DIPLOMA IN COMPUTER SCIENCE
DIPLOMA IN INFORMATION TECHNOLOGY

PROJECT

Subject: **DATABASE FUNDAMENTAL II**
Subject code: **DIT2273**
Due Date: **1st JULY 2024**

INSTRUCTIONS TO CANDIDATES

- This assignment will contribute 35% to your final grade.
- This is a group assignment (5 students).

Learning Outcomes:

- Apply the basic of SQL programming technique. (C3, PLO2) [Project, Final Examination]
- Develop a database management system with appropriate tools. (C6, PLO6) [Project, Presentation]
- Illustrate conceptual database design by using Entity-relationship (ER) model and ER diagrams. (P3, PLO3) [Presentation, Final Examination]

Case Study: Home Sweet Home

Home Sweet Home Sdn Bhd is a large property development company, which builds new houses and apartments in Malaysia.

Home Sweet Home has its head office in Kuala Lumpur but has several regional sales offices across Malaysia, including the South region, Central region, East region, and North region. At any one time, Home Sweet Home has about 10 developments in progress, some of which may be in the same city. Each development is managed by one regional office, depending on where that development is, for example, developments in Penang are managed by the North region because Penang is in the North of Malaysia.

Home Sweet Home employs numerous staffs, including sales advisors and site managers, all of which are assigned to specific developments.

The developments vary in size, ranging from about 20 apartments, to larger areas on which Home Sweet Home is building 100s of houses and 100s of apartments.

Home Sweet Home builds a variety of different house and apartment types, which differ according to the following factors:

- number and size of bedrooms
- number and size of reception rooms (dining room, lounge)
- number of floors
- type of bathroom eg. separate or ensuite

In addition, each house or apartment has a car park allocation, which can be in the form of a single garage, double garage, parking space, or carport.

Each house or apartment type has a name to represent its features, for example the house type 'Ukiran' has 3 large bedrooms, a kitchen, separate dining room, lounge, and a double garage.

Site managers are usually assigned to one development at a time, but if the development is small, they may be assigned to more than one development. It is the job of the site manager to employ the contractors to work on the properties on the development. The contractors may consist of

builders, plumbers, roofers and carpenters. In addition, once a buyer has bought a property and is living in it, if they find any problems that need repair, such as a leaking tap, they will contact the site manager to get them to arrange for it to be fixed.

The job of sales advisors is to market the properties and to sell them as quickly as possible. The sales process works with potential buyers visiting the sales office and viewing the show houses. Sales advisors can then show interested buyers the types and locations of houses or apartments currently available for sales.

Once a buyer agrees to buy a specific property, he/she needs to contact their solicitor to organise the conveyance (legal transfer of the house from being owned by Home Sweet Home to the buyer). In addition, the buyer also needs to contact a mortgage broker to apply for a mortgage. Once the conveyance is under way, the buyer's solicitor will communicate with Home Sweet Home' solicitor who will keep the sales advisor and the buyer informed of the progress of the sale.

Coursework Details:

Overview

In this assignment, you are required to design, implement, and document a database system for the property development company named Home Sweet Home Sdn Bhd.

1) Design a database solution for the given scenario and document the following:

   a) Normalise the ***Appendix A*** to third normal form (3NF). Illustrating the normalisation process undertaken clearly and document it.
   b) Produce a complete Enhanced Entity Relationship (EER) diagram (include attributes, keys and participation constraints) for the above-mentioned scenario.
   c) Map your Enhanced ER diagram to its corresponding relational schema.

2)

   a) Implement the set of relations/ tables using Data Definition Language (DDL).

   b) Create the following queries using Data Manipulation Language (DML).
      i) List all the property types of UKIRAN and show the total number of properties sold for each category.

      ii) List all the properties sold by Nadia in May 2024.

      iii) List all the repairs of January 2024. You need to show the owner name, owner's contact number, property address, contractor name, contractor's contact number, problem, start date and status.

      iv) List all the staff names and show all the developments that he/she involved.

      v) List all the developments that will be ending on 31st October 2024. You need to show the site manager names as well.

Minimum requirement of Project documentation:

- Normalisation Process (1NF, 2NF and 3NF)
- Enhanced Entity Relationship Diagram
- Relational schema
- Data Definition Language (DDL)
- SQL Statements - Data Manipulation Language (DML)

Assessment Criteria:

Individual Component	
○ Individual Understanding/ Problem Analysis	10%
○ IndividualContribution	10%
Normalisation Process (1NF, 2NF and 3NF)	15%
Enhanced Entity Relationship Diagram	15%
Relational Schema & Data Dictionary	15%
Data Definition Language (DDL)	15%
SQL Statements - Data Manipulation Language (DML)	20%

Appendix A

Repair Request Form

Name	John Wu	**Contractor**	Lee Tat Wah
Property Address	10, Jalan Tun Ismail 35/13, 40400		
Email Address	johnwu@gmail.com		
Contact No	012-345-6789	**Date**	27/1/2024

No	Area/ Location	Description	Completed Date	Status
1	Master bedroom	Low water pressure	4/2/2024	Completed
2	Guest room	Running toilet	4/2/2024	Completed
3	Kitchen	Water stain on the ceiling		In Progress

Remark Available on 4th and 11th February