# 第五周 数据库实验三

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## 实验内容

1. 检索选修课程包含1106同学所学全部课程的学生学号和姓名。
2. 查询每门课程中分数最高的学生学号和学生姓名。
3. 查询年龄小于本学院平均年龄，所有课程总评成绩都高于所选课程平均总评成绩的学生学号、姓名和平均总评成绩，按年龄排序。
4. 建立计算机学院总评不及格成绩学生的视图，包括学生学号、姓名、性别、手机、所选课程和成绩。
5. 在E表中插入记录，把每个学生没学过的课程都插入到E表中，使得每个学生都选修每门课。
6. 求年龄大于所有女同学年龄的男学生姓名和年龄。
7. 在选课表中修改08305001课程的平时成绩，若成绩小于等于75分时提高5%，若成绩大于75分时提高4%。
8. 删除没有开课的学院。
9. 查询优、良、中、及格、不及格学生人数。

## 实验过程

1. **检索选修课程包含1106同学所学全部课程的学生学号和姓名。**

找出1106所学全部课程的course\_id;

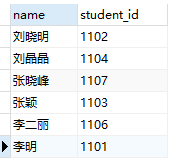
找到选修课程包含上述course\_id的学生学号；

根据学生学号找姓名；

Sql代码：

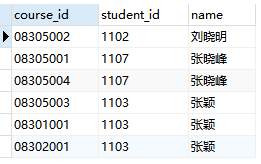
|  |
| --- |
| SELECT `name`,student\_id  FROM  student  WHERE  student\_id IN (  SELECT DISTINCT student\_id  FROM  `course selection`  WHERE EXISTS (  SELECT  course\_id  FROM  `course selection`  WHERE  student\_id = '1106'  )  ) |

结果：



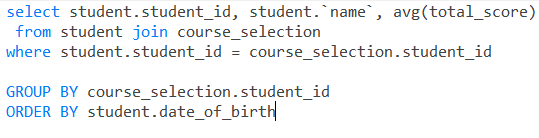
1. **查询每门课程中分数最高的学生学号和学生姓名。**

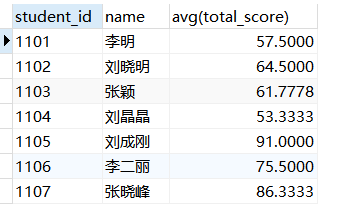
|  |
| --- |
| select DISTINCT course\_id, student.student\_id, student.name  from student, `course selection`  where  student.student\_id = `course selection`.student\_id and  `course selection`.total\_score in  (select max(total\_score)  from `course selection`  GROUP BY course\_id) |



1. 查询年龄小于本学院平均年龄，所有课程总评成绩都高于所选课程平均总评成绩的学生学号、姓名和平均总评成绩，按年龄排序。

先给出基本框架：



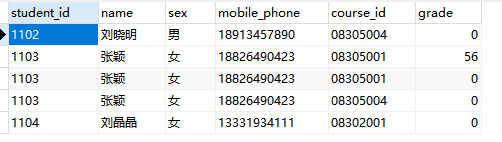


无非就是在上面这些人里选：

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| --- |
| select student.student\_id, student.name  from student, `course selection`  where 2022-YEAR(date\_of\_birth) < (select avg(2022-YEAR(date\_of\_birth)) from student) and  `course selection`.student\_id = student\_id and min(total\_score)> |

1. 建立计算机学院总评不及格成绩学生的视图，包括学生学号、姓名、性别、手机、所选课程和成绩。

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| create view student\_fail(student\_id, name, sex, mobile\_phone, course\_id, grade) as (SELECT student.student\_id, student.name, sex, mobile\_phone, course\_id, total\_score from student, `course selection` where student.student\_id = `course selection`.student\_id and total\_score < 60) |



1. 在E表中插入记录，把每个学生没学过的课程都插入到E表中，使得每个学生都选修每门课
2. 求年龄大于所有女同学年龄的男学生姓名和年龄。

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| --- |
| select student.name, 2022-year(date\_of\_birth) 年龄  from student  where sex = '男' and  2022-year(date\_of\_birth) > (select min(2022-year(date\_of\_birth)) from student where sex='女') |



1. 在选课表中修改08305001课程的平时成绩，若成绩小于等于75分时提高5%，若成绩大于75分时提高4%。

注意，两句需要分开执行

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| update `course selection` set `normal\_ score` = `normal\_ score` \* 1.04 where `normal\_ score` > 75 and course\_id='08305001'  update `course selection` set `normal\_ score` = `normal\_ score` \* 1.05 where `normal\_ score` <= 75 and course\_id='08305001' |

1. 删除没有开课的学院。

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| delete from department where dept\_id not in (select dept\_id from course where course\_id not in (select course\_id from `course selection`)) |

1. 查询优、良、中、及格、不及格学生人数。

|  |
| --- |
| 优：  select student\_id from `course selection` group by student\_id having avg(total\_score) > 90  良：  select student\_id from `course selection` group by student\_id having avg(total\_score) > 80  中  select student\_id from `course selection` group by student\_id having avg(total\_score) > 70  合格  select student\_id from `course selection` group by student\_id having avg(total\_score) > 60  不合格  select student\_id from `course selection` group by student\_id having avg(total\_score) < 60 |

