Assignment 2- INFO20003 Semester 2 2017

Date Due: Friday 6th October 2017 11:59pm AEST

Late submissions will not be assessed unless you have an Academic Adjustment plan or written approval from the INFO20003 Subject Coordinator.

Submission Attempts: 3 – (Only the last submitted assignment will be assessed)

Weighting: 10% of your total assessment

Case Study Description

North-Eastern University (NEU) is a technical university that offers undergraduate and postgraduate courses in Computing and Information Systems. As NEU is growing in number of students, the university leadership team requires information to plan future course offerings and allocate lecturers. The current university database collects data about courses, subjects, students and lecturers. You are assigned as a data analyst to query the database and answer leadership questions.

NEU offers a range of subjects for the 200-point postgraduate and 300-point undergraduate courses. Any subject offered by the university has attributes of 'Study Area', 'Year Level' and 'Code'. For example, for INFO20003 the Study Area is '*INFO*', the Year Level is '*2*' and the Code is '*0003*'. Similarly for the subject COMP10001, the Study Area would be '*COMP*', Year Level '*1*' and the Code is '*0001*'. Each subject is coordinated by a single lecturer.

The system also collects information about students, including which postcode they live in. Students can enrol in only one course at a time at either undergraduate (e.g. Bachelor of Design) or postgraduate level (e.g. Masters of Information Technology) and enrol in a series of subjects to complete their degree. All post graduate degrees have a Year Level of 9 and all undergraduate subjects have a Year Level between 1 and 3.

In terms of enrolments, the database stores details including the year in which they enrolled in a particular subject, the semester number, the subject and their result. Students enrolled in the current semester do not have any results recorded. Students can enrol in the same subject more than once but not in the same semester and year.

The Data Model and Database

The ER diagram in Figure 1 describes the database schema which has been implemented at NEU. To set up the database in your MySQL server, you need to download the file

University.sql from the Assignment folder on LMS and run it in MySQL Workbench. This script creates the schema and tables and populates them with data.

Note: There are comments at the start of the script. You can uncomment them depending on whether you are running it on the UniMelb server or your own MySQL environment.
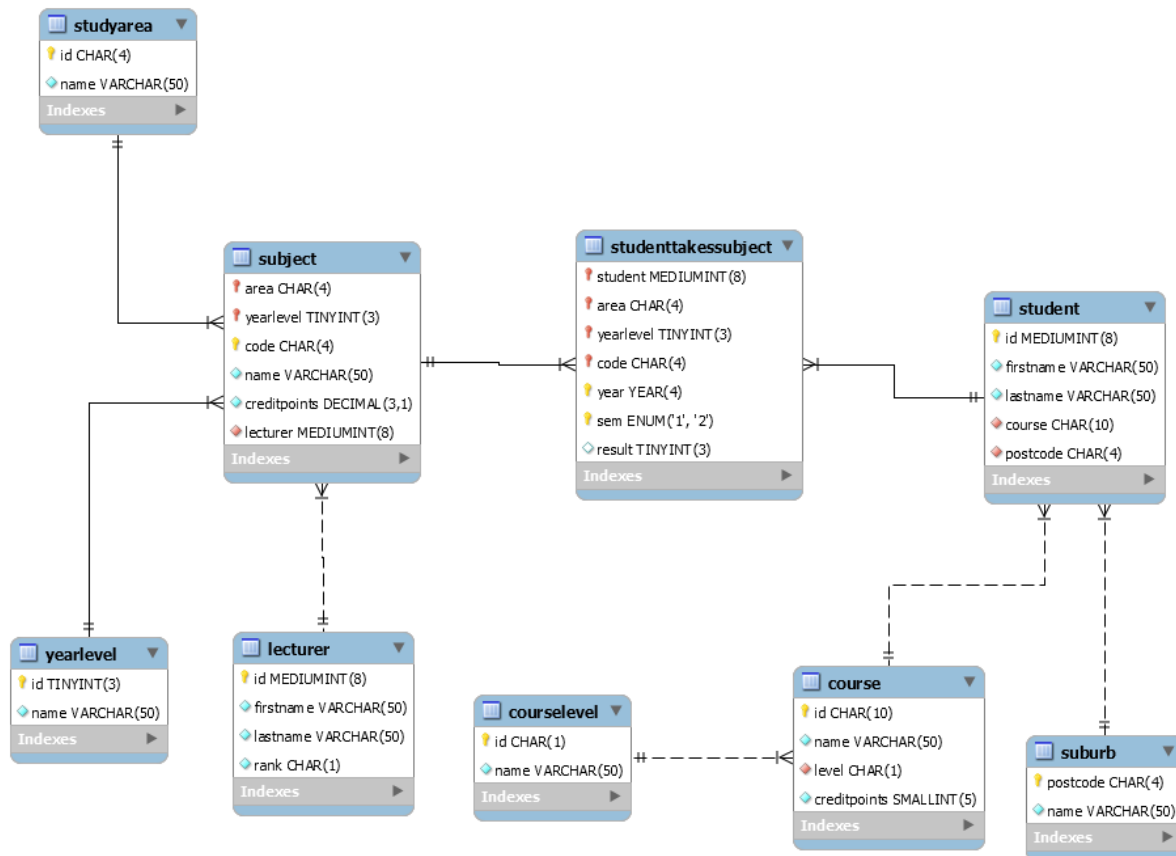
Figure 1. ER Diagram for University Database

The SQL Tasks

You need to write 10 queries to answer the questions asked by the leadership team.

1. Count the number of students in each course at the University. Print the course name, as well as the number of students. **(1 mark)**

2. Is there any subject failed by more than one student? List the subject code as well as the number of failures. **(1 mark)**

3. For the students who have completed at least one subject at undergraduate level, how many points does each student need to complete their degree? **(2 marks)**

4. List the student number, lastname, course and GPA of students who have completed more than 4 subjects at undergraduate level? (To calculate *GPA you need to (1) multiply the student's result per subject by their credit points, (2) sum them up for all the subjects*

the student has taken and (3) divide it by the sum of the credit points these subjects are worth) **(2 marks)**

5. Which lecturer awarded the highest mark and what subject(s) was it (print the lecturer's full name, the mark and the entire subject code e.g. "*INFO20003*")? **(2 marks)**

6. For each student who has completed COMP10001 print their name, result and their academic grade (*H1,H2A* etc). **(2 marks)**

7. Find the names of lecturers who teach at both undergraduate and postgraduate level. **(3 marks)**

8. List the lecturers who teach across all study areas. **(3 marks)**

9. Have any students from Gilberton suburb enrolled into Bachelor of Science course repeated a subject at undergraduate level? **(3 marks)**

10. The Dean has asked you to design a table that will record the student evaluations for each lecturer for each subject he has taught in each academic semester. You are to write the DDL to create the table including all suitable attributes and write the references to the Foreign Keys. **(1 mark)**

Submission Requirements:

- Write one (single) SQL statement per question. DO NOT USE VIEWS to answer questions.
- Use formatting and column aliases wherever it improves readability of your output.
- Each answer will be assessed based on the correctness and the efficiency of the SQL query you write.
- Although the subject code is divided across three columns you should join the three columns into one string, when presenting the output.

Formatting Requirements

For each question, present an answer in the following format:

- Show the question number and question in **black** text.
- Show your answer (the SQL statement) in **blue** text (not a screen shot)
- Show a screenshot from Workbench showing output of 10 or fewer lines.
- Show how many rows were returned, in **red** text.

For example:

Q13. List the first name, lastname, and student id for all students whose last name starts with Y.

```
SELECT firstname, lastname, id
FROM student
WHERE lastname like 'Y%';
```

firstname	lastname	id
Dania	Yang	123096
NULL	NULL	NULL

1 Row

Submission Process

Submit a single PDF showing your answers to all questions to the Assessment page on LMS by midnight on the due date of Friday 6th of October. Name your file 'STUDENT_ID'.pdf, where STUDENT_ID corresponds to YOUR student id. Other formatting requirements are listed above.

Good Luck!