**基础语句：**

1. 创建学生表：create table student（

sno char(9) primary key,

sname char(10) not null,

ssex char(2),

sage smallint,

sdept varchar(20)

）；

1. 创建模式：create schema s\_t
2. 使用数据库：use student
3. 删除数据库：drop database student（不能在当前表删除当前表）
4. 创建数据库：create database student
5. 创建课程表：create table course

(

cno char(4) primary key,

cname char(40) unique,

cpno char(4),

ccredit smallint,

foreign key(cpno) references course(cno)

);

1. 标注主码的另一方式：primary key(sno,cno)
2. 修改基本表（为基本表添加列）：alter table student add senterence date
3. 修改基本表（删除列）：alter table student drop column senterence
4. 修改基本表（修改数据类型）：alter table student alter column sage int
5. 修改基本表（添加约束性条件）：alter table student add unique(cname)
6. 删除基本表：drop table student
7. 创建索引：create (unique/clustered) index 索引名字 on 表名(索引依据 asc/desc) asc表示升序，desc表示降序，unique表示唯一索引，clustered表示聚簇索引
8. 修改索引名：alter index 旧索引名 rename to 新索引名
9. 删除索引（删除student表的stusname索引）：drop index student.stusname
10. **SELECT子句与FROM子句是必选子句**

**SELECT ---- 列出查询的结果**

**FROM ---- 指明所访问的对象**

**WHERE ---- 指定查询的条件**

**GROUP BY ---- 将查询结果按指定字段的取值分组**

**HAVING ----筛选出满足指定条件的组**

**ORDER BY ---- 按指定的字段的值，以升序或降序排列查询结果**

1. select sno 学号,sname 姓名,2019-sage 出生年份 表示修改别名

from student

1. select sno,sname,sdept,'2017' 入学时间 表示添加列（列的值均为2017，列名为入学时间）

from student

1. 消除取值重复的行：select distinct sno

from student

1. 统计表中的行数（元组总数）：select COUNT(sage)

from student

1. 统计选课表中选课人数（学号不重复）:

select COUNT(distinct sno)

from sc

1. 查询所在系(不是)为CS和IS的学生的学号和姓名:

select sno,sname,sdept

from student

where sdept (not) in ('CS','IS')

1. 查询姓李的学生的学号，姓名，年龄

select sno,sname,sage

from student

where sname like '李%' ——（%表示多个字符，而一个下划线只能表示一个字符）

1. 查询所在系为CS 年龄在20以下的女生的姓名和学号

select Sname,Sno

from Student

where Sdept='CS' and Sage<20 and Ssex='女'

1. --查询选修了3号课程的学生的学号及其成绩，查询结果按分数降序排列。

select sno,grade

from SC

where Cno='3'

order by Grade desc

1. 查询全体学生情况，查询结果按所在系的系号升序排列，同一系中的学生按年龄降序排列。

select \*

from Student

order by Sdept,Sage desc

1. --求各个课程号及相应的选课人数。

select cno,COUNT(sno)

from SC

group by cno

1. --查询每个学生及其选修课程的情况。

select student.\*,SC.\*

from student,SC

where student.Sno = SC.Sno

1. 换码字符：escape‘\’ 例如where sname like ‘DB\\_Design’ escape’\’

1)查询全体学生的学号、姓名、籍贯

select sno,sname,nativee

from student

2)查询所有课程的名称及学分

select cname,credit

from course

3)查询教师的姓名、性别、联系电话

select tname,sex,tel

from teacher

4)查询每门课程的课程编号、课程名称及理论学时

select cno,cname,lecture

from course

5)查询全体学生的姓名、联系电话，并在前面加上字符串‘联系方式’

select sname, '联系方式' ,tel

from student

6)查询全体教师的人数

select COUNT(tno)

from teacher

7)查询全体教师的姓名、家庭住址、邮政编码（使用列别名）

select tname,home,zipcode 邮政编号

from teacher

8)查询全体学生的姓名

select sname

from student

9)查询本学期有课的教师编号

select distinct tno

from teacher\_course

where semester = '1'

10)查询所有选课的学生学号

select distinct sno

from student\_course

where cno is not null

11)查询籍贯为河北保定的学生的学号和姓名

select sno,sname

from student

where nativee = '河北保定'

12)查询课程学分小于 3 分的课程名称

select cname

from course

where credit <= 3

13)查询在 c201 教室上课的教师编号

select distinct tno

from teacher\_course

where classroom = 'c201'

14)查询软件学院的办公电话

select dtel

from department

where dname = '软件学院'

15)查询学生成绩在 60-90 分的学生的学号和课程号

select sno,cno

from student\_course

where score between 60 and 90

16)查询学分为 3 分的课程信息

select \*

from course

where credit = '3'

17)查询在教学楼 C 座上课的教师的编号

select distinct tno

from teacher\_course

where classroom like 'c%'

18)查询有先行课的课程编号及课程名

select cno,cname

from course

where cpno is not null

19)查询籍贯为山东省的学生基本信息

select \*

from student

where nativee like '山东%'

20)查询姓名为 3 个字，前两个字为‘上官’的学生学号和姓名

select sno,sname

from student

where sname like '上官\_'

21)查询专业号为 3 的女学生的姓名、生日和家庭住址

select sname,birthday,home

from student

where pno = '3'

22)查询学号为‘20101001’的学生选修的课程号及成绩，结果按成绩升序排

列

select cno,score

from student\_course

where sno = '20101001'

order by score asc

23)查询所有课程的基本信息，结果按授课学时降序排列，学时相同按学分升

序排列

select \*

from course

order by lecture desc,credit asc

24)查询所有男教师的姓名和出生日期，结果年龄从小到大排序

select tname,birthday

from teacher

where sex = '男'

order by birthday asc

25)查询选修 2 号课程学生成绩的最大值和最小值

select MAX(score),MIN(score)

from student\_course

where cno = '2'

26)查询所有教师的人数

select COUNT(tno)

from teacher

27)查询所有专业号为 1 的学生人数

select COUNT(sno)

from student

where pno = '1'

28)查询选课人数超过 5 人的课程编号

select cno

from student\_course

group by cno

having COUNT(cno) > 5

29)查询所有学生的基本信息以及所在学院的名称和学院联系电话

select student.\*,department.dname,department.dtel

from student,department

where student.dno = department.dno

30)查询教师李亮的上课时间、上课地点和每周学时数

select classtime,classroom,weektime

from teacher,teacher\_course

where teacher.tno = teacher\_course.tno and tname = '李亮'

31)查询选修了数据库系统概论或数据结构的学生的学号和姓名

select distinct student\_course.sno,student.sname

from student\_course,student,course

where student\_course.sno = student.sno

and student\_course.cno = course.cno

and course.cname in ('数据库系统概论','数据结构')

***以上是简单查询***

32-67 要求至少使用两种方式查询（对复杂查询，可以建立视图）

32)查询至多有两名男生的班级

--方法一

select classno

from student

where sex='男'

group by classno

having COUNT(sex) <= 2

union

select distinct classno

from student

where classno not in

(select distinct classno

from student

where sex='男')

--方法二

select classno

from student

except

select classno

from student

where sex = '男'

group by classno,sex

having COUNT(sex) >= 3

33）查询至少有一名教授的学院的信息

--方法一

select \*

from department

where dno in

(select dno

from teacher

where pno='教授'

group by dno

having COUNT(pno)>=1)

--方法二:从反面想，至少一个的反面就是一个都没有，找出来没有“教授”的学院，不 在这些学院中的就是结果

select \*

from department

where dno not in

(select distinct dno

from department

except

select distinct dno

from teacher

where pno='教授')

34).查询出每个老师及其教课情况

select \*

from teacher

where exists

(select tno

from teacher\_course

where teacher\_course.tno=teacher.tno)

--方法二

select distinct teacher.\*

from teacher,teacher\_course

where teacher.tno=teacher\_course.tno

35).查询每门课程及其被选修的人数

select course.cno,course.cname,COUNT(\*) 选课人数

from course,student\_course

where student\_course.cno = course.cno

group by course.cno,cname

--方法二

select course.cno,course.cname,选课人数

from course,(

select cno,COUNT(\*) 选课人数

from student\_course

group by cno)tmp

where course.cno=tmp.cno

36).查询籍贯是河北省的教师所教的课程信息

select distinct course.\*

from course,teacher,teacher\_course

where course.cno=teacher\_course.cno

and teacher.tno=teacher\_course.tno

and home like '河北省%'

--方法二

select course.\*

from course

where cno in(select cno

from teacher\_course

where tno in(select tno

from teacher

where home like '河北省%'))

37).查询软件学院学生情况

--方法一

select student.\*

from student

where dno = (select dno

from department

where dname = '软件学院')

--方法二

select student.\*

from student,department

where dname = '软件学院'

and student.dno = department.dno

38).查询班级人数最多的班的学生情况

--方法一

select student.\*

from student

where classno in (select classno

from student

group by classno

having COUNT(\*) >= all (select COUNT(\*)

from student

group by classno))

--方法二

select student.\*

from student,(select classno,COUNT(\*) num

from student

group by classno) class\_num

where student.classno = class\_num.classno

and num = (select MAX(num)

from(select classno,COUNT(\*) num

from student

group by classno) class\_num)

39).查询张姓学生选修的课程号、课程名

--方法一

select distinct student\_course.cno,cname

from student\_course,course,student

where student\_course.cno=course.cno

and student\_course.sno = student.sno

and sname like '张%'

--方法二

select cno,cname

from course

where cno in (select cno

from student\_course

where sno in(select sno

from student

where sname like '张%')

)

40).查询男学生选修课程的平均分

--方法一

select AVG(score)

from student\_course

where sno in (select sno

from student

where sex = '男')

--方法二

select AVG(score)

from student\_course,student

where student.sno = student\_course.sno

and student.sex = '男'

41).查询哪些学生选修了授课学时为 54 的课程

--方法一

select distinct \*

from student

where sno in (select sno

from student\_course

where cno in (select cno

from course

where lecture=54)

)

--方法二

select distinct student.\*

from student,student\_course,course

where student\_course.cno=course.cno

and student.sno=student\_course.sno

and lecture=54

42).查询比软件学院学生年龄都小的其他系学生的信息。

--方法一

select A.\*

from student A

where birthday < (select min(birthday)

from student B

where dno in (select dno

from department

where dname='软件学院'))

and dno <> (select dno

from department

where dname='软件学院')

--方法二

select \*

from student

where birthday < (select min(birthday)

from student

where dno = (select dno

from department

where dname = '软件学院'))

and dno <> (select dno

from department

where dname='软件学院')

43).查询比数信学院学院学生年龄大的教育学院学生信息。

--方法一

select distinct A.\*

from (select distinct student.\*

from student,department

where student.dno=department.dno

and dname = '教育学院') A,(select distinct student.\*

from student,department

where student.dno = department.dno

and dname='数信学院') B

where A.birthday<B.birthday

--方法二

select student.\*

from student,department

where student.dno = department.dno

and dname = '教育学院'

and birthday<(select MAX(birthday)

from student,department

where student.dno = department.dno

and dname = '数信学院')

44).查询班级号为 1 的班的学生 c 语言程序设计成绩的平均成绩

--方法一

select AVG(score)

from student,student\_course,course

where student.sno=student\_course.sno

and student\_course.cno = course.cno

and classno='1'

and cname='c 语言程序设计'

--方法二

select AVG(score)

from student\_course

where sno in(select sno

from student

where classno='1')

and cno = (select cno

from course

where cname='c 语言程序设计')

45).查询计算机导论平均成绩最高的班级。

select classno

from student,student\_course,course

where student.sno=student\_course.sno

and student\_course.cno=course.cno

and cname = '计算机导论'

group by classno

having AVG(score) >= all(select AVG(score)

from student,student\_course,course

where student.sno=student\_course.sno

and student\_course.cno=course.cno

and cname = '计算机导论'

group by classno)

46).查询选修人数最多的课程是哪个老师教的，显示教师号，教师姓名

--方法一

select tno,tname

from teacher

where tno in(select tno

from teacher\_course

where cno in(select cno

from student\_course

group by cno

having COUNT(sno) >= all(select COUNT(\*) aver

from student\_course

group by cno)))

47).查询余孝天老师所教各门课程的平均成绩

select student\_course.cno,AVG(score)

from student\_course,teacher\_course,teacher

where tname='余孝天'

and student\_course.cno=teacher\_course.cno

and teacher\_course.tno=teacher.tno

and student\_course.sno in(select sno

from student

where classno in(select distinct classno

from teacher\_course,teacher

where teacher\_course.tno=teacher.tno and tname='余孝天'))

group by student\_course.cno

48).查询鲁婵娟老师所教课程的各个班级平均成绩

select classno,AVG(score) 平均成绩

from student\_course A,student B

where A.sno=B.sno

and A.cno in(select cno

from teacher\_course

where tno in(select tno

from teacher

where tname='鲁婵娟'))

and B.classno in(select distinct classno

from teacher\_course A,teacher B

where A.tno=B.tno

and tname='鲁婵娟')

group by classno

49).查询鲁婵娟老师所教课程的学生的成绩

select student.sno,student\_course.cno, score

from student\_course,student

where student.sno=student\_course.sno and cno in(select cno

from teacher\_course

where tno = (select tno

from teacher

where tname='鲁婵娟'))

50).查询有多少人选修了《数据结构》课程的先修课。

select COUNT(\*)

from student\_course,course

where student\_course.cno=course.cpno

and cname='数据结构'

--方法二

select COUNT(\*)

from student\_course

where cno = (select cpno

from course

where cname='数据结构')

51).查询软件学院教师所教课程信息

select distinct course.\*

from course,teacher\_course

where course.cno = teacher\_course.cno

and tno in(select tno

from teacher,department

where teacher.dno=department.dno

and department.dname='软件学院')

52).查询软件学院教师所教课程的成绩，将结果按课程号降序排列。

select distinct cno,score

from student\_course

where cno in(select distinct cno

from teacher\_course

where tno in(select tno

from teacher

where dno =(select dno

from department

where dname='软件学院')))

and sno in(select distinct A.sno

from student A,teacher\_course B,teacher C,department D

where A.classno=B.classno

and B.tno=C.tno

and C.dno=D.dno

and dname='软件学院')

order by cno desc

53).查询未授课教师的姓名和系

select tname,dname

from teacher,department

where teacher.dno=department.dno

and tno not in(select distinct tno

from teacher\_course)

54).按职称显示软件学院的教师人数。

select pno,COUNT(tno)

from teacher,department

where teacher.dno=department.dno

and dname='软件学院'

group by pno

55).查询成绩高于《数据结构》平均成绩的学生信息。

create view course\_avg

as

select cno,AVG(score) grade

from student\_course

group by cno

select sno

from student\_course A,course\_avg B

where A.cno = B.cno

and B.cno=(select cno

from course

where cname='数据结构')

and A.score > B.grade

drop view course\_avg

56).查询学生选修课程的情况，显示学号、姓名、教师姓名、课程名称、成绩。

select s.sno,s.cno,cname,score,c.tname

from (select A.sno,A.classno,sname,cname,score,B.cno

from student A,student\_course B,course C

where A.sno=B.sno

and B.cno=C.cno) s left outer join(select D.tno,tname,E.cno,classno

from teacher D,teacher\_course E

where D.tno=E.tno) c

on s.cno=c.cno and s.classno=C.classno

57).查询法政学院教师第一学期所带班级

select distinct classno

from teacher\_course,department,teacher

where teacher.dno=department.dno

and teacher.tno=teacher\_course.tno

and department.dname='法政学院'

and semester='1’

58).查询第 2 学期哪些教师在公教楼上课。

select tname

from teacher,teacher\_course

where teacher.tno=teacher\_course.tno

and semester='2'

and classroom like '公教楼%'

59).查询数信学院的学生各科平均成绩，显示课程名、平均成绩。

select cname 课程名,AVG(score) 平均成绩

from course,student\_course sc,department,student

where department.dno=student.dno

and sc.cno=course.cno

and sc.sno=student.sno

and dname='数信学院'

60).查询选修了全部课程的学生的信息。

select \*

from student A

where not exists(select \*

from course B

where not exists(select \*

from student\_course C

where C.sno=A.sno

and B.cno=C.cno))

61).查询至少选修了鲁婵娟所教的课程的学生信息

select \*

from student s

where not exists(select \*

from teacher\_course tc

where tno = (select tno

from teacher

where tname = '鲁婵娟')

and not exists(select \*

from student\_course sc

where sc.sno=s.sno

and tc.cno=sc.cno))

62).查询和张小兵同一个班级的其他学生的信息

select \*

from student

where classno = (select classno

from student

where sname='张小兵')

and sname<>'张小兵'

63).查询和刘英伟同年出生的学生信息（参考 sql 日期操作函数）

select \*

from student

where YEAR(birthday) = (select YEAR(birthday)

from student

where sname='刘英伟')

64).查询选修了 3 门以上课程学生信息

select \*

from student

where sno in(select sno

from student\_course

group by sno

having COUNT(sno)>=3)

65).查询至少有 2 名女生的班级的学生信息

select \*

from student

where classno in(select classno

from student

where sex='女'

group by classno

having COUNT(sno)>=2)

66).查询软件学院年龄小于 25 岁的老师的信息

67).查询低于该门课程平均分的学生的成绩信息。

select \*

from teacher,department

where teacher.dno=department.dno

and dname='软件学院'

and (YEAR(GETDATE())-YEAR(birthday))<25

集合查询

68).年龄小于 23 岁的女老师和女学生的信息

69).查询不教课的老师信息。

70).查询班级号为 3,且性别为女的学生的信息