CSULB
CECS174
Project Pattern Print Shop

Objectives: To demonstrate the usage of:

- Functions, loops, nested loops.
- Menu driven code.
- Data validation.

Write a Python code that will perform the pattern printing for the Pattern Print Shop. Your code should output a menu to choose the pattern to be printed. As the user selects the pattern, ask the user about the needed dimension, make sure it is a valid positive integer, and then print the pattern.

Please note that you have to validate your entry at every step. You must use a function for every validation, every user's entry, and every pattern to be printed.

I did not run the full code yet. I don't have a complete sample output, but I expect that you will be showing the menu like this:

Welcome to Pattern Print Shop. Please select from the following menu:

A- To print a rectangle
B- To print Pyramid pattern
C- To print Diamond Pattern

Q- To quit.

If the user selects A, ask the user to enter the rectangle's dimensions. After entering the valid integers, ask the user to choose to print using a symbol of the user's choice (!, @, #, $, %, ^, &, *), and to select to print:

1- Hollow Rectangle
2- Solid Rectangle
0- Return to main menu

This is a sample of solid and Hollow Rectangles using * as the symbol, and 5, 3 for dimension

Solid Rectangle

Hollow Rectangle

If the user selects B, ask the user to enter the pyramid height. After entering the valid integer, ask the user to choose to print using a symbol of the user's choice (!, @, #, $, %, ^, &, *) or using numbers. And then to select which Pyramid to print from the following menu:

1- Half Pyramid
2- Full Pyramid
0- Return to main menu

If the user selects option 1, ask the user to select from the following menu (Based on the user's selection):

1- Half Pyramid
2- Inverted Half Pyramid
3- Hollow Inverted Half Pyramid.
0- Return to main menu.

This is a sample of all types of the previous menu using * as the symbol, and 6 for dimension.

This is a sample of all types of half Pyramids using numbers as the symbol, and 5 for dimension.

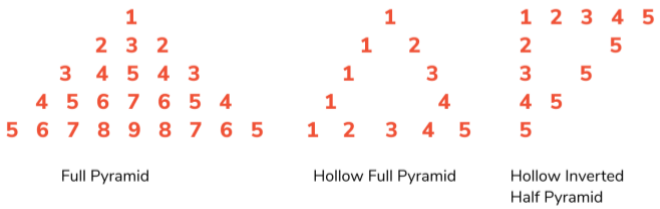
After printing, prompt the user to select from the original menu.

If the user selects option 2, ask the user to select from the following menu (Based on the user's selection):

1- Full Pyramid
2- Inverted Full Pyramid
3- Hollow Inverted Full Pyramid.
0- Return to main menu.

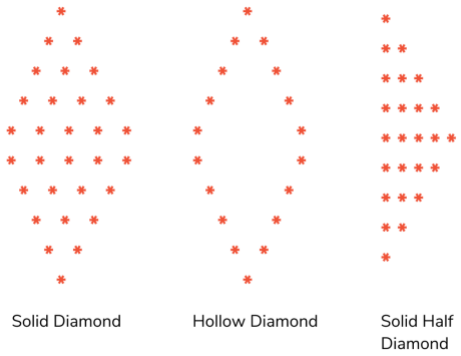
This is a sample of all types of the previous menu using * as the symbol, and 6 for dimension.

This is a sample of all types of Full Pyramids using numbers as the symbol, and 5 for dimension.



If the user selects C, then write your own menu similar to the previous options to print the Diamond Pattern.

Diamond pattern samples using stars, and 5 as the diamond size.



General Requirements:

- After every entry you should validate the user's entry as needed (Continue to loop until the user enters a valid value/symbol)
    - After printing, prompt the user to select from the original menu.
- Use functions and functions' call for menu, validation, and every pattern printing.
- At the end of your code execution, you should be able to return to the main menu and exit from there. Have your code print "Thank you for your business" at the end.

Upload your code. And multiple runs of your code, showing multiple valid and invalid outputs in the project report as a group. Take the project conclusion Quiz individually.

Be prepared to demonstrate as a group. Show all menus, and menus' validation. Answer any question asked by your lab instructor.