Edith Cowan University
School of Science

# *CSI6207 – Systems Analysis and Database Design*

# *Assignment 2: Database Design and Implementation*

## Assignment Marks: 35% of unit

## General Assignment Information:

*This assignment is the continuation of assignment 1 and you will continue with the same group partner for this assignment. In case of any issues, please do let me know immediately.*

The assignment consists of the implementation of a collection of SQL scripts which create and populate a database and query the data it contains. An example has been uploaded to make the assignment expectations clear.

## Table of Contents

## 1. Scenario Details

You are required to design and create a database for the problem provided in the assignment 1.

## 2. Implementation requirements

The database system described above should be designed and implemented in Microsoft SQL Server 2014 or above. You are required to develop an ERD diagram and create your scripts as three ".sql" files, following the templates provided.

Your SQL code should be formatted for readability using comments for headings and to provide detail or information about your code if needed.

Your scripts should accomplish the following tasks:

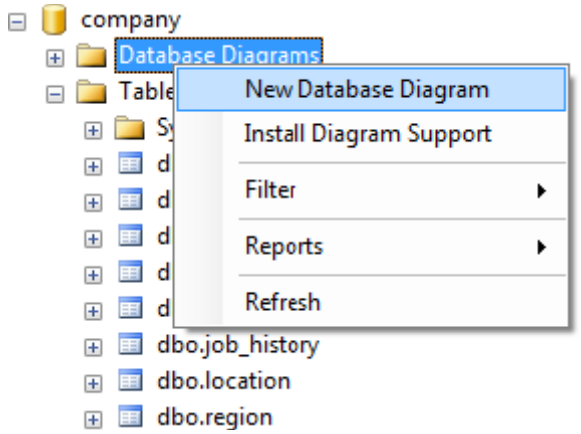
### *2.1. Database creation and population*

Produce a script to create the database specified above. Be sure to give your columns appropriate data types and use consistent naming conventions. Include any suitable default values and any CHECK or UNIQUE constraints that you feel are appropriate.

Make sure this script can be run multiple times without resulting in any errors (hint: drop the database if it exists before trying to create it). You can use/adapt the code at the start of the creation scripts of the sample databases available in the unit materials to implement this. You will need to follow an appropriate creation order when creating your tables – you cannot create a table with a foreign key constraint that refers to a table which does not yet exist.

HINT: Draw an ER diagram first to design the layout and structure of the database you are attempting to create. Once you have created your database, it is recommended that you use SSMS to create an ER diagram and use this to verify that your implementation matches your design. This can be done by

right clicking on the “Database Diagrams” folder of the database in the Object Explorer in SSMS.




Following the SQL statements to create your database and its tables, you must include statements to populate the database with sufficient test data.

You are only required to populate the database with enough data to make sure that all views and queries return meaningful results.

Make sure referential integrity is observed – you cannot add data to a column with a foreign key constraint if you do not yet have data in the column it references.

Remember that when using an auto-incrementing integer, you cannot specify a value for that column when inserting a row of data. Simply pretend the column does not exist when inserting data – do not try to specify a value for it.

The data you add is simply for testing purposes, and therefore does not need to be particularly realistic, cohesive or consistent. Avoid spending unnecessary amounts of time writing sample data.

To assist with this, I have provided an example project with example_solution_create_script.sql file.

### *2.2. Views*

Views allow you to refer to the result of a SELECT statement as if it was a table, making query writing easier. You are required to create two views and use them in creating at least two queries.

### *2.3 Queries*

Write SELECT statements to generate various reports. You are required to identify possible reports that can be generated using the database. In case of any question, get in touch with lecturer/tutor.

## 3. Marking Guide

You need to write around 9 queries which range from simple queries to complex queries. Please see the example project for sample queries.

| Marking Criteria | Marks | Complexity level (See example project for some sample queries) |
|---|---|---|
| ER Diagram | 6 | 7 to 10 tables |
| Database creation and population script | 6 | |
| View one | 1 | Involves at least 2 tables |
| View two | 2 | Involves at least 3 tables |
| Query 1 | 1 | Low (see definition below) |
| Query 2 | 1 | Low |
| Query 3 | 1 | Low |
| Query 4 | 1 | Low |
| Query 5 | 1 | Low |
| Query 6 | 2 | Medium (see definition below) |
| Query 7 | 2 | Medium |
| Query 8 | 3 | High (see definition below) |
| Query 9 | 3 | High |
| Comments and formatting | 5 | |
| Total | /35 | |

***Low** (involves one or two tables, usage of where and order by clauses, and may be use of aggregate functions. See queries 1 to 5 in the sample project)

**Medium** (involves at least two to three tables, with formatting and/or aggregate functions, may be subquery. See query 6 and 7 in the sample project)

**High** (involves a view or views, may be subqueries, with formatting and/or aggregate functions. See query 8 and 9 in the sample project).