CS118
Menus2

For many programs, it is necessary to provide a number of options to the user which describe the capabilities of the software. As programs become more mature, there can be many options available.

In a simple program, it is quite easy to provide the necessary prompts as execution of the program progresses. But as we develop more complex programs, it helps to begin to think of the program as "blocks" of code. Depending on the needs of the user, some of the blocks may get executed, while many will not.

A "menu" is a method for allowing the user to choose which part(s) of the program s/he wishes to execute. Programs can have a single ("main") menu, or they can have a series of "cascading" menus – choosing an option on one menu can lead to more options on a separate menu. Menu options typically offer either single letters or numbers to indicate the choice of the user. For convenience, we will use numbers as choices from which our user can select:

```
Please choose from this menu:

1. Do this
2. Do that
3. Do something else
4. Do something weird
5. Exit the program

Your choice (1-5)?
```

In this assignment, you are to develop a couple of command window menus. The main menu should consist of five options (your choice – have fun with it!). The first option of the main menu should lead to another menu with five new menu items (of your choice).

I recommend that you get the main menu working ENTIRELY before working on the secondary menu – you will find some duplication present that can be helpful.

There are a few restrictions:

1. All screen output should be performed using `print()`. Use escape sequences as necessary to get good-looking output.

2. The main menu should have "Exit the program" as the last option. If the user chooses this option, the program should terminate; otherwise, after the menu option is processed, the program should return to this main menu to permit the user to make a new choice.

3. You may be tempted to break a taboo and "call the main program". **This will result in a 100% loss of points.** Have your program's code naturally return to the main menu by use of a loop.

4. Validate the user input. You may assume the user will only enter a number, but if the user chooses a number other than a valid menu item your program should "trap the user" and ask him/her for a different choice, repeating this until the user enters a valid option.

5. Make sure the first main menu item leads to the secondary menu. You may have the other options lead to menus as well, but the grader will only check the first menu item. If you don't have another menu implemented for option 2, 3, or 4 have that option provide some simple output (similar to #6 below).

6. For the secondary menu:

   Have each option (except the last) print something to the screen and then return to the secondary menu. Clear the Spyder console immediately before each appearance of the secondary menu.

   You will want the program to pause execution before returning to the menu so that the output produced doesn't disappear. To do this you can use Python3's `input()` function with a prompt like "Press ENTER to continue…" to achieve that effect.

   The secondary menu must have "Return to main menu" as the last option. If the user chooses this option, the program will return to the main menu where the user can continue to choose. Don't try to force this return – setup the loops to naturally return the process to the main menu.

Example run:

```
Please choose from this menu:
        1. Do this
        2. Do that
        3. Do something else
        4. Do something weird
        5. Exit the program

Your choice (1-5)? 1
```

This is the main menu. Choosing option 1, so going to the secondary menu

```
Please choose from this menu:
        1. Do A
        2. Do B
        3. Do C
        4. Do D
        5. Return to main menu

Your choice (1-5)? 1
You selected to do A

Press ENTER to continue...
```

Now in the secondary menu

```
Please choose from this menu:
        1. Do A
        2. Do B
        3. Do C
        4. Do D
        5. Return to main menu

Your choice (1-5)? 5

Press ENTER to continue...
```

Still in the secondary menu, but choosing the "Return to main menu" option

```
Please choose from this menu:
        1. Do this
        2. Do that
        3. Do something else
        4. Do something weird
        5. Exit the program

Your choice (1-5)? 5
```

Now returned to the main menu