TU2983: Advanced Databases
Individual Assignment 1
Normalized Relational Databases and Basic System Interfaces

TASK 1: Build a Normalized Relational Database in Microsoft Access for your individually assigned topic:

1. Refer to the **"TU2983 Individual Assignment Topics"** document on **http://ukmfolio.ukm.my for** your individually assigned topic. Decide on an appropriate/catchy name for a shop selling this product (e.g "Solar Panel Mart").

2. Build a table called **TBL_PRODUCTS_<YOUR_MATRIC>** (e.g. TBL_PRODUCTS_A123456) that contains a minimum of 40 rows of products matching your individually assigned topic. This table must have the following attributes:
   - **FLD_PRODUCT_ID** → assign your own ID (keep it simple, future assignments will be based on the same data)
   - **FLD_PRODUCT_NAME** → copy from the source website (e.g. *amazon.com*, *tesco.com*, *zalora.com*)
   - **FLD_PRICE** → copy from the source website, or set your own price.
   - **2 other attributes** that can be used as categories (e.g *FLD_BRAND*, *FLD_TYPE*, *FLD_SHIRTSIZE*)
   - **At least another 2 attributes** of any type (e.g. *FLD_DESCRIPTION*, *FLD_QUANTITY*, *FLD_WARRANTYLENGTH*)

   Your **TBL_PRODUCTS_<YOUR_MATRIC>** table must have at least 7 attributes in total.

3. Copy a picture of the product, for each product in your **TBL_PRODUCTS_<your_matric>** table, and rename the picture to match your **FLD_PRODUCT_ID** for the product. (e.g. if the FLD_PRODUCT_ID is "25", save the picture as "25.jpg")
   - Save all you pictures in a subfolder called **"pictures".**

4. Build additional tables for the following:

   - **1 table for Staff** information, with the necessary attributes (start with only 3 staff)
   - **1 table for Customer** information, with the necessary attributes (start with only 3 customers)
   - **1 table for Order** information, with the necessary attributes (start with no orders)
   - And **any additional table you need** so that:
     - 1 customer can make many orders, but each order is only for 1 customer
     - 1 order can contain many products, and each product can be in many orders
     - 1 staff can process many orders, but each order is only processed by 1 staff
   - Ensure that all your tables are **normalized** to at least **3NF**.

5. Use the relationship view in Microsoft Access to specify the relationship between each of your tables
   - Each table must be related to at least 1 other table.
   - All tables must be connected to each other through relationships.
   - **Enforce referential integrity** on all your relationships to show the **cardinality** of the relationship in the Microsoft Access Relationship View.

6. Your database file must be saved as **DB_<YOUR_SHOP_NAME>_<YOUR_MATRIC>.accdb** (e.g. DB_SOLARPANELMART_A123456.accdb)

TASK 2: Build a new Visual Basic .NET project for creating a Basic System Interface for your shop:

1. Build a "Main Menu" for your shop, called **frm_mainmenu_<your_matric>.vb** (e.g. frm_mainmenu_a123456.vb)
   - Your "Main Menu" must have buttons, where each button will open a separate form that can view the contents of one table. You must have enough buttons and forms to open and view the contents of all your tables.
   - **For each table (products, customers, staff, orders) build a form that will open and view the table's data.**
   - Each button on your "Main Menu" must open one of these forms. You must have at least 4 buttons.
   - Your "Main Menu" will be evaluated in terms of **aesthetics, design, neatness and professionalism.**

2. Your VB.NET project must be saved as **prj_<your_shop_name>_<your_matric>** (e.g. prj_solarpanelmart_a123456)

SUBMIT THE FOLLOWING:

1. **Your entire VB project folder** for this assignment's project.
2. **Your Microsoft Access Database**, which should be stored in your VB project's Bin/Debug directory.
3. **Your "pictures" subfolder**, which should be stored as a subdirectory in your VB project's Bin/Debug directory.
   - Compress all the files above into a single *.ZIP or *.RAR, and label this file as **<your_matric>_<your_shop_name).zip/.rar** (e.g. a123456_solarpanelmart.zip)
   - ***** IMPORTANT ***: Your *.ZIP/*.RAR must not exceed 100mb (Megabytes). If it does exceed 100mb, you need to reduce the resolution of all your pictures, in order to reduce their file size.**
   - Upload your *.ZIP/*.RAR file to **UKMfolio**, at the Lab Assignment 1 Submission Link which has your EVALUATOR'S NAME on it.
   - All *.ZIP/*.RAR files for the assignment must be submitted to UKMfolio before the following due date:

EXTENDED Due date: **Sunday 24th December 2023, 11:59pm Malaysia Time (GMT +8).**