School of Engineering

Course: **EGDF20 Diploma in Electronic and Computer Engineering**

Module: **EGE311 Database Design & Applications**

Project:

Learning Objective:

1. To apply the database design and application knowledge to a typical real-life scenario.

Administrative Information

Project Type

This is an individual project.

Deliverables

Report

- Use the template provided in BrightSpace.
- The report must be type-written using "Arial", font size 12 with single line spacing.
- Report must also include
  - Design rational as well as any assumptions you have made.
  - Original ERD with relationships and normalised ERD (if any).
  - Final tables.

ERD and Database Schema

- Workbench model editor must be used to generate the ERD with the necessary entities, datatypes, and constraints.
- Perform normalisation if needed.
- Forward Engineering must be used to generate the final schema and tables.
- Populated with a sample data provided (See Appendix A).
- Any other extra functions used such as views, function, or stored procedures.

Python Code

- Full working command line-based (CLI) application.
- Commented description of the functions used.

Submission

- You need to submit one zipped file containing the following files:
  - MS Word document report (.docx).
  - Database (.sql)
  - Database Model (.mwb)
  - Python Codes (.py)
- All files need to be named in the format:

  "YourName_YourAdminNumber_Project"

  with the respective extension.
- Presentation and Assessment starts in **Week 16** check BrightSpace for your assessment schedule.
- Submission is to be done via **BrightSpace by Sunday of Week 17**.

Assessment

- This project constitutes 40% of the overall marks for the module.
- The percentage allocated to the project are as follows:

Presentation	15%
Report	15%
Design and Coding	70%

Warning

Refer to NYP Academic Integrity Policy at:

https://www.nyp.edu.sg/current-students/academic-matters/nyp-academic-integrity.html

Plagiarism or copying codes from your friends is a form of cheating. If caught, all parties involved will get a zero for the project regardless of who is the one who copied.

Project Brief

Digital Hub is an electronics retail store operating overseas. Their current sales inquiry system is outdated and would like your help to upgrade their system.

They have provided you with their existing database with past data for reference. The database contains the following:

1. Sales information such as product type, quantity, when the order was made and when the delivery has been fulfilled.
2. Information of customers who has made a purchase.
3. Information of the store where the purchase has been made.
4. Information of the product that has been purchased.

Your Task:

1. Optimize the existing database and make it more efficient. Address all design considerations such as integrity issues, normalization etc.
2. Final schema and tables should be generated via forward engineering from MySQL Workbench Model Editor.
3. Develop a python based CLI application to interact with the new database you have designed.
4. Application should be menu based and be able to perform CRUD operations. See Appendix A for menu suggestion.
5. Demonstrate foreign key constraints such as On Update and On Delete using cascade, restrict and no change in your application.
6. Demonstrate the use of encryption in your application.
7. Demonstrate the use of stored procedures and views where necessary.
8. Record your development process in your project report.

Appendix A:

The following are some suggestions of menu items for your application, you are free to add or remove them as you deemed fit.

1. Log in interface to access the sales information.
2. Capability to present sales, revenue, customers, stock purchases based on different parameters.
3. Search feature based on different parameters.
4. Insert, Update and Delete of information (what information depends on your improved database schema design).

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