CIS 265   **Individual Final Project**   **Spring 2024**

nYes, this Final Project (worth 200 points) is a *modification* of the Midterm.
<mark>EXTRA CREDIT</mark>: For a full 50 points, implement software security features <u>*throughout*</u> your project.
PROPERLY COMPRESS **ALL** YOUR PROJECT FILE**S** INTO A ZIP FILE FOR SUBMISSION

Phase 1: Due Monday, May 13 by midnight

1. Within Microsoft Access, create the following database tables. *The descriptions are for your information*. You are not required to put them into the database.

Table: Devices

Column/Field	Data Type	Description
Device_ID	AutoNumber (Integer)	*Primary Key*
DeviceType_ID	Integer	*ID for the type of device*
Brand_ID	Integer	*ID for the brand name*
OS_ID	Integer	*ID for the operating system*
IP_Address	String	*Internet Protocol Address (i.e. "192.168.1.130")*
MAC_Address	String	*Media Access Control Address (i.e. "00-B0-D0-63- C2-26")*

Table: DeviceTypes

Column/Field	Data Type	Description
DeviceType_ID	AutoNumber (Integer)	*Primary Key*
DeviceName	String	*Name of device (i.e. "Laptop")*

Table: Brands

Column/Field	Data Type	Description
Brand_ID	AutoNumber (Integer)	*Primary Key*
Brand_Name	String	*Name of the brand (i.e. "Dell")*

Table: OpSys

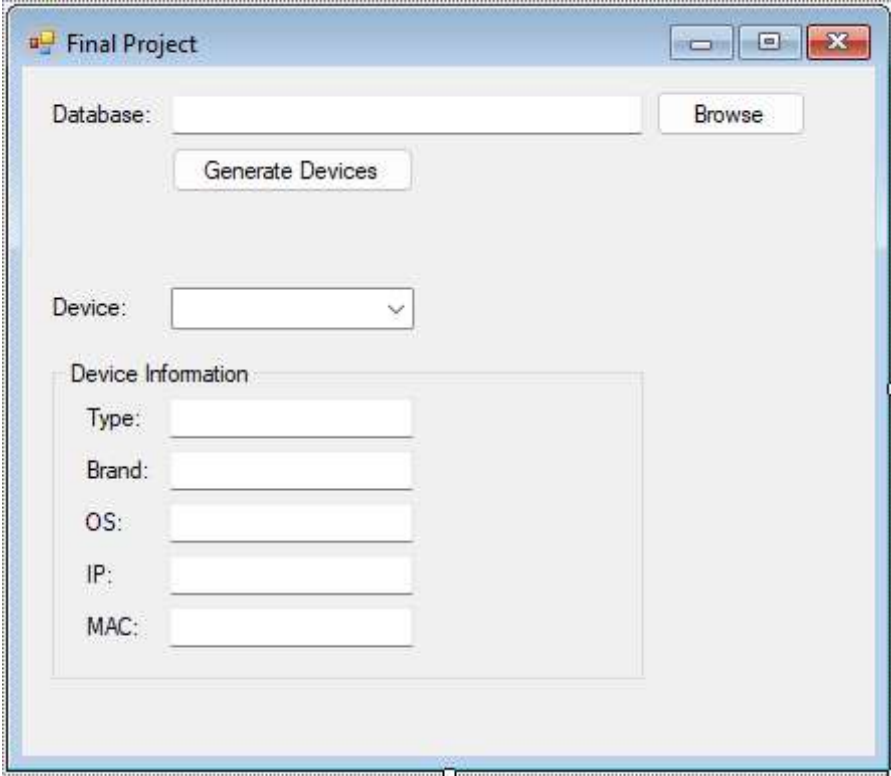| Column/Field	Data Type	Description
OS_ID	AutoNumber (Integer)	*Primary Key*
OS_Name	String	*Name of the OS (i.e. "Windows")*

Add the data below for the following tables:

Device Type: Smart Phone, Tablet, Laptop, Desktop

Brands: Motorola, Apple, Google, Samsung, Amazon, Microsoft, Dell, Acer, Asus, HP

OpSys: Windows, macOS, iOS, Android, Linux, Unix, ChromeOS

2. Create the following GUI.
   a. Give each GUI Control a proper and meaningful name.
   b. The database text box should not be editable.
   c. The Generate Devices button should be disabled from the start.
   d. The Device ComboBox should not be editable.
   e. The Device ComboBox and Information GroupBox should be invisible from the start.
   f. All textboxes within the GroupBox should not be editable.

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Phase 2: Due Monday, May 20 by midnight

1. Clicking the Browse Button will allow the user to browse for MDB and ACCDB files.

2. When the user has selected a database, the Generate Devices button becomes clickable. The file path of the database should appear in the database textbox.

3. When the user clicks the Generate Devices button, your program will create 50 random devices (using a loop) that will populated the Devices Table.

4. As with the midterm, generate a random integer to determine the device type, the brand, and the operating system. However, you will need to query the database for this information. **I still <u>do not</u> care if the brands, device type, and operating system do not match logically.** So if your program creates an Amazon Desktop Computer with ChromeOS, that is okay.

   As an example: for getting a device type: generate a random integer between 1 and 4 (inclusive). If the random integer is 1 (smart phone) you will query the database (with a select statement) for DeviceName where DeviceType_ID is 1. So your query will look like this: SELECT DeviceName FROM DeviceTypes WHERE DeviceType_ID = 1

   The returned result will be "Smart Phone"

   You will do the same/similar steps for randomly getting a brand and operating system.

5. Creating random IP addresses and MAC addresses will be just like the midterm.
   IPs: #.#.#.# where # is a number 0 to 255
   MACs: #-#-#-#-#-# where # is a random two-digit hexadecimal number (0-9 and A-F)

6. After generating a random device, insert that information into the Devices table and alert the user the operation is complete.

7. After all 50 devices have been inserted into the database, query the Devices table and insert all primary keys into the Device ComboBox and make the ComboBox visible as well as the GroupBox visible.

Phase 3: Due Monday, May 23 by midnight

1. When a device is selected in the Device ComboBox, the relevant information should appear in the Textboxes within the GroupBox

2. Add a "Purchase" button on the GUI. If the user clicks this button, create a Class called Device that stores the information of the device and then adds this class to a List(of Device).

3. There will only be one Class, so do not worry about inheritance. NO public fields.

4. Add a "Complete Order" button on the GUI. If the user clicks this button, loop through the list and calculate the total cost of devices and write a receipt to a TXT File.

5. Desktops cost $2000. Laptops cost $800. Smartphones cost $600. Tablets cost $450.

6. The receipt will appear as seen below:

```
Order Details:

Device: Laptop
Brand: Google
OS: Windows
Price: $2,000.00

Device: Tablet
Brand: Apple
OS: iOS
Price: $450.00

Device: Smart Phone
Brand: Motorola
OS: Android
Price: $600.00

Device: Desktop
Brand: HP
OS: Linux
Price: $2,000.00

Order Total: $5,050.00
```