Note: This is an individual assignment. While it is expected that students will discuss their ideas with one another, students need to be aware of their responsibilities in ensuring that they do not deliberately or inadvertently plagiarize the work of others.

Assignment 2 – SQL Query Formulation

Assessment weight: 10%

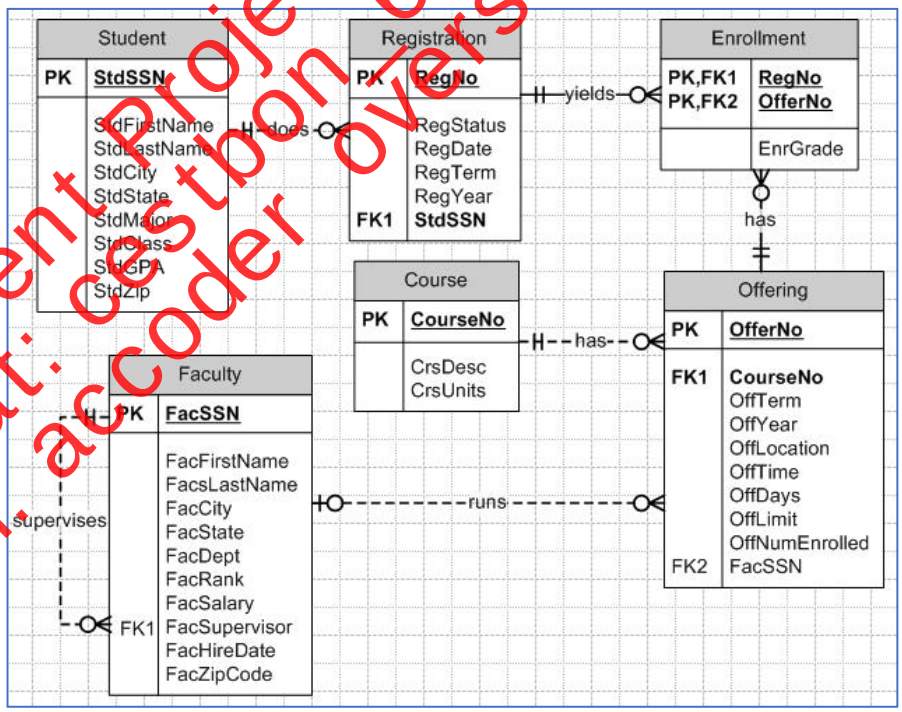
Rationale

This assignment is designed to assess a student's ability to write queries using Structured Query Language (SQL) to extract information specified from the database. Students will specifically use MySQL Workbench as the DBMS. This assignment is used to assess your knowledge and skills required to formulate SQL queries to retrieve information from the existing DB by applying various relational operations.

Task 1: Database Installation

The UniEnrol database is a simplified University Enrolment Database which keeps data on students (Student), instructors (Faculty), subjects (Course), which courses were taught by which instructor (Offering), registrations made by students (Registration), and which registrations are related to each offering (Enrollment).

The conceptual model of this database is presented in the ERD as shown below.



- A faculty means an academic member who usually runs (teaches) courses (subjects).

- A course means a subject run by University
- A course is offered by the schedule set by University
- A student make a registration for each term by enrolling to a number of courses offered.

The actual database file is provided as a dump file '**uniEnrolDB.sql'**.

You can open/see this database using MySQL Workbench by importing the dump file
provided. To import the database properly, please follow the process as guided below:

- **Step 1:** Download 'uniEnrolDB.sql' and save it on your local folder.
- **Step 2:** Run MySQL Workbench, and select any connection to connect MySQL server.
- **Step 3:** Go to the top menu 'Server' and click 'Data Import' menu. Then you will be on 'Import from Disk' tab.
- **Step 4**: Under 'Import Options', select 'Import from Self-Contained File' and reach to the dump file (uniEnrolDB.sql) you saved in your storage in Step 1.
- **Step 5:** Under 'Default Schema to be Imported To', click the button 'New...' and replace the default schema name (newschema) with another name you like (e.g. unienroldb). Click 'OK'.
- **Step 6**: Click the button 'Start Import', then you will see 'Import Progress' is completed.
- **Step 7:** Refresh the navigator section (by clicking the refresh button) to see the database imported is visible.
- **Step 8:** Check all tables (6 tables) are created with data.

Task 2 : Write SQL Queries

Using the UniEnrolDB database you installed, You are required to **compose 10 SQL queries** in MySQL Workbench. For each question, the sample result table is provided to help you get an idea of what the table header and data format of your query result should look like.

If you test your query using the UniEnrol database as provided/installed and your query is correct, the result of your query must match with the result provided.

Notes:

- Queries should be written so that they would work with all reasonable sets of test data, not just that which has been supplied as a sample data.
- Marks may be deducted if your SQL is excessively (or unnecessarily) complicated.
- Full marks will be awarded where the solution provided is correct in all respects.

- Partial marks may be allocated where students are deemed to have provided a significant effort toward a correct result, but the solution contains some error.
- No marks are awarded where either no solution is provided, or the solution provided is deemed to be mostly incorrect.

10 Questions : 2 marks each

1)List the First name, Last name, city, current salary and decreased salary (decrease the salary by 5 percent) of faculty hired before 1998. (Result will have 4 rows)

Note: HireDate must display the faculty's hire date in the form shown.

FirstName	LastName	City	facsalary	DecreasedSalary	HireDate
LEONARD	VINCE	SEATTLE	35000	33250	4/10/1995
VICTORIA	EMMANUEL	BOTHELL	120000	114000	4/15/1996
LEONARD	FIBON	SEATTLE	70000	66500	5/1/1994
NICKI	MACON	BELLEVUE	65000	61750	4/11/1997

2)Write a query to display the SSN and names of faculty members, and the course number and offering-year for which the faculty member teaches the same course number as his or her supervisor in the same year. (Result will have 2 rows)

facssn	Faculty Name	Offyear	CourseNo
98765432	LEONARD VINCE	2006	IS320
654321098	LEONARD FIBON	2006	IS320

3)List the offer number, course number, and full name of the instructor (faculty) of all FINANCE courses (the course number's prefix is 'FIN') offered in winter 2006 taught by professor. Note: professor's rank is "PROF" in the database. (Result will have 1 row)

OfferNo	CourseNo	Instructor Name
5555	FIN300	NICKI MACON

4)Write a query to summarize the average GPA of upper-division (junior (JR) or senior (SR)) students by major. Only list the majors with average GPA greater than 2. (Result will have 3 rows)

StdMajor	AvgGPA
ACCT	3.5
FIN	2.8
IS	3.2

5)Summarize the number of offerings run in 2006 by offering location. (Result will have 8 rows)

OffLocation	2006OfferCount
BLM302	3
BLM214	1
BLM207	1
BLM412	1
BLM212	1
BLM305	1
BLM405	1
BLM307	1

6)List the offering number, course number, days, location, time, and instructor's last name, for student Tess Dodge's course schedule in 2006. (Result will have 3 rows)

OfferNo	CourseNo	OffDays	OffLocation	OffTime	FacLastName
4444	IS320	TTH	BLM302	3:30 PM	EMMANUEL
5679	IS480	TTH	BLM412	3:30 PM	COLAN
9876	IS460	TTH	BLM307	1:30 PM	FIBON

7)List the course description, the course number, the number of offerings, and the average enrollment across offerings. (Result will have 3 rows)

CrsDesc	CourseNo	NumOfferings	AvgEnroll
FUNDAMENTALS OF BUSINESS PROGRAMMING	IS320	3	4
SYSTEMS ANALYSIS	IS460	1	6
FUNDAMENTALS OF DATABASE MANAGEMENT	IS480	2	5

8)For offerings beginning with IS in the associated course number, retrieve the offer number, the course number, the faculty number, and the faculty name. Include an offering in the result even if the faculty is not assigned. (Result will have 10 rows)

(Hint: Use lpad fundtion to fill '0' at the start of FacSSN value if necessary)

OfferNo	CourseNo	faculty.FacSSN	FacFirstName	FacLastName
1111	IS320			
2222	IS460			
1234	IS320	098765432	LEONARD	VINCE
3333	IS320	098765432	LEONARD	VINCE
4321	IS320	098765432	LEONARD	VINCE
4444	IS320	543210987	VICTORIA	EMMANUEL
8888	IS320	654321098	LEONARD	FIBON
9876	IS460	654321098	LEONARD	FIBON
5679	IS480	876543210	CRISTOPHER	COLAN
5678	IS480	987654321	JULIA	MILLS

9)List the Social Security Number (SSN), name and city of faculty who teach in winter terms. (Result will have 3 rows)

FacSSN	Instructor Name	FacCity
543210987	VICTORIA EMMANUEL	BOTHELL
765432109	NICKI MACON	BELLEVUE
987654321	JULIA MILLS	SEATTLE

10)List the name and rank of faculty who teach at least one offering of all of the 2006 information systems (IS) courses and his/her supervisor's name. (Result will have 4 rows)

FacFirstName	FacLastName	FacRank	Supervisor
LEONARD	VINCE	ASST	LEONARD FIBON
JULIA	MILLS	ASSC	NICKI MACON
CRISTOPHER	COLAN	ASST	LEONARD FIBON
LEONARD	FIBON	ASSC	VICTORIA EMMANUEL

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