1.创建一个数据库，数据库名字edu，数据文件逻辑名字edu\_data，初始大小10M，最大为1024M，增长比例为每次1M;日志文件逻辑名字为edu\_log,初始大小5M，最大为100M,按10%比例增长，这些文件都存储到E盘根目录下，并且物理文件名与逻辑文件名全部相同。

CREATE DATABASE **edu**

**ON PRIMARY**

( NAME = N'educ\_data', FILENAME = N'e:\educ\_data.mdf' , SIZE = 10240KB , MAXSIZE = 1024M , FILEGROWTH = 1M)

**LOG ON**

( NAME = N'educ\_log', FILENAME = N'e:\educ\_log.ldf' , SIZE = 5M , MAXSIZE = 100M , FILEGROWTH = 10% )

2.在edu数据库里创建一个架构，架构名字为自己名字的汉语拼音。

create schema zhangsan; --自己名字的汉语拼音

3.在创建的架构中，创建如下表：

表1 student表（学生信息表）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 字段名称 | 类 型 | 宽 度 | 允许空值 | 主 键 | 说 明 |
| sno | char | 8 | NOT NULL | 是 | 学生学号 |
| sname | char | 8 | NOT NULL |  | 学生姓名 |
| sex | char | 2 | NULL |  | 学生性别 |
| native | char | 20 | NULL |  | 籍贯 |
| birthday | datetime |  | NULL |  | 学生出生日期 |
| pno | char | 4 | NULL |  | 专业号 |
| dno | char | 6 | NULL |  | 学生所在院系（外键） |
| classno | char | 4 | NULL |  | 班级号 |
| entime | datetime |  | NULL |  | 学生入校时间 |
| home | varchar | 40 | NULL |  | 学生家庭住址 |
| tel | varchar | 40 | NULL |  | 学生联系电话 |

表2 course表（课程信息表）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 字段名称 | 类 型 | 宽 度 | 允许空值 | 主 键 | 说 明 |
| cno | char | 10 | NOT NULL | 是 | 课程编号 |
| cname | char | 20 | NOT NULL |  | 课程名称 |
| cpno | char | 10 | NULL |  | 先修课程（外键） |
| experiment | tinyint |  | NULL |  | 实验时数 |
| lecture | tinyint |  | NULL |  | 授课学时 |
| semester | tinyint |  | NULL |  | 开课学期 |
| credit | tinyint |  | NULL |  | 课程学分 |

表3 student\_course表（学生选课成绩表）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 字段名称 | 类 型 | 宽 度 | 允许空值 | 主 键 | 说 明 |
| sno | char | 8 | NOT NULL | 是 | 学生学号 |
| cno | char | 10 | NOT NULL | 是 | 课程编号 |
| score | tinyint |  | NULL |  | 学生成绩,0-100之间 |

表4 teacher表（教师信息表）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 字段名称 | 类 型 | 宽 度 | 允许空值 | 主 键 | 说 明 |
| tno | char | 8 | NOT NULL | 是 | 教师编号 |
| tname | char | 8 | NOT NULL |  | 教师姓名 |
| sex | char | 2 | NULL |  | 教师性别 |
| birthday | datetime |  | NULL |  | 教师出生日期 |
| dno | char | 6 | NULL |  | 教师所在院系（外键） |
| pno | varchar | 20 | NULL |  | 教师职务 |
| home | varchar | 40 | NULL |  | 教师家庭住址 |
| zipcode | char | 6 | NULL |  | 邮政编码 |
| tel | varchar | 40 | NULL |  | 联系电话 |
| email | varchar | 40 | NULL |  | 电子邮件 |

表5 teacher\_course表（教师上课课表）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 字段名称 | 类 型 | 宽 度 | 允许空值 | 主 键 | 说 明 |
| tcid | smallint |  | NOT NULL | 是 | 上课编号 |
| tno | char | 8 | NULL |  | 教师编号（外键） |
| classno | char | 4 | NULL |  | 班级号 |
| cno | char | 10 | NOT NULL |  | 课程编号（外键） |
| semester | char | 6 | NULL |  | 学期 |
| schoolyear | char | 10 | NULL |  | 学年 |
| classtime | varchar | 40 | NULL |  | 上课时间 |
| classroom | varchar | 40 | NULL |  | 上课地点 |
| weektime | tinyint |  | NULL |  | 每周课时数 |

表6 department表（院系息表）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 字段名称 | 类 型 | 宽 度 | 允许空值 | 主 键 | 说 明 |
| dno | char | 6 | NOT NULL | 是 | 学院编号 |
| dname | char | 8 | NOT NULL |  | 学院名称 |
| dhome | varchar | 40 | NULL |  | 学院地址 |
| dzipcode | char | 6 | NULL |  | 学院邮政编码 |
| dtel | varchar | 40 | NULL |  | 学院联系电话 |

创建表的时候必须建立主、外键关系。

create table zhangsan.department(

dno char(6) primary key,

dname char(8) not null,

dhome varchar(40),

dzipcode char(6),

dtel varchar(40)

)

create table zhangsan.student(

sno char(8) not null primary key,

sname char(8) not null,

sex char(2),

[native] char(20),

birthday datetime,

pno char(4),

dno char(6),

classno char(4),

entime datetime,

home varchar(40),

tel varchar(40)

foreign key(dno) references department(dno)

)

create table zhangsan.course(

cno char(10) primary key,

cname char(20) not null,

cpno char(10),

experiment tinyint,

lecture tinyint,

semester tinyint,

credit tinyint,

foreign key (cpno) references course(cno)

)

create table zhangsan.student\_course(

sno char(8),

cno char(10),

score tinyint,

primary key(sno,cno),

foreign key(sno) references student(sno),

foreign key(cno) references course(cno)

)

create table zhangsan.teacher(

tno char(8) primary key,

tname char(8) not null,

sex char(2),

birthday datetime,

dno char(6),

pno tinyint,

home varchar(40),

zipcode char(6),

tel varchar(40),

email varchar(40),

foreign key(dno) references department(dno)

)

create table zhangsan.teacher\_course(

tcid smallint primary key,

tno char(8),

classno char(4),

cno char(10) not null,

semester char(6),

schoolyear char(10),

classtime varchar(40),

classroom varchar(40),

weektime tinyint,

foreign key(tno) references teacher(tno),

foreign key(cno) references course(cno)

)

4.建立、删除索引

（1）在student表的sname列建立唯一降序索引；

create unique index IX\_STUDENT\_SNAME on zhangsan.student(sname desc)

（2）在course表的credit列上建立升序索引；

create index IX\_COURSE\_CREDIT on zhangsan.course(credit)

（3）在student\_course表的sno列上建立聚集索引。

create clustered index IX\_STUDENT\_COURSE\_SNO on zhangsan.student\_course(sno)

（4）在student\_course表上，以学号升序，学号相同按课程号降序建立索引；

create index IX\_STUDENT\_COURSE\_SNOCNO on zhangsan.student\_course(sno,cno desc)

（5）在teacher表的tno列上建立聚集升序索引。

create clustered index IX\_TEACHER\_TNO ON teacher(tno )

（6）将student\_course表的sno列上的聚集索引删掉。

drop index IX\_STUDENT\_COURSE\_SNO

5.将给出的数据插入到相应的表里，必须使用insert语句。

student表

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 学号 | 姓名 | 性别 | 籍贯 | 出生日期 | 专业号 | 院系编号 | 班级号 | 入学日期 | 家庭住址 | 电话 |
| 20101001 | 张三 | 男 | 河北沧州 | 1989-03-15 | 2 | 1 | 2 | 2010-9-1 | 河北省沧州市 | NULL |
| 20101002 | 张强 | 男 | 河北邢台 | 1990-05-01 | 2 | 1 | 2 | 2010-9-1 | 河北省邢台市 | 13145322345 |
| 20101003 | 张小兵 | 男 | 山东济南 | 1991-05-02 | 1 | 2 | 4 | 2010-9-1 | 河北省唐山市 | NULL |
| 20101004 | 李燕 | 女 | 山东济南 | 1991-05-02 | NULL | 2 | 1 | 2010-9-1 | 山东省济南市 | 15194598762 |
| 20101005 | 李晓 | 女 | 山东德州 | 1991-05-02 | 1 | 2 | 4 | 2010-9-1 | 山东省德州市 | 15394598762 |
| 20101006 | 上官青 | 女 | 陕西西安 | 1993-05-02 | 3 | 3 | 1 | 2010-9-1 | 陕西省西安市 | NULL |
| 20101007 | 李晓芳 | 女 | 陕西西安 | 1993-05-02 | 3 | 1 | 1 | 2010-9-1 | 陕西省西安市 | 15867598762 |
| 20101008 | 上官文宏 | 女 | 北京市 | 1988-05-02 | NULL | 3 | 3 | 2010-9-1 | 北京市 | 15897598762 |
| 20101009 | 上官文宏 | 女 | 河北保定 | 1988-05-02 | 3 | 3 | 1 | 2010-9-1 | 山东省青岛市 | 15897598762 |
| 20101010 | 张倩 | 女 | 河北保定 | 1988-11-02 | 1 | 2 | 3 | 2010-9-1 | 河北省保定市 | 13897595671 |
| 20101011 | 刘英伟 | 男 | 河北保定 | 1988-11-02 | NULL | 3 | 2 | 2010-9-1 | 河北省保定市 | 15197595671 |
| 20101012 | 刘伟 | 男 | 河北保定 | 1989-11-02 | 1 | 2 | 2 | 2010-9-1 | 河北省保定市 | 15397595671 |
| 20101013 | 翟南 | 男 | 上海市 | 1989-11-21 | 3 | 4 | 3 | 2010-9-1 | 上海市 | 137093837332 |
| 20101014 | 窦士厝 | 男 | 云南昆明 | 1988-10-02 | 3 | 4 | 1 | 2010-9-1 | 云南省昆明市 | 131311948930 |

course表

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 课程编号 | 课程名称 | 先修课程 | 实验时数 | 授课学时 | 开课学期 | 课程学分 |
| 1 | 数据库系统概论 | 3 | 20 | 72 | 1 | 3 |
| 2 | 100%掌握财务报表 | 7 | 30 | 54 | 1 | 2 |
| 3 | 数据结构 | 5 | 30 | 72 | 2 | 4 |
| 4 | c++程序设计 | 5 | 15 | 72 | 2 | 4 |
| 5 | c语言程序设计 | NULL | 18 | 72 | 2 | 3 |
| 6 | WEB开发 | NULL | 28 | 54 | 1 | 3 |
| 7 | 计算机导论 | NULL | 10 | 32 | 1 | 1 |

student\_course表

|  |  |  |
| --- | --- | --- |
| 学生学号 | 课程编号 | 学生成绩 |
| 20101001 | 1 | 90 |
| 20101001 | 2 | 70 |
| 20101001 | 3 | 95 |
| 20101001 | 4 | 90 |
| 20101001 | 5 | 88 |
| 20101001 | 6 | NULL |
| 20101001 | 7 | NULL |
| 20101002 | 2 | 65 |
| 20101002 | 4 | 89 |
| 20101002 | 6 | NULL |
| 20101003 | 2 | 90 |
| 20101003 | 3 | 89 |
| 20101003 | 4 | 90 |
| 20101004 | 2 | 65 |
| 20101004 | 4 | 87 |
| 20101004 | 5 | 90 |
| 20101004 | 6 | NULL |
| 20101005 | 4 | 92 |
| 20101005 | 6 | NULL |
| 20101007 | 4 | 90 |
| 20101007 | 5 | 88 |
| 20101007 | 6 | NULL |
| 20101009 | 2 | 80 |
| 20101010 | 3 | 75 |
| 20101010 | 5 | 88 |
| 20101009 | 7 | 80 |
| 20101004 | 7 | 70 |
| 20101003 | 7 | 86 |

teacher表

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 教师编号 | 姓名 | 性别 | 出生日期 | 院系编号 | 职务 | 家庭住址 | 邮政编码 | 联系电话 | email |
| 836001 | 董青 | 男 | 1975-04-26 | 1 | 讲师 | 河北省石家庄市 | 50000 | 13798789765 | dong@gmail.com |
| 836002 | 李亮 | 男 | 1975-04-27 | 1 | 副教授 | 河北省石秦皇岛市 | 66000 | 15198789765 | liliang@gmail.com |
| 836003 | 李晓亮 | 男 | 1975-04-28 | 1 | 讲师 | 河北省石家庄市 | 50000 | 13898789765 | lixl@gmail.com |
| 836004 | 项天 | 男 | 1975-04-29 | 2 | 副教授 | 河北省石家庄市 | 50000 | 13138789765 | xy23@gmail.com |
| 836005 | 余孝天 | 男 | 1975-04-30 | 2 | 教授 | 北京市 | 100000 | 13845649765 | yugong@gmail.com |
| 836006 | 鲁婵娟 | 女 | 1975-05-01 | 3 | 副教授 | 河北省石家庄市 | 50000 | 15145249765 | chanjuan@163.com |
| 836007 | 李冉冉 | 女 | 1975-05-02 | 3 | 讲师 | 河北省唐山市 | 63000 | 15145649765 | ranran@sina.com |
| 836008 | 庄文 | 男 | 1975-05-03 | 2 | 教授 | 河北省唐山市 | 63000 | 13845649765 | zw1965@sina.com |
| 836009 | 李晓璐 | 女 | 1975-05-04 | 3 | 讲师 | 河北省石家庄市 | 50000 | 15875649765 | lxl@sina.com |
| 836010 | 范娜 | 女 | 1975-05-05 | 3 | 讲师 | 山东省济南市 | 250000 | 13693020392 | fn@163.com |
| 836011 | 萧不语 | 男 | 1975-05-06 | 2 | 讲师 | 新疆自治区乌鲁木齐市 | 830000 | 13098333290 | xby@163.com |

teacher\_course表

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 上课编号 | 教师编号 | 班级号 | 课程编号 | 学期 | 学年 | 上课时间 | 上课地点 | 每周课时数 |
| 1 | 836001 | 1 | 1 | 1 | 2010 | 8:00-11:00 | 公教楼305 | 3 |
| 2 | 836001 | 1 | 2 | 1 | 2010 | 8:00-11:00 | 公教楼305 | 3 |
| 3 | 836002 | 2 | 2 | 1 | 2010 | 8:00-11:00 | c301 | 3 |
| 4 | 836002 | 2 | 3 | 1 | 2010 | 8:00-10:00 | c302 | 2 |
| 5 | 836003 | 2 | 1 | 1 | 2010 | 8:00-10:00 | c302 | 2 |
| 6 | 836003 | 1 | 3 | 1 | 2010 | 14:00-16:00 | c302 | 2 |
| 7 | 836003 | 3 | 4 | 1 | 2010 | 14:00-16:00 | c304 | 2 |
| 8 | 836004 | 2 | 3 | 3 | 2010 | 14:00-17:00 | c204 | 3 |
| 9 | 836005 | 2 | 3 | 2 | 2010 | 14:00-17:00 | c204 | 3 |
| 10 | 836006 | 2 | 3 | 1 | 2010 | 14:00-17:00 | c301 | 3 |
| 11 | 836007 | 2 | 3 | 2 | 2010 | 14:00-17:00 | c201 | 3 |
| 12 | 836007 | 3 | 4 | 2 | 2010 | 14:00-17:00 | c204 | 3 |
| 13 | 836007 | 3 | 5 | 2 | 2010 | 14:00-17:00 | c201 | 3 |
| 14 | 836006 | 3 | 4 | 8 | 2010 | 14:00-17:00 | c201 | 3 |
| 15 | 836006 | 3 | 5 | 9 | 2010 | 14:00-17:00 | c201 | 3 |
| 16 | 836006 | 3 | 6 | 8 | 2010 | 14:00-17:00 | c201 | 3 |
| 17 | 836005 | 3 | 5 | 7 | 2010 | 14:00-17:00 | c302 | 3 |
| 18 | 836004 | 3 | 4 | 6 | 2010 | 14:00-17:00 | c201 | 3 |
| 19 | 836003 | 3 | 5 | 5 | 2010 | 14:00-17:00 | c201 | 3 |
| 20 | 836003 | 2 | 5 | 4 | 2010 | 14:00-17:00 | c201 | 3 |

department表

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 学院编号 | 学院名称 | 学院地址 | 邮政编码 | 学院联系电话 |
| 1 | 法政学院 | 河北省石家庄市裕华区南二环东路20号 | 50024 | 80788100 |
| 2 | 教育学院 | 河北省石家庄市裕华区南二环东路20号 | 50024 | 80788101 |
| 3 | 软件学院 | 河北省石家庄市裕华区南二环东路20号 | 50024 | 80788102 |
| 4 | 数信学院 | 河北省石家庄市裕华区南二环东路20号 | 50024 | 80788102 |

注意插入数据时注意满足参照关系，否则插入数据会出错。

例子：往学生表插入一条记录

INSERT INTO STUDENT (SNO,SNAME,SSEX,SBIRTHDAY,CLASS)

VALUES ('108' ,'曾华' ,'男' ,'1977-09-01',95033);

向教师表插入一条记录

insert into teacher

values('101', '赵旭东', , , '副教授', '数学系')

6.查询

--简单查询部分练习

1)查询全体学生的学号、姓名、籍贯

select sno,sname,native

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-experiment 理论课时

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) 教师人数

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 '姓名',home '家庭住址',zipcode '邮政编码'

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 有课的教师编号

from teacher\_course

where semester = '1'

10)查询所有选课的学生学号

select distinct sno

from student\_course

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 native='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 native 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' and

sex='女'

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 desc

25)查询选修2号课程学生成绩的最大值和最小值

select max(score) 最高分,min(score) 最低分

from student\_course

where cno='2'

26)查询所有教师的人数

select count(\*)

from teacher

27)查询所有专业号为1的学生人数

select count(sno) 人数

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(\*)>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.sno,sname

from student,course,student\_course

where student.sno=student\_course.sno and

course.cno=student\_course.cno and

course.cname in ('数据库系统概论','数据结构')

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1

select classno --男生人数少于3人得班级

from student

where sex = '男'

group by classno

having count(sno) <3

union

select distinct classno --没有男生的班级

from student

where classno not in(

select distinct classno

from student

where sex = '男'

)

方法2

select distinct classno --所有的班级号

from student

except

select classno --男生人数大于等于3人得班级

from student

where sex = '男'

group by classno,sex

having count(sno) >=3

33）查询至少有一名教授的学院的信息

方法1

select \*

from department

where dno in(

select dno

from teacher

where pno = '教授'

group by dno

having count(tno)>=1

)

方法2

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

方法1

select \*

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

方法1

select course.cno,cname,count(\*) 选修人数

from student\_course,course

where student\_course.cno = course.cno

group by course.cno,cname

方法2

select course.cno,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

方法1

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%'

方法2

select \*

from course

where cno in (

select cno

from teacher\_course

where tno in(

select tno

from teacher

where home like '河北%'

)

)

37).查询软件学院学生情况

方法1

select \*

from student

where dno in (

select dno

from department

where dname = '软件学院'

)

方法2

select student.\*

from student,department

where department.dno = student.dno and

dname = '软件学院'

38).查询班级人数最多的班的学生情况

方法1

select \*

from student

where classno in (

select classno

from student

group by classno

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

from student

group by classno)

)

方法2

select student.\*,num

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

)

方法3

create view class\_num

as

select classno,count(\*) num

from student

group by classno

select A.\*

from student A,class\_num B

where A.classno = B.classno and

num = (select max(num)

from class\_num)

drop view class\_num

39).查询张姓学生选修的课程号、课程名

方法1

select distinct course.cno,cname

from course,student,student\_course

where course.cno = student\_course.cno and

student.sno = student\_course.sno and

sname like '张%'

方法2

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1

select avg(score)

from student,student\_course

where student.sno = student\_course.sno and

sex = '男'

方法2

select avg(score)

from student\_course

where sno in (

select sno

from student

where sex = '男'

)

41).查询哪些学生选修了授课学时为54的课程

方法1

select \*

from student

where sno in (

select distinct sno

from student\_course

where cno in (

select cno

from course

where lecture = 54

)

)

方法2

select distinct student.\*

from student,student\_course B,course

where student.sno = b.sno and

course.cno = b.cno 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1

select \*

from student

where birthday > (

select max(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' )--其他系

方法2

select student.\*

from student,department

where student.dno = department.dno and

dname <>'软件学院' and

birthday >(

select max(birthday)

from student,department

where student.dno = department.dno and

dname = '软件学院'

)

方法3

create view software\_student

as

select A.\*

from student A,department B

where A.dno = b.dno and

dname = '软件学院'

select \*

from student A ,software\_student B

where A.sno <> B.sno and

A.birthday > (

select max(birthday)

from software\_student

)

drop view software\_student

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1

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'

)

方法2

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

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1

select avg(score)

from student\_course A

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')

方法2

select avg(score)

from student A,student\_course B,course C

where a.sno =b.sno and

c.cno = b.cno and

classno = '1' and

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。

方法1

create view class\_avg

as

select classno,avg(score) pingjun

from student A,student\_course B,course C

where a.sno =b.sno and

c.cno = b.cno and

cname = '计算机导论'

group by classno

select classno

from class\_avg

where pingjun = (

select max(pingjun)

from class\_avg

)

drop view class\_avg

方法2

select classno

from student A,student\_course B,course C

where a.sno =b.sno and

c.cno = b.cno and

cname = '计算机导论'

group by classno

having avg(score)>=all(

select avg(score)

from student A,student\_course B,course C

where a.sno =b.sno and

c.cno = b.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

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

方法1

select cno,avg(score)

from student\_course

where sno in ( --余孝天老师所教学生

select A.sno

from student A,teacher B,teacher\_course C

where A.classno = C.classno and

B.tno = C.tno and

tname = '余孝天') and

cno in( --余孝天老师所教课程

select cno

from teacher B,teacher\_course C

where B.tno = C.tno and

tname = '余孝天')

group by cno

方法2

select A.cno,avg(score)

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

where tname = '余孝天' and

A.cno = B.cno and

B.tno = C.tno and

A.sno in (

select sno

from student

where classno in(

select distinct classno

from teacher\_course B,teacher C

where B.tno = C.tno and tname = '余孝天')

)

group by A.cno

48).查询鲁婵娟老师所教课程的各个班级平均成绩

方法1

select classno,avg(score)

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

方法2

select A.classno,avg(score)

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

where A.sno = B.sno and

B.cno = C.cno and

C.tno = D.tno and

tname = '鲁婵娟'

group by A.classno

having A.classno in (

select distinct classno

from teacher\_course A,teacher B

where A.tno = B.tno and tname = '鲁婵娟' )

49).查询鲁婵娟老师所教课程的学生的成绩

方法1

select \*

from student\_course

where cno in (

select distinct cno

from teacher\_course A,teacher B

where A.tno = B.tno and tname = '鲁婵娟') and

sno in (

select sno

from student

where classno in (

select distinct classno

from teacher\_course A,teacher B

where A.tno = B.tno and tname = '鲁婵娟' )

)

50).查询有多少人选修了《数据结构》课程的先修课。

方法1

select count(\*)

from student\_course

where cno = (

select cpno

from course

where cname = '数据结构')

方法2

select count(\*)

from student\_course A,course B

where A.cno = B.cpno and

cname = '数据结构'

51).查询软件学院教师所教课程信息

select distinct A.\*

from course A,teacher\_course B

where A.cno = B.cno and

tno in (

select tno

from teacher,department

where teacher.dno = department.dno and

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 A,department B

where A.dno = B.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 A,department B

where A.dno = B.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 --各门课程的平均成绩

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,sname,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 A,teacher\_course B,department C

where A.tno = B.tno and

A.dno = C.dno and

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 A,teacher\_course B

where A.tno = B.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,avg(score)

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

where A.sno = B.sno and

B.cno =C.cno and

A.dno = D.dno and

dname = '数信学院'

group by B.cno,cname

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

)

)

select \*

from student

where not exists(

select \*

from course c

where cno not in(

select cno

from student\_course sc

where sc.sno=student.sno))

61).查询至少选修了鲁婵娟所教的课程的学生信息

select \*

from student A

where not exists (

select \*

from teacher\_course B

where tno = (select tno

from teacher

where tname='鲁婵娟') and not exists (

select \*

from student\_course C

where C.sno = A.sno and

B.cno = C.cno

)

)

select \* from student

where not exists(

select cno

from teacher\_course tc

where tno=(

select tno

from teacher

where tname='鲁婵娟') and tc.cno not in(

select cno

from student\_course sc

where sc.sno=student.sno )

)

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(cno)>=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

select A.\*

from teacher A,department B

where A.dno = B.dno and

dname = '软件学院' and

(year(getdate())-year(birthday))<25

67).查询低于该门课程平均分的学生的成绩信息。

select \*

from student\_course B

where B.score <(

select avg(score)

from student\_course C

where B.cno =C.cno

)

select \* from student\_course sc1

where exists(

select \* from student\_course sc2

where sc1.cno=sc2.cno

group by sc2.cno

having sc1.score<avg(sc2.score)

)

--集合查询

68).年龄小于23岁的女老师和女学生的信息

select sno '编号',sname '姓名' from student

where year(getdate())-year(birthday)<23 and sex='女'

union

select tno,tname from teacher

where sex='女' and year(getdate())-year(birthday)<23

69).查询不教课的老师信息。

select \*

from teacher

except

select \*

from teacher

where tno in(select tno from teacher\_course)

70).查询班级号为3,且性别为女的学生的信息

select \*

from student

where classno='3'

intersect

select \*

from student

where sex='女'

7.更新

1)将年龄小于18岁的男同学的年龄都增大1岁

update student

set birthday=dateadd(year,-1,birthday)

where sno in

(

select sno

from student

where year(getdate())-year(birthday)<18 and sex='男'

)

2)将王英老师的联系电话改为83421236。

update teacher

set tel='83421236'

where tname='王英'

3)将“数据结构”课程的上课地点改为“D403”。

update teacher\_course

set classroom='D403'

where cno=

(

select cno

from course

where cname='数据结构'

)

4)将“数据库原理”课程成绩在70分以下的加5分。

update student\_course

set score=score+5

where cno= (

select cno

from course

where cname='数据库原理') and

score <70

5)将所有计算机系学生的“高等数学”课的成绩加10分。

update student\_course

set score=score+10

where cno=(

select cno

from course

where cname='高等数学') and

sno in(

select sno

from student A,department B

where A.dno = B.dno and

dname='计算机系'

)

6)将所有数学系学生的联系电话删除。

update student

set tel=null

where dno=

(

select dno

from department

where dname='数学系'

)

7)删除没有成绩的选课记录。

delete

from student\_course

where score is null

8)删除学生中姓名有“强”的记录。

delete

from student

where sname like '%强%'

9)删除数学系女同学的记录。

delete

from student

where sex='女' and dno=

(

select dno

from department

where dname='数学系'

)

10)将2000年9月1日以前入学的学生记录删除。

delete

from student

where entime<'2000-09-01'

11)删除计算机系所有教师的上课记录。

delete

from teacher\_course

where dno=

(

select dno

from department

where dname='计算机系'

)

12)将平均成绩最高的课程学分加1。

update course

set credit=credit+1

where cno in

(

select cno

from student\_course

group by cno

having avg(score)>=all

(

select avg(score)

from student\_course

group by cno

)

)

13)将实验时数为36的课程的成绩加上10%

update student\_course

set score=score\*1.1

where cno in

(

select cno

from course

where experiment=36

)

14)将所有没有上课的教师记录删除。

delete

from teacher

where tno not in

(

select distinct tno

from teacher\_course

)

8.视图

1)将女教师的基本情况定义为视图。

create view view\_female\_teacher

as

select \*

from teacher

where sex='女'

2)将数学系班级号为2008的学生的学号、姓名、性别和专业号

定义为视图。

create view view\_math\_class2008(sno,sname,sex,pno)

as

select sno,sname,sex,pno

from student

where dno=(

select dno

from department

where dname='数学系') and classno = '2'

3)将各个学院的学生人数定义为视图，包括学院编号、人数。

create view view\_dept\_num(dno,dnum)

as

select dno,count(\*)

from student

group by dno

4)将平均成绩大于90分的课程定义为视图，包括课程号、

课程名和平均成绩。

create view c\_g(cno,cname,avggrade)

as

select A.cno,cname,avg(score)

from student\_course A,course B

where A.cno=B.cno

group by A.cno,cname

having avg(score)>90

5)将各个教师所教课程的选课人数定义为视图，包括教师编号、

选课人数。

create view view\_teacher\_course(tno,snum)

as

select tno,count(\*)

from student\_course A,

(select distinct sno,tno,student.classno,cno

from student,teacher\_course

where student.classno = teacher\_course.classno) B

where A.cno = B.cno and

A.sno = B.sno

group by tno,A.cno

6)查询人数超过500人的学院名称。

select dname

from department

where dno in

(

select dno

from view\_dept\_num

where dnum>500

)

7)查询选修王强老师所教课程的人数。

select snum

from view\_teacher\_course

where tno=

(

select tno

from teacher

where tname='王强'

)