Mysql练习题

**Class表的定义**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **字段名** | **字段描述** | **数据类型** | **主键** | **外键** | **非空** | **唯一** | **自增** |
| class\_id | 编号 | INT(10) | 是 | 否 | 是 | 是 | 是 |
| class\_name | 班级名称 | VARCHAR(64) | 否 | 否 | 是 | 否 | 否 |

INSERT INTO `class` VALUES ('1', '三年二班'), ('2', '三年三班'), ('3', '一年二班'), ('4', '二年九班');

**Subject表的定义**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **字段名** | **字段描述** | **数据类型** | **主键** | **外键** | **非空** | **唯一** | **自增** |
| subject\_id | 编号 | INT(10) | 是 | 否 | 是 | 是 | 是 |
| subject\_name | 班级名称 | VARCHAR(64) | 否 | 否 | 是 | 否 | 否 |
| teacher\_id | 教师id | INT(10) | 否 | 否 | 否 | 否 | 否 |

INSERT INTO `course` VALUES ('1', '生物', '1'), ('2', '物理', '2'), ('3', '体育', '3'), ('4', '美术', '2');

**Score表的定义**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **字段名** | **字段描述** | **数据类型** | **主键** | **外键** | **非空** | **唯一** | **自增** |
| score\_id | 编号 | INT(10) | 是 | 否 | 是 | 是 | 是 |
| subject\_id | 课程id | INT(10) | 否 | 否 | 是 | 否 | 否 |
| student\_id | 学生id | INT(10) | 否 | 否 | 否 | 否 | 否 |
| score | 分数 | INT(10) | 否 | 否 | 否 | 否 | 否 |

INSERT INTO `score` VALUES ('1', '1', '1', '10'), ('2', '1', '2', '9'), ('5', '1', '4', '66'), ('6', '2', '1', '8'), ('8', '2', '3', '68'), ('9', '2', '4', '99'), ('10', '3', '1', '77'), ('11', '3', '2', '66'), ('12', '3', '3', '87'), ('13', '3', '4', '99'), ('14', '4', '1', '79'), ('15', '4', '2', '11'), ('16', '4', '3', '67'), ('17', '4', '4', '100'), ('18', '5', '1', '79'), ('19', '5', '2', '11'), ('20', '5', '3', '67'), ('21', '5', '4', '100'), ('22', '6', '1', '9'), ('23', '6', '2', '100'), ('24', '6', '3', '67'), ('25', '6', '4', '100'), ('26', '7', '1', '9'), ('27', '7', '2', '100'), ('28', '7', '3', '67'), ('29', '7', '4', '88'), ('30', '8', '1', '9'), ('31', '8', '2', '100'), ('32', '8', '3', '67'), ('33', '8', '4', '88'), ('34', '9', '1', '91'), ('35', '9', '2', '88'), ('36', '9', '3', '67'), ('37', '9', '4', '22'), ('38', '10', '1', '90'), ('39', '10', '2', '77'), ('40', '10', '3', '43'), ('41', '10', '4', '87'), ('42', '11', '1', '90'), ('43', '11', '2', '77'), ('44', '11', '3', '43'), ('45', '11', '4', '87'), ('46', '12', '1', '90'), ('47', '12', '2', '77'), ('48', '12', '3', '43'), ('49', '12', '4', '87'), ('52', '13', '3', '87');

**Student表的定义**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **字段名** | **字段描述** | **数据类型** | **主键** | **外键** | **非空** | **唯一** | **自增** |
| student\_id | 编号 | INT(10) | 是 | 否 | 是 | 是 | 是 |
| sex | 性别 | VARCHAR(64) | 否 | 否 | 是 | 否 | 否 |
| class\_id | 班级id | INT(10) | 否 | 否 | 否 | 否 | 否 |
| student\_name | 学生姓名 | VARCHAR(64) | 否 | 否 | 否 | 否 | 否 |

INSERT INTO `student` VALUES ('1', '男', '1', '理解'), ('2', '女', '1', '钢蛋'), ('3', '男', '1', '张三'), ('4', '男', '1', '张一'), ('5', '女', '1', '张二'), ('6', '男', '1', '张四'), ('7', '女', '2', '铁锤'), ('8', '男', '2', '李三'), ('9', '男', '2', '李一'), ('10', '女', '2', '李二'), ('11', '男', '2', '李四'), ('12', '女', '3', '如花'), ('13', '男', '3', '刘三'), ('14', '男', '3', '刘一'), ('15', '女', '3', '刘二'), ('16', '男', '3', '刘四');

**Teacher表的定义**

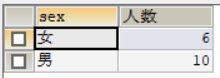
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **字段名** | **字段描述** | **数据类型** | **主键** | **外键** | **非空** | **唯一** | **自增** |
| teacher\_id | 编号 | INT(10) | 是 | 否 | 是 | 是 | 是 |
| teacher\_name | 姓名 | VARCHAR(64) | 否 | 否 | 是 | 否 | 否 |

INSERT INTO `teacher` VALUES ('1', '张磊老师'), ('2', '李平老师'), ('3', '刘海燕老师'), ('4', '朱云海老师'), ('5', '李杰老师');

1. 查询男生、女生的人数；

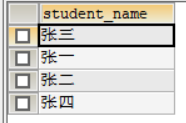
SELECT sex,COUNT(\*) AS '人数' FROM student

GROUP BY sex;



1. 查询姓“张”的学生名单；

SELECT student\_name FROM student WHERE student\_name LIKE '张%'



1. 课程平均分从高到低显示

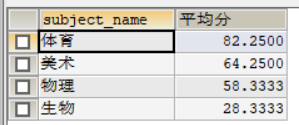
SELECT subject\_name,AVG(sc.score) AS '平均分'

FROM score sc,SUBJECT su

WHERE sc.subject\_id=su.subject\_id

GROUP BY su.subject\_name

ORDER BY AVG(sc.score) DESC;



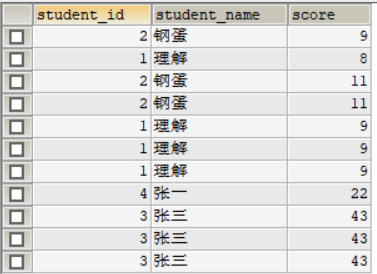
1. 查询有课程成绩小于60分的同学的学号、姓名；

SELECT st.student\_id,student\_name,sc.score

FROM student st,score sc

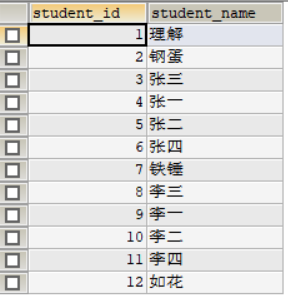
WHERE st.student\_id=sc.student\_id

AND score<60;



1. 查询至少有一门课与学号为1的同学所学课程相同的同学的学号和姓名；

select student\_id,student\_name from student where student\_id in (select distinct student\_id from score where subject\_id in (select subject\_id from score where student\_id = 1));



1. 查询出只选修了一门课程的全部学生的学号和姓名；

SELECT st.student\_id,st.student\_name

FROM student st,score sc

WHERE st.student\_id=sc.student\_id

GROUP BY sc.subject\_id HAVING COUNT(sc.subject\_id)=1



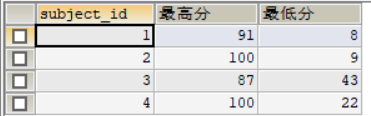
1. 查询各科成绩最高和最低的分：以如下形式显示：课程ID，最高分，最低分；

SELECT su.subject\_id,MAX(sc.score) AS '最高分',MIN(sc.score) AS '最低分'

FROM score sc,SUBJECT su

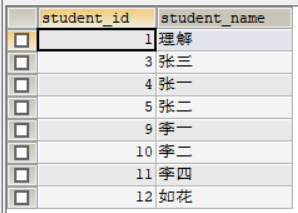
WHERE sc.subject\_id=su.subject\_id

GROUP BY subject\_id



1. 查询课程编号“2”的成绩比课程编号“1”课程低的所有同学的学号、姓名；

SELECT  
student\_id,  
student\_name  
FROM  
student  
WHERE  
student\_id IN (  
SELECT  
t1.student\_id  
FROM  
(  
SELECT  
score num2,  
student\_id  
FROM  
score  
WHERE  
subject\_id = 2  
) t2  
INNER JOIN (  
SELECT  
student\_id,  
score num1  
FROM  
score  
WHERE  
subject\_id = 1  
) t1 ON t1.student\_id = t2.student\_id  
WHERE  
num2 < num1  
);



1. 查询“生物”课程比“物理”课程成绩高的所有学生的学号；

SELECT \* FROM(

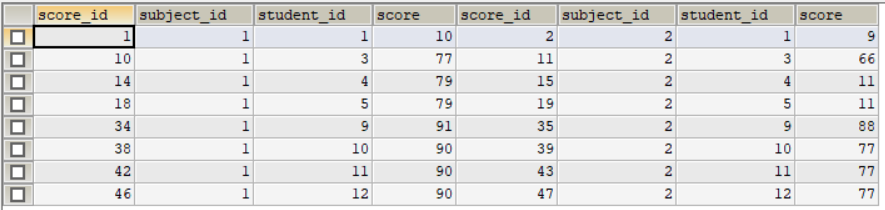
(SELECT \* FROM score WHERE subject\_id IN (SELECT subject\_id FROM SUBJECT WHERE subject\_name = '生物')) t1

LEFT JOIN

(SELECT \* FROM score WHERE subject\_id IN(SELECT subject\_id FROM SUBJECT WHERE subject\_name='物理')) t2

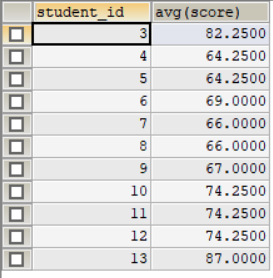
ON t1.student\_id = t2.student\_id)

WHERE t1.score>t2.score



10.查询平均成绩大于60分的同学的学号和平均成绩;

select student\_id,avg(score) from score group by student\_id having avg(score) > 60;



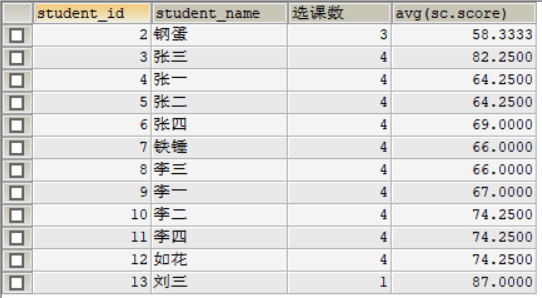
11.查询所有同学的学号、姓名、选课数、总成绩；

SELECT st.student\_id,st.student\_name,COUNT(\*) '选课数',AVG(sc.score)

FROM student st,score sc

WHERE st.student\_id=sc.student\_id

GROUP BY student\_id



12.查询姓“李”的老师的个数；

SELECT COUNT(\*) AS '人数'

FROM teacher

WHERE teacher\_name LIKE '李%';



1. 查询没学过“张磊老师”课的同学的学号、姓名；

SELECT

student\_id'学号',

student\_name'姓名'

FROM

student

WHERE

student\_id

NOT IN(

SELECT student\_id FROM score

WHERE

subject\_id =

(SELECT subject\_id FROM SUBJECT

WHERE

teacher\_id =

(

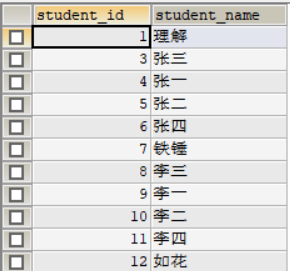
SELECT tea.teacher\_id FROM teacher tea

WHERE teacher\_name = '张磊老师')))



1. 查询学过“1”并且也学过编号“2”课程的同学的学号、姓名；

select student\_id,student\_name from student where student\_id in (select t1.student\_id from (select student\_id from score where subject\_id = 1) t1 inner join (select student\_id from score where subject\_id = 2) t2 on t1.student\_id = t2.student\_id);



1. 查询学过“李平老师”所教的所有课的同学的学号、姓名；

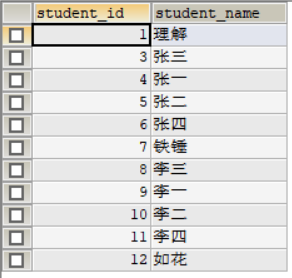
select student\_id,student\_name from student where student\_id in (

select student\_id from (

select student\_id,count(subject\_id) subject\_count from score where subject\_id in ( select subject\_id from `subject` where teacher\_id in (select teacher\_id from teacher where teacher\_name ='李平老师')) group by student\_id) t1

where t1.subject\_count =

(select count(subject\_id) from `subject` where teacher\_id in (select teacher\_id from teacher where teacher\_name ='李平老师')));

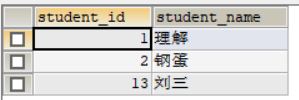


1. 查询没有学全所有课的同学的学号、姓名；

select student\_id,student\_name from student where student\_id in (

select student\_id from (select count(subject\_id) c\_subject\_id,student\_id from score group by student\_id

) t1 where t1.c\_subject\_id < (select count(subject\_id) from `subject`))



1. 查询和“002”号的同学学习的课程完全相同的其他同学学号和姓名；

select student\_id from score where student\_id not in (

select student\_id from score where subject\_id not in (select subject\_id from score where student\_id=2)

) and student\_id !=2

group by student\_id

having count(subject\_id)= (select count(subject\_id) from score where student\_id=2);

18.删除学习“叶平”老师课的SC表记录；

20.按平均成绩从低到高显示所有学生的“语文”、“数学”、“英语”三门的课程成绩，按如下形式显示： 学生ID,语文,数学,英语,有效课程数,有效平均分；

select stu.student\_id 学生ID,t2.score 物理,t1.score 生物, t3.score 体育,t4.score 美术,t5.count\_subject 有效课程数,t5.avg\_score 有效平均分 from student stu

left join (select student\_id,score from score where subject\_id = (select subject\_id from `subject` where subject\_name = '生物')) t1

on stu.student\_id = t1.student\_id

left join (select student\_id,score from score where subject\_id = (select subject\_id from `subject` where subject\_name = '物理')) t2

on stu.student\_id = t2.student\_id

left join (select student\_id,score from score where subject\_id = (select subject\_id from `subject` where subject\_name = '体育')) t3

on stu.student\_id = t3.student\_id

left join (select student\_id,score from score where subject\_id = (select subject\_id from `subject` where subject\_name = '美术')) t4

on stu.student\_id = t4.student\_id

left join (select student\_id,avg(score) avg\_score,count(score) count\_subject from score group by student\_id) t5

on stu.student\_id = t5.student\_id

1. 查询各科成绩最高和最低的分：以如下形式显示：课程ID，最高分，最低分；

22.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\_out1.subject\_id,

t\_out1.avgnum,

t\_out2.pass\_per

FROM

(

SELECT

subject\_id,

AVG(score) avgnum

FROM

score

GROUP BY

subject\_id

) t\_out1

LEFT JOIN (

SELECT

t1.subject\_id,

t1.count1 / t2.count2 pass\_per

FROM

(

SELECT

subject\_id,

COUNT(subject\_id) count1

FROM

score

WHERE

score > 60

GROUP BY

subject\_id

) t1

LEFT JOIN (

SELECT

subject\_id,

COUNT(subject\_id) count2

FROM

score

GROUP BY

subject\_id

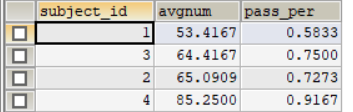
) t2 ON t1.subject\_id = t2.subject\_id

) t\_out2 ON t\_out1.subject\_id = t\_out2.subject\_id

ORDER BY

avgnum,

pass\_per DESC



23.查询各科成绩前三名的记录:(不考虑成绩并列情况)

SELECT

t1.student\_id,t1.subject\_id,t1.score FROM score t1

LEFT JOIN

(

SELECT score\_id,subject\_id,

(SELECT score FROM score AS s2 WHERE s2.subject\_id = s1.subject\_id ORDER BY score DESC LIMIT 0, 1) AS first\_num,

(SELECT score FROM score AS s2 WHERE s2.subject\_id = s1.subject\_id ORDER BY score DESC LIMIT 1, 1) AS second\_num

FROM score AS s1

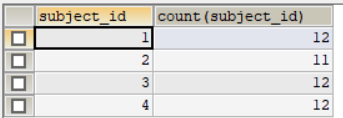
) t2

ON t1.score\_id = t2.score\_id

WHERE t1.score = t2.first\_num OR t1.score = t2.second\_num ;

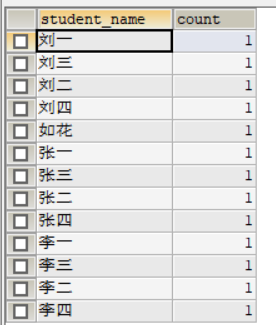
1. 查询每门课程被选修的学生数；

select subject\_id,count(subject\_id) from score group by subject\_id;



25.查询同名同姓学生名单，并统计同名人数；

select student\_name,count(1) as count from student group by student\_name



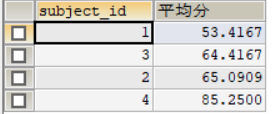
1. 查询每门课程的平均成绩，结果按平均成绩升序排列，平均成绩相同时，按课程号降序排列；

SELECT subject\_id,AVG(score)'平均分'

FROM score

GROUP BY subject\_id

ORDER BY 平均分 ASC,subject\_id DESC



1. 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 \*

FROM (SELECT student\_id,student\_name FROM student) t1

LEFT JOIN (SELECT student\_id,AVG(score) AS 'avg' FROM score GROUP BY student\_id) t2

ON t1.student\_id=t2.student\_id

WHERE AVG>=85



1. 查询课程名称为“数学”，且分数低于60的学生姓名和分数；

SELECT s.student\_name,sc.score

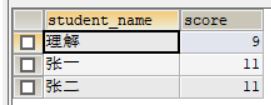
FROM SUBJECT su LEFT JOIN score sc

ON su.subject\_id=sc.subject\_id

LEFT JOIN student s

ON s.student\_id=sc.student\_id

WHERE su.subject\_name='物理' AND sc.score<=60



1. 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；

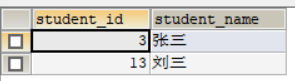
SELECT s.student\_id,s.student\_name

FROM student s LEFT JOIN score sc

ON s.student\_id=sc.student\_id

WHERE sc.subject\_id=3

AND sc.score>80;



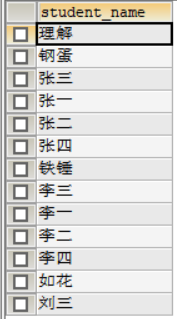
1. 求选了课程的学生人数

SELECT DISTINCT s.student\_name

FROM student s LEFT JOIN score sc

ON s.student\_id=sc.student\_id

WHERE sc.subject\_id IS NOT NULL



1. 查询选修“杨艳”老师所授课程的学生中，成绩最高的学生姓名及其成绩；

SELECT MAX(sc.score)

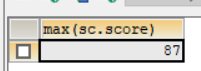
FROM teacher te LEFT JOIN SUBJECT su

ON te.teacher\_id=su.teacher\_id

LEFT JOIN score sc

ON su.subject\_id=sc.subject\_id

WHERE te.teacher\_name='刘海燕老师'

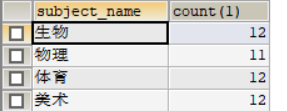


1. 查询各个课程及相应的选修人数；

select sub.subject\_name,count(1) from score

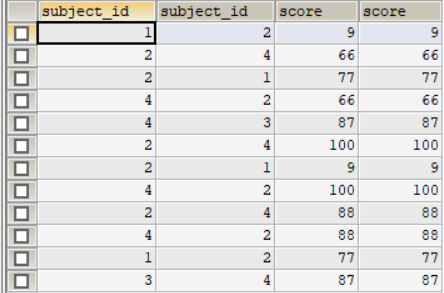
left join subject sub on score.subject\_id = sub.subject\_id

group by sub.subject\_id;



1. 查询不同课程但成绩相同的学生的学号、课程号、学生成绩；

select DISTINCT s1.subject\_id,s2.subject\_id,s1.score,s2.score from score as s1, score as s2 where s1.score = s2.score and s1.subject\_id != s2.subject\_id;



1. 查询每门课程成绩最好的前两名；

select

t1.student\_id,t1.subject\_id,t1.score from score t1

left join

(

select score\_id,subject\_id,

(select score from score as s2 where s2.subject\_id = s1.subject\_id order by score desc limit 0, 1) as first\_num,

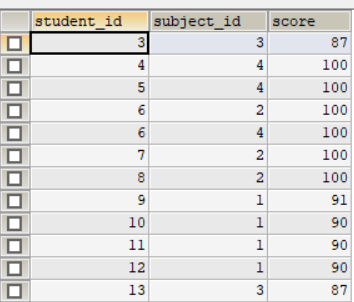
(select score from score as s2 where s2.subject\_id = s1.subject\_id order by score desc limit 1, 1) as second\_num

from score as s1

) t2

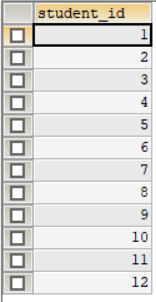
on t1.score\_id = t2.score\_id

where t1.score = t2.first\_num or t1.score = t2.second\_num ;



1. 检索至少选修两门课程的学生学号；

select student\_id from score group by student\_id having count(student\_id) > 1;

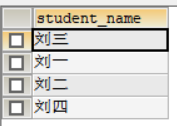


1. 查询全部学生都选修的课程的课程号和课程名；

select subject\_id from score group by subject\_id having count(student\_id) = (select count(student\_id) from student);

1. 查询没学过“叶平”老师讲授的任一门课程的学生姓名；

select student\_name from student where student\_id not in (select distinct student\_id from score where subject\_id in (select subject\_id from `subject` where teacher\_id in (select teacher\_id from teacher where teacher\_name = '李平老师')));



1. 查询两门以上不及格课程的同学的学号及其平均成绩；

select student\_id,avg(score) from score where score<60 group by student\_id having count(score)>=2;



1. 检索“004”课程分数小于60，按分数降序排列的同学学号；

select student\_id from score where score < 60 and subject\_id = 4 order by score desc



1. 删除“002”同学的“001”课程的成绩；

delete from score where subject\_id = 1 and student\_id = 2

