# sql练习题

一、已知有如下表，请用sql语句在mysql里建立相应的表

表1 学生表（student）

|  |  |  |  |
| --- | --- | --- | --- |
| 列名 | 意义 | 类型 | 约束 |
| sno | 学号 | varchar(3) | 主键 |
| sname | 姓名 | varchar(4) | 非空 |
| ssex | 性别 | varchar(2) |  |
| sbirthday | 生日 | datetime |  |
| class | 班级编号 | varchar(5) | 非空 |

表2 课程表（course）

|  |  |  |  |
| --- | --- | --- | --- |
| 列名 | 意义 | 类型 | 约束 |
| cno | 课程号 | varchar(5) | 主键 |
| cname | 课程名 | varchar(10) | 非空 |
| tno | 教师编号 | varchar(10) | 非空 |

表3 成绩表(grade)

|  |  |  |  |
| --- | --- | --- | --- |
| 列名 | 意义 | 类型 | 约束 |
| sno | 学号 | varchar(3) | 主键 |
| cno | 课程号 | varchar(5) | 主键 |
| degree | 分数 | numeric(3) | 非空 |

表4 教师表(teacher)

|  |  |  |  |
| --- | --- | --- | --- |
| 列名 | 意义 | 类型 | 约束 |
| tno | 教师编号 | varchar(3) | 主键 |
| tname | 教师姓名 | varchar(10) | 非空 |
| tsex | 性别 | varchar(2) |  |
| tbirthday | 生日 | datetime |  |
| prof | 职称 | varchar(6) | 非空 |
| depart | 系 | varchar(10) | 非空 |

表5 等级表(rank)

|  |  |  |  |
| --- | --- | --- | --- |
| 列名 | 意义 | 类型 | 约束 |
| down | 分数下届 | numeric(3) | 非空 |
| up | 分数上界 | numeric(3) | 非空 |
| rank | 级别 | varchar(1) | 主键 |

二、将如下数据插入到表里

INSERT INTO STUDENT (SNO,SNAME,SSEX,SBIRTHDAY,CLASS) VALUES (108 ,'曾华' ,'男' , '1977-09-01',95033);

INSERT INTO STUDENT (SNO,SNAME,SSEX,SBIRTHDAY,CLASS) VALUES (105 ,'匡明' ,'男' , '1975-10-02',95031);

INSERT INTO STUDENT (SNO,SNAME,SSEX,SBIRTHDAY,CLASS) VALUES (107 ,'王丽' ,'女' , '1976-01-23',95033);

INSERT INTO STUDENT (SNO,SNAME,SSEX,SBIRTHDAY,CLASS) VALUES (101 ,'李军' ,'男' , '1976-02-20',95033);

INSERT INTO STUDENT (SNO,SNAME,SSEX,SBIRTHDAY,CLASS) VALUES (109 ,'王芳' ,'女' , '1975-02-10',95031);

INSERT INTO STUDENT (SNO,SNAME,SSEX,SBIRTHDAY,CLASS) VALUES (103 ,'陆君' ,'男' , '1974-06-03',95031);

INSERT INTO COURSE(CNO,CNAME,TNO) VALUES ('3-105' ,'计算机导论', '825')

INSERT INTO COURSE(CNO,CNAME,TNO) VALUES ('3-245' ,'操作系统' , '804');

INSERT INTO COURSE(CNO,CNAME,TNO) VALUES ('6-166' ,'数据电路' , '856');

INSERT INTO COURSE(CNO,CNAME,TNO) VALUES ('9-888' ,'高等数学' , '100');

INSERT INTO GRADE(SNO,CNO,DEGREE)VALUES ('103','3-245',86);

INSERT INTO GRADE(SNO,CNO,DEGREE)VALUES (105,'3-245',75);

INSERT INTO GRADE(SNO,CNO,DEGREE)VALUES (109,'3-245',68);

INSERT INTO GRADE(SNO,CNO,DEGREE)VALUES (103,'3-105',92);

INSERT INTO GRADE(SNO,CNO,DEGREE)VALUES (105,'3-105',88);

INSERT INTO GRADE(SNO,CNO,DEGREE)VALUES (109,'3-105',76);

INSERT INTO GRADE(SNO,CNO,DEGREE)VALUES (101,'3-105',64);

INSERT INTO GRADE(SNO,CNO,DEGREE)VALUES (107,'3-105',91);

INSERT INTO GRADE(SNO,CNO,DEGREE)VALUES (108,'3-105',78);

INSERT INTO GRADE(SNO,CNO,DEGREE)VALUES (101,'6-166',85);

INSERT INTO GRADE(SNO,CNO,DEGREE)VALUES (107,'6-106',79);

INSERT INTO GRADE(SNO,CNO,DEGREE)VALUES (108,'6-166',81);

INSERT INTO TEACHER(TNO,TNAME,TSEX,TBIRTHDAY,PROF,DEPART)

VALUES (804,'李诚','男','1958-12-02','副教授','计算机系');

INSERT INTO TEACHER(TNO,TNAME,TSEX,TBIRTHDAY,PROF,DEPART)

VALUES (856,'张旭','男','1969-03-12','讲师','电子工程系');

INSERT INTO TEACHER(TNO,TNAME,TSEX,TBIRTHDAY,PROF,DEPART)

VALUES (825,'王萍','女','1972-05-05','助教','计算机系');

INSERT INTO TEACHER(TNO,TNAME,TSEX,TBIRTHDAY,PROF,DEPART)

VALUES (831,'刘冰','女','1977-08-14','助教','电子工程系');

insert into rank(down,up,rank) values(90,100,'A');

insert into rank(down,up,rank) values(80,89,'B');

insert into rank(down,up,rank) values(70,79,'C');

insert into rank(down,up,rank) values(60,69,'D');

insert into rank(down,up,rank) values(0,59,'E');

三、sql语句练习

1、 查询Student表中的所有记录的Sname、Ssex和Class列。

select sname,ssex,class from student;

+--------+------+-------+

| sname | ssex | class |

+--------+------+-------+

| Àî¾ü | ÄÐ | 95033 |

| Â½¾ý | ÄÐ | 95031 |

| ¿ïÃ÷ | ÄÐ | 95031 |

| ÍõÀö | Å® | 95033 |

| Ôø»ª | ÄÐ | 95033 |

| Íõ·¼ | Å® | 95031 |

+--------+------+-------+

6 rows in set (0.01 sec)

2、 查询教师所有的单位即不重复的Depart列。

select distinct depart from teacher;

+-----------------+

| depart |

+-----------------+

| 计算机系 |

| 电子工程系 |

+-----------------+

2 rows in set (0.00 sec)

3、 查询Student表的所有记录。

select \* from student;

+-----+--------+------+---------------------+-------+

| sno | sname | ssex | sbirthday | class |

+-----+--------+------+---------------------+-------+

| 101 | 李军 | 男 | 1976-02-20 00:00:00 | 95033 |

| 103 | 陆君 | 男 | 1974-06-03 00:00:00 | 95031 |

| 105 | 匡明 | 男 | 1975-10-02 00:00:00 | 95031 |

| 107 | 王丽 | 女 | 1976-01-23 00:00:00 | 95033 |

| 108 | 曾华 | 男 | 1977-09-01 00:00:00 | 95033 |

| 109 | 王芳 | 女 | 1975-02-10 00:00:00 | 95031 |

+-----+--------+------+---------------------+-------+

6 rows in set (0.00 sec)

4、 查询Grade表中成绩在60到80之间的所有记录。

select \* from grade where degree between 60 and 80;

+-----+-------+--------+

| sno | cno | degree |

+-----+-------+--------+

| 101 | 3-105 | 64 |

| 105 | 3-245 | 75 |

| 107 | 6-106 | 79 |

| 108 | 3-105 | 78 |

| 109 | 3-105 | 76 |

| 109 | 3-245 | 68 |

+-----+-------+--------+

6 rows in set (0.00 sec)

5、 查询Grade表中成绩为85，86或88的记录。

select \* from grade where degree in (85,86,88);

+-----+-------+--------+

| sno | cno | degree |

+-----+-------+--------+

| 101 | 6-166 | 85 |

| 103 | 3-245 | 86 |

| 105 | 3-105 | 88 |

+-----+-------+--------+

3 rows in set (0.00 sec)

6、 查询Student表中“95031”班或性别为“女”的同学记录。

select \* from student where class='95031' or ssex='女';

+-----+--------+------+---------------------+-------+

| sno | sname | ssex | sbirthday | class |

+-----+--------+------+---------------------+-------+

| 103 | 陆君 | 男 | 1974-06-03 00:00:00 | 95031 |

| 105 | 匡明 | 男 | 1975-10-02 00:00:00 | 95031 |

| 107 | 王丽 | 女 | 1976-01-23 00:00:00 | 95033 |

| 109 | 王芳 | 女 | 1975-02-10 00:00:00 | 95031 |

+-----+--------+------+---------------------+-------+

7、 以Class降序查询Student表的所有记录。

select \* from student order by class desc;

+-----+--------+------+---------------------+-------+

| sno | sname | ssex | sbirthday | class |

+-----+--------+------+---------------------+-------+

| 101 | 李军 | 男 | 1976-02-20 00:00:00 | 95033 |

| 107 | 王丽 | 女 | 1976-01-23 00:00:00 | 95033 |

| 108 | 曾华 | 男 | 1977-09-01 00:00:00 | 95033 |

| 103 | 陆君 | 男 | 1974-06-03 00:00:00 | 95031 |

| 105 | 匡明 | 男 | 1975-10-02 00:00:00 | 95031 |

| 109 | 王芳 | 女 | 1975-02-10 00:00:00 | 95031 |

+-----+--------+------+---------------------+-------+

6 rows in set (0.01 sec)

8、 以Cno升序、Degree降序查询Grade表的所有记录。

select \* from grade order by cno,degree desc;

+-----+-------+--------+

| sno | cno | degree |

+-----+-------+--------+

| 103 | 3-105 | 92 |

| 107 | 3-105 | 91 |

| 105 | 3-105 | 88 |

| 108 | 3-105 | 78 |

| 109 | 3-105 | 76 |

| 101 | 3-105 | 64 |

| 103 | 3-245 | 86 |

| 105 | 3-245 | 75 |

| 109 | 3-245 | 68 |

| 107 | 6-106 | 79 |

| 103 | 6-166 | 98 |

| 101 | 6-166 | 85 |

| 108 | 6-166 | 81 |

| 101 | 6-200 | 93 |

| 103 | 6-200 | 83 |

+-----+-------+--------+

15 rows in set (0.00 sec)

9、 查询“95031”班的学生人数。

select count(sno) from student where class='95031';

+------------+

| count(sno) |

+------------+

| 3 |

+------------+

1 row in set (0.00 sec)

10、查询Grade表中的最高分的学生学号和课程号。

select sno,cno from grade where degree = (select max(degree) from grade);

+-----+-------+

| sno | cno |

+-----+-------+

| 103 | 6-166 |

+-----+-------+

1 row in set (0.01 sec)

11、查询‘3-105’号课程的平均分。

select avg(degree) from grade where cno ='3-105';

+-------------+

| avg(degree) |

+-------------+

| 81.5000 |

+-------------+

1 row in set (0.00 sec)

12、查询Grade表中至少有5名学生选修的并以3开头的课程的平均分数。

select avg(degree) from grade where cno like '3%' group by cno having count(cno) >= 5;

+-------------+

| avg(degree) |

+-------------+

| 81.5000 |

+-------------+

1 row in set (0.01 sec)

13、查询最低分大于70，最高分小于90的Sno列。

select sno, max(degree),min(degree) from grade group by sno having max(degree) <= 90 and min(degree) >=70;

+-----+-------------+-------------+

| sno | max(degree) | min(degree) |

+-----+-------------+-------------+

| 105 | 88 | 75 |

| 108 | 81 | 78 |

+-----+-------------+-------------+

2 rows in set (0.00 sec)

14、查询所有学生的Sname、Cno和Degree列。

select sname,cno,degree from grade sc join student s on sc.sno = s.sno;

+--------+-------+--------+

| sname | cno | degree |

+--------+-------+--------+

| 匡明 | 3-105 | 88 |

| 匡明 | 3-245 | 75 |

| 曾华 | 3-105 | 78 |

| 曾华 | 6-166 | 81 |

| 李军 | 3-105 | 64 |

| 李军 | 6-166 | 85 |

| 李军 | 6-200 | 93 |

| 王丽 | 3-105 | 91 |

| 王丽 | 6-106 | 79 |

| 王芳 | 3-105 | 76 |

| 王芳 | 3-245 | 68 |

| 陆君 | 3-105 | 92 |

| 陆君 | 3-245 | 86 |

| 陆君 | 6-166 | 98 |

| 陆君 | 6-200 | 83 |

+--------+-------+--------+

15 rows in set (0.01 sec)

15、查询所有学生的Sno、Cname和Degree列。

select sno,cname,degree from grade g ,course c where c.cno = g.cno;

+-----+-----------------+--------+

| sno | cname | degree |

+-----+-----------------+--------+

| 101 | 计算机导论 | 64 |

| 101 | 数据电路 | 85 |

| 101 | 模拟电路 | 93 |

| 103 | 计算机导论 | 92 |

| 103 | 操作系统 | 86 |

| 103 | 数据电路 | 98 |

| 103 | 模拟电路 | 83 |

| 105 | 计算机导论 | 88 |

| 105 | 操作系统 | 75 |

| 107 | 计算机导论 | 91 |

| 108 | 计算机导论 | 78 |

| 108 | 数据电路 | 81 |

| 109 | 计算机导论 | 76 |

| 109 | 操作系统 | 68 |

+-----+-----------------+--------+

14 rows in set (0.00 sec)

16、查询所有学生的Sname、Cname和Degree列。

select sname,cname,degree from student s join grade g on s.sno = g.sno join course c on g.cno = c.cno;

+--------+-----------------+--------+

| sname | cname | degree |

+--------+-----------------+--------+

| 李军 | 计算机导论 | 64 |

| 李军 | 数据电路 | 85 |

| 李军 | 模拟电路 | 93 |

| 陆君 | 计算机导论 | 92 |

| 陆君 | 操作系统 | 86 |

| 陆君 | 数据电路 | 98 |

| 陆君 | 模拟电路 | 83 |

| 匡明 | 计算机导论 | 88 |

| 匡明 | 操作系统 | 75 |

| 王丽 | 计算机导论 | 91 |

| 曾华 | 计算机导论 | 78 |

| 曾华 | 数据电路 | 81 |

| 王芳 | 计算机导论 | 76 |

| 王芳 | 操作系统 | 68 |

+--------+-----------------+--------+

14 rows in set (0.01 sec)

17、查询“95033”班**所选课程**的平均分。

select cno, avg(degree) from student s join grade g on s.sno = g.sno where class='95033' group by cno;

+-------+-------------+

| cno | avg(degree) |

+-------+-------------+

| 3-105 | 77.6667 |

| 6-106 | 79.0000 |

| 6-166 | 83.0000 |

| 6-200 | 93.0000 |

+-------+-------------+

4 rows in set (0.01 sec)

---以下题目均需提供两种sql语句

18、查询选修课成绩为A等的学生信息

select s.\* from student s,grade g where s.sno = g.sno group by sno having max(degree)>=(select down from rank where rank='A');

+-----+--------+------+---------------------+-------+

| sno | sname | ssex | sbirthday | class |

+-----+--------+------+---------------------+-------+

| 101 | 李军 | 男 | 1976-02-20 00:00:00 | 95033 |

| 103 | 陆君 | 男 | 1974-06-03 00:00:00 | 95031 |

| 107 | 王丽 | 女 | 1976-01-23 00:00:00 | 95033 |

+-----+--------+------+---------------------+-------+

3 rows in set (0.01 sec)

select \* from student where sno in (select sno from grade group by sno having max(degree)>=(select down from rank where rank='A'));

+-----+--------+------+---------------------+-------+

| sno | sname | ssex | sbirthday | class |

+-----+--------+------+---------------------+-------+

| 101 | 李军 | 男 | 1976-02-20 00:00:00 | 95033 |

| 103 | 陆君 | 男 | 1974-06-03 00:00:00 | 95031 |

| 107 | 王丽 | 女 | 1976-01-23 00:00:00 | 95033 |

+-----+--------+------+---------------------+-------+

3 rows in set (0.00 sec)

19、查询选修“3-105”课程的成绩高于“109”号同学成绩的所有同学的记录。

select sno,cno,degree from grade where cno='3-105' and degree > (select max(degree) from grade where sno='109' and cno = '3-105');

+-----+-------+--------+

| sno | cno | degree |

+-----+-------+--------+

| 103 | 3-105 | 92 |

| 105 | 3-105 | 88 |

| 107 | 3-105 | 91 |

| 108 | 3-105 | 78 |

+-----+-------+--------+

4 rows in set (0.00 sec)

select a.\* from (select \* from grade where cno='3-105') a,(select \* from grade where cno='3-'3-105' and sno='109') b where a.degree > b.degree;

+-----+-------+--------+

| sno | cno | degree |

+-----+-------+--------+

| 103 | 3-105 | 92 |

| 105 | 3-105 | 88 |

| 107 | 3-105 | 91 |

| 108 | 3-105 | 78 |

+-----+-------+--------+

4 rows in set (0.00 sec)

20、查询grade中选学一门以上课程的同学中分数为非最高分成绩的记录。

select \* from grade where sno in (select sno from grade group by sno having count(\*) > 1)

and degree not in(select max(degree) from grade group by cno);

+-----+-------+--------+

| sno | cno | degree |

+-----+-------+--------+

| 101 | 3-105 | 64 |

| 101 | 6-166 | 85 |

| 103 | 6-200 | 83 |

| 105 | 3-105 | 88 |

| 105 | 3-245 | 75 |

| 107 | 3-105 | 91 |

| 108 | 3-105 | 78 |

| 108 | 6-166 | 81 |

| 109 | 3-105 | 76 |

| 109 | 3-245 | 68 |

+-----+-------+--------+

10 rows in set (0.00 sec)

21、查询成绩高于学号为“109”、课程号为“3-105”的成绩的所有记录。

22、查询和学号为108的同学同年出生的所有学生的Sno、Sname和Sbirthday列。

23、查询“张旭“教师任课的学生成绩。

24、查询选修某课程的同学人数多于5人的教师姓名。

25、查询95033班和95031班全体学生的记录。

26、查询存在有85分以上成绩的课程Cno.

27、查询出“计算机系“教师所教课程的成绩表。

28、查询“计算机系”与“电子工程系“不同职称的教师的Tname和Prof。

29、查询选修编号为“3-105“课程且成绩至少高于选修编号为“3-245”的同学的Cno、Sno和Degree,并按Degree从高到低次序排序。

30、查询选修编号为“3-105”且成绩高于选修编号为“3-245”课程的同学的Cno、Sno和Degree.

31、查询所有教师和同学的name、sex和birthday.

32、查询所有“女”教师和“女”同学的name、sex和birthday.

33、查询成绩比该课程平均成绩低的同学的成绩表。

34、查询所有任课教师的Tname和Depart.

35 查询所有未讲课的教师的Tname和Depart.

36、查询至少有2名男生的班号。

37、查询Student表中不姓“王”的同学记录。

38、查询Student表中每个学生的姓名和年龄。

39、查询Student表中最大和最小的Sbirthday日期值。

40、以班号和年龄从大到小的顺序查询Student表中的全部记录。

41、查询“男”教师及其所上的课程。

42、查询最高分同学的Sno、Cno和Degree列。

43、查询和“李军”同性别的所有同学的Sname.

44、查询和“李军”同性别并同班的同学Sname.

45、查询所有选修“计算机导论”课程的“男”同学的成绩表

46、查询计算机系教师所教课程成绩为B等的课程信息

47、查询成绩在C等以上的学生的所在班级

48、查询班里B等以上学生人数最多的班级信息