THE UNIVERSITY OF THE SOUTH PACIFIC

IS222 – Database Management Systems

Semester I, 2024

Mode: Face to Face & Online (Only Online Submission Required)

Assignment 2 - Category: Group Assignment [4 Members Only]

Due Date: Sunday 26th May 2024

Weight: 10%

Assignments Objectives

- This assignment tests the following course learning outcomes and the associated CBOK.

CLO 3: Utilize SQL for data definition, data manipulation, and data control.

Assignment Objectives

The purpose of this assignment is to help you learn Structured Query Language and database design.
This assignment tests your SQL skills.
You will work with MySql and write a variety of queries concerning the Data Definition Language (DDL) and the Data Manipulation Language (DML).

***Note:** The attached marking rubric on pages 7-9 will be used to assess this assignment.

Prerequisites

Each student is expected to complete this assignment in groups of four only.

Before you commence this assignment, you should have at least completed:

- Completed all required Moodle (Course) activities from Weeks 8 to 11.
- You should have covered all materials and lab exercises at least from weeks 8 to 11.

*Note: The assignment will primarily look at the content covered from Weeks 8 to 11.

Assignment Overview

A Case Study:

You have been given the responsibility of constructing a database grounded on the ERD diagram (refer to page 4) provided by Provisional Employment. Some reports are also required by Provisional Employment to make strategic decisions and improve the efficiency of everyday operations. You must do the following to obtain this:

Requirements:

R1. Notepad will be used to construct the three SQL batch/script files outlined below. You will run these files through the MySql shell to see how they work. It's possible to utilize comments/remarks to explain what queries are written using [--].

R2. Create a Notepad text file called GroupX_A2_CreateStructures.sql. The Xs represent your Group Name. In this file, you will write all your SQL queries to only generate the table structures as given in the solution ERD [Figure 1]. This task is part of DDL. Note the following:

Table 1: Details the requirement for the Notepad text file [Group**X**_A2_CreateStructures.sql].

**X represents your Group Name*

No.	Requirements
1.	When you run your script, all the tables should be created with their constraints as given in the ERD.
2.	Add comments to indicate which SQL statements correspond to which tables using **--.**
3.	Attribute/entity names should be similar if not the same as in the ERD. You can also add any additional useful attributes to the given tables and would not necessarily need to remove any existing ones. Consider any such changes that you introduce carefully

4.	The basic structure in the given ERD must be captured in your implementation as given (page 4). Any significant changes, such as additions of extra attributes or entities, must be clearly and very briefly explained with comments in the script where the relevant SQL statement is.
5.	You need the SQL statements to create the tables here. Any other types of statements may not be needed.
6.	Test out your script in the MySQL shell. When it runs, it is expected to create all the tables with all their required constraints without any errors. Avoid syntax errors.

R3. Create another text file in Notepad called GroupX_A2_InsertData.sql. The X represents your Group Name. In this file, you will write all your SQL statements to populate the tables created in the first step with data. This script will only be executed after the first script above. Note the following:

Table 2: *Details the requirement for the Notepad text file [*GroupX_A2_InsertData.sql*].* *****

X represents your Group Name.

No.	Requirements
1.	The data to be inserted in each table is entirely up to you but should be adding the realistic data pertinent to the scenario. **Add only 10 records per table** and follow any constraints given in the scenario in ERD. Also, add comments/remarks to indicate which statements correspond to which tables using --.
2.	Avoid any code that ignores any particular constraint checks when inserting data.
3.	Test out your script to see if it works without errors (syntax or other)

R4. To create the queries that will facilitate the extraction of information for reports follow the instructions given below and create a text file called GroupX_A2_Queries.sql. The Xs represent your Group Name. Write in this file, that all the queries below are based strictly on the given ERD.

Table 3: *Details the requirement for the Notepad text file [*GroupX_A2_Queries.sql*]. *X represents your Group Name.*

No.	Requirements
1.	Add comments to indicate the query you are writing, eg. Query 1, Query 2, etc. If the query is ambiguous, you may not get any credit for that query.
2.	Make sure your queries have no syntax errors. Avoid any gratuitous elements in your queries where possible. Test them out.
3.	Each query is to generate results based on the requirements given below:

ERD Guide: Provisional Employment

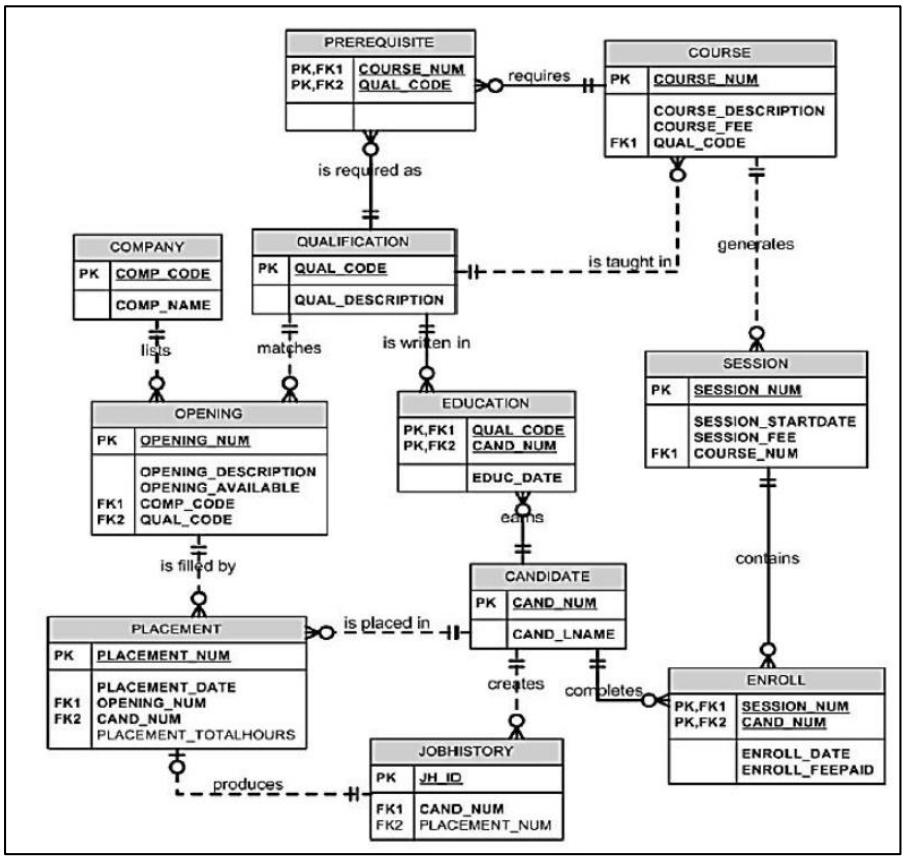


Figure 1: A ERD Model for Provisional Employment.

Queries:

Write the following queries to make information extraction easier for report generation:

Q1. The executives at Provisional Employment want a list of all the candidates and their qualifications. The candidates' qualifications should be sorted in ascending order on the list.

Q2. Management would like to know the companies that have employed any of their candidates. The list should be sorted by company name in ascending order.

Q3. To help management determine if the candidates' qualifications are in line with those that the companies a looking for a list is required of the Candidate's details, their qualifications the company's details, and the qualifications they are looking for.

Q4. For each of the identified candidates that require further education, management will need to inform each student of the courses, when each course will start, the respective cost of each course, and the total cost of the required courses. The list is to be ordered by the candidate's last name in ascending order.

Q5. To help finalize financial records for the 1st quarter of the year, management needs to know candidates who have not paid their fees to contact them.

Q6. For each opening, management will need to determine the most suitable candidate/s. Each potential candidate will then be further evaluated to ensure maximum suitability. List all the companies that have current openings and the details, qualifications, and number of successful placements of candidates that could be shortlisted for these openings.

Q7. To help determine the average pay rate based on qualifications for the respective companies, management needs a list of all the companies, the qualifications they are requesting for the openings, and the average pay for openings by each company.

Submission Guidelines:

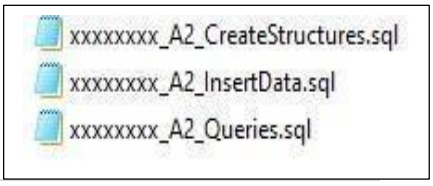
Submit on Moodle, and upload the solutions in the A2 drop-box provided.

For Example:

Notepad: The Xs represent your Group Name.

- Create a Notepad text file called GroupX_A2_CreateStructures.sql. Notepad 2:
- Create a second text file in Notepad called GroupX_A2_InsertData.sql.
- Create a third and final file called GroupX_A2_Queries.sql.

Or Visually Represented As:



LATE SUBMISSION = ZERO (0)

Plagiarism

- Incorrect submissions will result in loss of marks or simply a grade of zero being awarded.
- Late Submission = Grade of Zero (0) for Assignment 2.

Zero for any penalty cases thus no two assignment submissions should produce the same results. Any such case will be dealt with severely, with actions including awarding a mark of zero, forwarding the case to the Head of School, and reporting the matter to the Student Disciplinary Committee.

Assignment Queries

- Maintain contact through Moodle discussion forum named Assignment 2 Discussion Forum.
- Feel free to make an appointment via email with the Course Coordinator for any urgent matters regarding Assignment 2.

Assignment 2 Assessment Rubric

Part A Creating Table (Attributes and datatype)	No Tables created *0points*	Few tables created *3points*	More than half the tables created *6points*	almost all tables created *8points*	All the required tables were created. Some tables have missing attributes *10points*	All tables created with the necessary attributes *12points*
Part A Creating Table (constraints PK and FK)	No tables have any constraints *0points*	Few tables have the necessary constraints *2points*	Half of the tables have the required constraints *5points*	Almost all tables have the required constraints *8points*		All tables have the required constraints *10points*

Part A Creating Table (Indexes and DB Engine)	No tables have any indexes *0points*	Few tables have the necessary indexes and DB engine *2points*	Half of the tables have the required indexes and DB engine *5points*	Almost all tables have the required indexes and the DB engine *8points*	All tables have the required indexes and DB engine *10points*

Part B Inserting Data	No data inserted in any table *0points*	Few tables have some data inserted into them *4 points*	Half of the tables have the required indexes and DB engine *5points*	Almost all tables have the required indexes and the DB engine *8points*	All the tables have some data in them. Some tables have very little data in them. *8 Points*	All tables have the required indexes and DB engine *12points*
Part C Queries Q1, Q2	Queries do not work and don't make any sense *0points*	Queries do not work but the syntax makes some sense *4points*	Queries work but do not produce the required results *6points*	At least 1 query works flawlessly *8points*	Both queries work with some limitations *10points*	Both queries work well *12points*

Part C Queries Q3, Q4	Queries do not work and don't make any sense *0points*	Queries do not work but the syntax makes some sense *4points*	Queries work but do not produce the required results *6points*	At least 1 query works flawlessly *8points*	Both queries work with some limitations *10points*	All three queries work well *12points*

Part C Queries Q5, Q6	Queries do not work and don't make any sense *0points*	Queries do not work but the syntax makes some sense *4points*	Queries work but do not produce the required results *6points*	At least 1 query works flawlessly *8points*	Both queries work with some limitations *10points*	All three queries work well *12points*

Part C Queries Q7	Queries do not work and do not make any sense *0points*	Queries do not work but the syntax makes some sense *4points*	Queries work but do not produce the required results *6points*	The query works but does not calculate the average. *8points*	The query work with some limitations *10points*	The query works well *12points*

General Comments

The End.