Database Management Systems

Lab 4 Exercise: SQL Functions and Subqueries

# What To Do

1. 下载**Lab4**课程材料**，Lab4Exercise**文件夹中包含两个SQL脚本文件**,Lab4DB.sql** 和 **Lab4Queries.sql**. **Lab4DB.sql** 脚本文件删除先前创建的 **Student** 和 **Department** 表（如果存在），并创建五个表 **Student、Course、EnrollsIn、Department 和 Facility。Facility** 表记录每个院系的投影仪和计算机数量。
2. 将你之前的**InsertMyself.sql**脚本文件放在**Lab4Exercise**文件夹中。在该脚本文件上加增加一行语句，实现在**EnrollsIn** 表中插入一个具有下列值的新纪录← **NEW!**

* For the **studentId** attribute, your student id.
* For the **courseId** attribute, the value “COMP3311”.

1. 在**SQL Developer**中运行**Lab4DB.sql**脚本，以产生本实验要操作的数据库。
2. 修改 **Lab4Queries.sql** 脚本文件，在\*指定位置处\*分别撰写实现下述查询的SQL语句。

**Query 1:** Find the minimum, maximum, average and total number of computers over all departments.

**Query 2:** Find the first name, last name, student id and cga of the students from the COMP department with the highest cga.

**Query 3:** Find, for each course, the course id and the average cga of the students enrolled in the course. Order the result by average cga descending.

**Query 4:** Find, for each course, the course id, student last and first name, department id and cga of the students who have the highest cga in the course. Order the result by course id ascending.

**Query 5:** Find, for each student, the first name, last name, department id and the number of courses in which the student is enrolled. Order the result first by the number of courses descending and second by department id ascending.

**Note 1:** 执行**Lab4Queries.sql**的结果应该与图1一致，除了红线标出的行处应为你的**InsertMyself.sql**插入的信息。

**Note 2:** CGA属性值全部保留两个小数位。

# What To Submit

1. 你所修改的 **Lab4Queries.sql** 脚本文件。
2. 文件名为 **Lab4**的jpeg 或 PDF 文件，显示执行**Lab3Queries.sql**脚本文件的结果，如图 1 所示。

# How To Submit

在下次实验课之前（周二晚10点前），将上述文件打包（以为名字+学号命名）发给学委，学委再打包邮件发给我（zhenglb6@mail.sysu.edu.cn）。

Table

Description automatically generated

**Query 5 result**

**Query 4 result**

**Query 3 result**

**Query 2 result**

**Query 1 result**

**Your information should be shown in these query results.**

Figure 1: Example **SQL Developer** Script Output tab showing the result of executing the five queries.