COSC 010 Project 3

I. Project Overview

- For Project 3, you will create a program that maintains the inventory information for a small business. The type of business is up to you, but it needs to sell some specific type of good or service. For example, it might be a bookstore, board game store, baby-sitting agency or hair salon (the choices are endless – be creative!). For whatever type of good/service your company offers, your company must either offer different versions of that good/service or maintain a list of clients. As an illustration, consider the four previously listed examples:
    - Bookstore: sells various titles (e.g., "Twilight", "Hamlet", etc.)
    - Board game store: sells various games (e.g., Monopoly, Settlers of Catan, etc.)
    - Baby-sitting agency: serves various families who need baby-sitters
    - Hair salon: employs various hairdressers
- This project provides an opportunity to practice with ***classes and objects*** in Python.
- Your project must include a class definition at the beginning. Your program will then also maintain a database (i.e., a list) of objects made from that class definition (e.g., different titles, games, families, hairdressers). Your program can directly specify the information for each of the objects at the beginning and/or ask the user to enter information for the objects. For example, a hair salon might want to hire a new hairdresser, so your program might give the user the option to add to the list by entering information for the new hairdresser.
- Your program must allow the user some opportunity to look up certain information about specific objects in the database. It must also allow the user some opportunity to modify certain information about specific objects.
- As in previous Python programming assignments, there are always many ways to accomplish tasks. You must use the required elements (detailed in Section III), but beyond that you can be creative.
- Remember, if you want to do it, Python can do it. A key learning objective throughout this course is learning how to be resourceful. If you don't know how Python can help you do something, use the Web to search for guidance. That said, you are not allowed to copy and paste a solution that you find on the Internet or anywhere else.
- You must complete this project **individually** and submit it to Canvas.

II. What You Will Submit

Part 1: The Python Program

You will submit your program as a .py file. See the next section below for the specifications and required elements. ***Take careful note of the following:***

- Projects must run using Python 3.
- Your submission will be a single Python file.
- The file must run and function to gain credit. Programs that do not run will receive zero credit.
- If the TA needs to email you or "work" with you after submission to see that your project runs, the penalty is -30%.
- Double check your work.

Part 2: The Project Report

1. The first page of your project report will contain an explanation of what your project does and how it works, including:

   - Overview of your program and the (hypothetical) company that it supports
   - Expected inputs and outputs
   - Detailed description of how you used each of the required computing concepts
   - Limitations (e.g., do certain user inputs "break" your program?)
   - Future expansion options.

   All this will help a person to understand your project. You may use screenshots in the explanations.
2. The second (and more as needed) page(s) will contain three (3) examples of program use – including input and output. You can screenshot these if you wish.
3. The remaining pages will contain a copy of the Python code (***You will also submit the code as .py***).

III. Project Specifications and Required Elements

1) Your program can support any type of small business that you would like - but it *must* be original and yours (it also must be PG-rated). Remember, part of coding is the creativity of understanding a problem itself and thinking how code can solve it. Each project will be unique (like a fingerprint).
   - **DO NOT COPY anyone else's code.**
   - **DO NOT SHARE** your ideas or code with other students (until after project grading is complete).
   - You can use the Internet and all class resources *to learn about syntax*. **However, you must write your own program from start to finish. DO NOT COPY** code from the Internet.

2) **Good code is readable code**. Comments are required in your code. Be sure to submit clear code.

3) **Good code is user-friendly code**. Design your code with the user in mind, with appropriate outputs.

4) **Your project must use at least the following elements**:
   - The definition of a class that represents the type of good/service or client that is relevant to your company (e.g., Book, Game, Family, Hairdresser)
     - The class must have at least 4 attributes
     - The class must have at least 4 methods
   - At least 3 functions, including main() (but not including the above class methods)
     - At least one of the functions must take at least one parameter
     - At least one of the functions (Function A) must have a return statement that returns information to the function (Function B) where Function A was called, and Function B must then use that information in a non-trivial way
   - Your program must include at least one instance in which the user can enter information that changes some attribute of an object in the database (e.g., increase the number of sales of a book title, change the address of a family needing a babysitter).
   - Your program must include at least one instance in which the user can learn information about one of the objects
   - At least 2 loops (for and/or while)
   - At least 1 list (for the database), including:
     - At least 1 instance of indexing with a list
     - At least 1 instance of adding and/or removing items in a list

Final Notes:

- Do not copy or repurpose code from the book or the Internet. Be original and creative. Use the book to learn. Close the book. Then create.
- Think about interesting information that you can gather and use to create interesting output.
- This does not need to be a huge project. However, you are not limited – feel free to get creative and expansive.
- I recommend that you start with an idea and plan it out on paper. Think about how you might get the code to do what you want. Begin small and iteratively test as you develop your program.

IV. How to submit

- Submit on Canvas
- Upload your Python Program as ***P3_LastName.py.*** (Replace "LastName" with your actual last name)
- Upload your Project Report as ***P3Report_LastName.pdf***
- ** DOUBLE CHECK your submission. If the grader needs to email you, the penalty is -30%.