DBI Lab 005 - Group By and Joins

COMP1048 - Databases and Interfaces

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Lab Overview

Today we will continue to practice writing SQL Queries.

Exercise 1

Write the SQL necessary to represent the data presented in the table below into your DB. You are required to `CREATE` the tables in your database and `INSERT` the data shown below.

Student			
sID	**sName**	**sAddress**	**sYear**
1	Smith	5 Arnold Close	2
2	Brooks	7 Holly Avenue	2
3	Anderson	15 Main Street	3
4	Evans	Flat 1a, High Street	2
5	Harrison	Newark Hall	1
6	Jones	Southwell Hall	1

Module		
mCode	**mCredits**	**mTitle**
G51DBS	10	Database Systems
G51PRG	20	Programming
G51IAI	10	Artificial Intelligence
G52ADS	10	Algorithms

Enrollment	
sID	**mCode**
1	G52ADS
2	G52ADS
5	G51DBS
5	G51PRG
5	G51IAI
4	G52ADS
6	G51PRG
6	G51IAI

> **Hint**
>
> You should now have enough experience to write the SQL in a single, self-contained file which can be run multiple times (in succession), without error. Remember to utilise `DROP IF EXISTS` to facilitate this.

Exercise 2

Write the SQL neccesary to fulfil the following requests:

1. Write a query which outputs all students in stored in the database. The result should be ordered by student year (Descending) and then by student name (Ascending).
2. Write a query which outputs the number of students enrolled in each module. Your result should include the module code and the number of students enrolled in that module as its result. If a module has no students enrolled in it, it does not need to be displayed in the results.
3. Write a query which outputs all students that have not enrolled in any Module. Your results should include the Student's ID and Name.
4. Write a query which outputs the student name and module title for all records in the `Enrollment` table. Your results should be ordered by student id. Each row of output should contain the student's name and the title of one of their enrolled modules.
5. Write a query which outputs **all modules** stored in the database and the number of students enrolled in each module. Your results should include the Module's Code, Title and the number of students enrolled.

> **Caution** - Make sure your query fulfills the criteria set out in this question. One way to test this is to add a new module to the `Module` table. Does it appear in your results with a 'Number of Students Enrolled' being zero (0)?

6. Generate a report containing the number of credits each student is enrolled in. Your report should contain the student's name (`sName`) and the total number of credits. Your report should be ordered by the student with the most credits to the least.

Submission

Please submit a PDF document containing your solutions to the above tasks. For both exercises you should submit the *code* you developed to answer these exercises (not the result).

Submitting this assignment will contribute 2% to your overall Module grade. Your submission should demonstrate reasonable effort and fulfil the specified requirements set out in this lab sheet in order to receive the full marks.

There is no granularity to the marking, the marking is on a pass-or-fail basis.

This assignment will also serve as a part of your attendance registration for this week. Registration is reported to Faculty office on a weekly basis. The submission point is available on Moodle.

Submission Deadline - Friday, 12 November 2021 @ 17:00