有1门与学号'01'的学生所学课程相同的学生的学号和姓名
Select SId, Sname
From Student
Where SId in
(
select distinct SId
from SC
where CId in (select CId from SC where SId = '01')
AND SId <> '01'
)
```

```sql
#12.查询和学号'01'的学生所学课程完全相同的学生的学号和姓名
Select SId,Sname
From Student
Where SId in
(Select SId
from SC
where SId <> '01'
Group by SId
Having count(CId) = (select count(CId) from SC where SId = '01'))
AND SId not in
(select distinct SId
from SC
where CId not in (select CId from SC where SId = '01')
AND SId <> '01')
```

```sql
#15.查询2门及以上不及格课程的同学的学号和姓名及平均成绩
select Student.SId,Student.Sname,avg(score)
from Student
inner join SC on Student.SId = SC.SId
where Student.SId in
(select SId
from SC
where score < 60
group by SId
having count(score) >= 2)
group by Student.SId,Student.Sname
```

```sql
#16.检索'01'课程分数小于60，按分数降序排列的学生信息
SELECT Student.SId, Student.Sname, SC.score
FROM SC
INNER JOIN Student ON Student.SId = SC.SId
WHERE CId = '01' AND score < 60
ORDER BY score DESC
```

```sql
#17.按平均成绩从高到低显示学生所有课程的成绩及平均成绩
select SC.SId,SC.CId,SC.score,a.avg_score
from SC
left join
(Select SId,avg(score) as avg_score
From SC
group by SId
order by avg(score) desc) as a
on a.SId = SC.SId
order by a.avg_score desc
#列转行
Select SId '学号',
    Max(case when CId = '01' then score else null end) '语文',
    Max(case when CId = '02' then score else null end) '数学',
    Max(case when CId = '03' then score else null end) '英语',
    avg(score) '平均成绩'
From SC
group by SId
order by avg(score) desc
```

```sql
#18.查询各科成绩，按课程ID，课程name，最高，最低，平均，及格率，中等率，优良率，优秀率
#及格>=60,中等70-80，优良80-90，优秀>=90
Select
    SC.CId '课程ID',
    Course.Cname '课程name',
    Max(score) '最高',
    Min(score) '最低',
    avg(score) '平均',
    sum(case when score >= 60 then 1 else 0 end) / sum(score) '及格率',
    sum(case when score >= 70 AND score < 80 then 1 else 0 end) / sum(score) '中等率',
    sum(case when score >= 80 AND score < 90 then 1 else 0 end) / sum(score) '优良率',
    sum(case when score >= 90 then 1 else 0 end) / sum(score) '优秀率'
from SC
inner join Course on SC.CId = Course.CId
group by SC.CId, Course.Cname
```

```sql
#19.按各科成绩排序并显示排名
Select *, row_number() over(partition by CId order by score desc) as '排名'
from SC
```

```sql
#20.查询学生总成绩并显示排名
Select
    SId '学号',
    sum(score) '总成绩',
    row_number() over(order by sum(score) desc) '排名'
from SC
group by SId
order by 总成绩 desc
```

```sql
#21.查询不同老师所教不同课程平均分从高到低显示
select Teacher.Tname, avg(score)
from SC join Course on SC.CId = Course.CId
join Teacher on Course.TId = Teacher.TId
group by Teacher.Tname
order by avg(score) desc
```

```sql
#22查询所有课程的成绩第2名和第3名同学的信息及该课程成绩
Select *
From(
select
    S.SId '学号',
    S.Sname '姓名',
    S.Sage '年龄',
    S.Ssex '性别',
    SC.CId '课程号',
    SC.score '成绩',
    row_number() over(partition by SC.CId order by score desc) '排名'
from Student S join SC on S.SId = SC.SId) tmp
where 排名 in (2,3)
```

```sql
#23使用分段[100,85),(85-70),(70-60),[<60]来统计各科成绩，分别统计各分数人数，课程ID和课程名称
select
    SC.CId '课程ID',
    Course.Cname '课程名称',
    sum(case when score <= 100 AND score > 85 then 1 else 0 end) '[100,85)',
    sum(case when score <= 85 AND score > 70 then 1 else 0 end) '[85,70)',
    sum(case when score <= 70 AND score > 60 then 1 else 0 end) '[70,60)',
    sum(case when score < 60 then 1 else 0 end) '[<60]'
from SC join Course on SC.CId = Course.CId
group by SC.CId, Course.Cname
```

```sql
#24查询学生平均成绩及名次
select
    SId,
    avg(score),
    row_number() over(order by avg(score) desc) '名次'
from SC
group by SId
```

```sql
#26查询每门课程被选修的学生数
select SC.CId,Course.Cname,count(SC.score)
from SC join Course on SC.CId = Course.CId
group by SC.CId,Course.Cname
```

```sql
#27查询只有2门课程的学生学号和姓名
select S.SId,S.Sname
from Student S join SC on S.SId = SC.SId
group by S.SId,S.Sname
having count(SC.CId) = 2
```

```sql
#28查询男生女生人数
#行查
select Ssex,count(SId) as '总人数'
from Student
group by Ssex
#列查
select
    sum(case when Ssex = '男' then 1 else 0 end) as '男生人数',
    sum(case when Ssex = '女' then 1 else 0 end) as '女生人数'
from Student
```

```sql
#29查询名字中带有风字学生信息
select *
from Student
where Sname like '%风%'
```

```sql
#31查询1990的出生的学生名单
select *
from Student
where left(Sage,4) = '1990'
#where year(sage) = '1990'
```

```sql
#32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 S.SId, S.Sname,avg(score)
from Student S join SC on S.SId = SC.SId
group by S.SId,S.Sname
having avg(score) > 85
```

```sql
#33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
```

```sql
#34查询课程名称为'数学',且分数低于60分的学生姓名和分数
select S.Sname, SC.score
from Student S join SC on S.SId = SC.SId
join Course C on SC.CId = C.CId
where C.Cname = '数学' AND SC.score < 60
```

```sql
#35查询所有学生的课程及分数情况
Select
    S.Sname '姓名',
    sum(case when CId = '01' then score else null end) '01课程',
    sum(case when CId = '02' then score else null end) '02课程',
    sum(case when CId = '03' then score else null end) '03课程'
from Student as S left join SC ON S.SId = SC.SId
group by S.Sname
```

```sql
#36查询课程成绩在70分以上课程名称，分数和学生姓名
select S.Sname,SC.CId,SC.score
from Student S join SC on S.SId = SC.SId
where score > 70
```

```sql
#37查询不及格的课程并按课程号从大到小排列
select SId, CId, score
from SC
where score < 60
order by CId desc
```

```sql
#38查询课程号为03且课程成绩在80分以上的学生的学号和姓名
select S.SId, S.Sname,score
From Student S join SC on S.SId = SC.SId
where CId = '03' AND score > 80
```

```sql
#39求每门课程的课程人数
select CId, count(SId)
from SC
group by CId
```

```sql
#40查询选修‘张三’老师所授课程中学生成绩最高的学生姓名及成绩
select S.Sname, SC.score
from Student S join SC on S.SId = SC.SId
join Course C on SC.CId = C.CId
join Teacher T on C.TId = T.TId
where T.Tname = '张三'
Order by SC.score desc
limit 1
```

```sql
#41.查询每门课程成绩都相同的学生编号，学生成绩
Select SId,avg(score) as score
from SC
where SId in
(select SId
from SC
group by SId
having count(CId) <> 1)
group by SId
having max(score) = min(score)
```

```sql
#43.统计每门课程的学生选修人数，(超过5人才统计)
#要求输出课程号和选修人数，查询结果按人数降序排列，若人数相同，按课程号升序排列
select CId, count(score)
from SC
group by CId
having count(score) > 5
order by count(score) desc, CId
```

```sql
#44.检索至少选修2门课的学生学号
select SId
from SC
group by SId
having count(CId) >= 2
```

```sql
#45.检索选修了全部课程学生的学号
select SId
from SC
group by SId
having count(CId) = (select count(distinct CId) from SC )
```

```sql
#46.查询各学生年龄
select SId, 2021 - year(Sage) as age
from Student
```

```sql
#47.查询没上过‘张三’老师任何一门课的同学的姓名
Select Sname
from Student
where Sname not in(
select S.Sname
from Student S join SC on S.SId = SC.SId
join Course C on SC.CId = C.CId
join Teacher T on C.TId = T.TId
where T.Tname = '张三')
```

```sql
#48.查询下周过生日的同学

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#49.查询本月过生日的同学
select Sname
from Student
where mid(Sage,6,2) = '06'
#where month(Sage) = month(now())


#50.查询下个月过生日的同学
select Sname
from Student
where mid(Sage,6,2) = '07'
#where month(Sage) = month(now())+1
```