ASSIGNMENT #12
Creating more lists and functions [Python]
(WORTH 15 POINTS)

CREATE A LIST/ARRAY AND STORE ALL FUNCTIONS EXCEPT THE MAIN FUNCTION, INSIDE A SEPARATE FILE AND IMPORT THEM TO YOUR MAIN SOURCE CODE

OBJECTIVE:

Revise Assignment #11 so that:

- **Each major task is defined as a customized function.**
- **All the customized functions will be stored inside a separate file (myCustomFunctions.py)**
- **The source code (lastname_firstname_A12_W_Temperature_Functions.py) will only contain the main function that calls all the customized functions.**
- **The customized functions will be imported inside the source code. These functions can be used in other source codes.**

1. ☐ **Resave Assignment #11 as:**

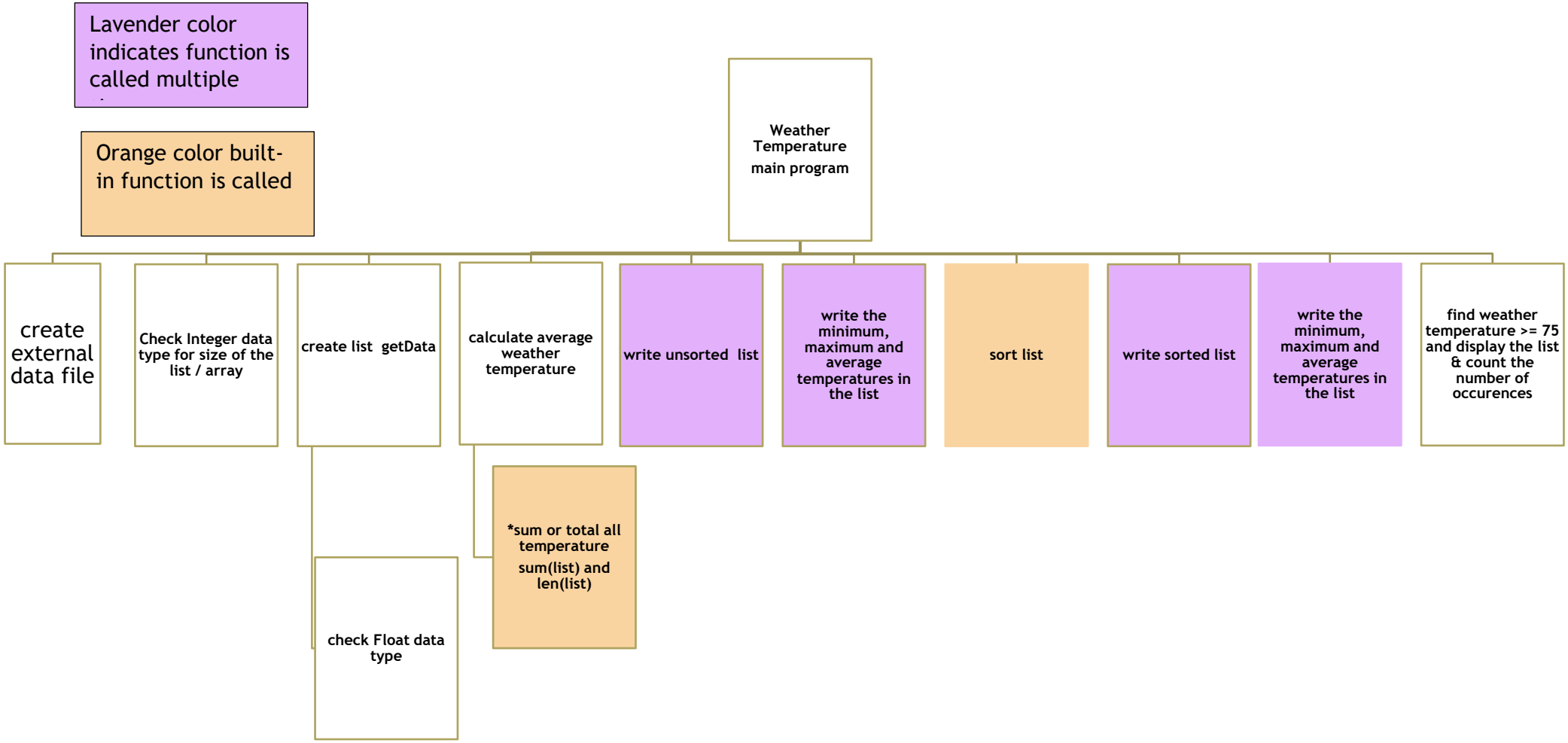
   lastname_firstname_A12_W_Temperature_Functions.py
2. ☐ **Define a function that creates an external data file (worth 1 point)**
3. ☐ **Call the checkIntDataType to check the size of the list (worth 1 point)**
4. ☐ **Create a function to get Data (temperatures) into a list. Name it as getData (worth 1 point)**
5. ☐ **Call function to checkFloatDataType relating to each item in the list (worth 1 point)**
6. ☐ **Create a function to Write the list of temperatures as an unsorted list of temperatures. You will use the open, write, and close functions to write all results to an output file called (worth 1 point)**

   lastname_firstname_A12_W_Temperature_output.txt

7. ☐ **Create a function to Calculate the average of the temperatures (worth 1 point)**
8. ☐ **Create a function Write the minimum (using the min function), (using the max function) and average temperatures in the list. (worth 1 point)**
9. ☐ **Use the built-in method/function to sort the list (worth 1 point)**
10. ☐ **Call the function to write the sorted list (worth 1 point)**
11. ☐ **Call the function to Write the min, max, average list again after the sorted list. (worth 1 point)**
12. ☐ **Create a function to Write a list of weather temperatures greater than or equal to (>=) 75° (worth 2 point)**

There will be at least 8 function excluding the main function. (A total of 9 functions)

EACH BOX REPRESENTS A FUNCTION TO BE CREATED [WEATHER TEMPERATURES] (HIPO CHART)



FUNCTIONS TO CREATE

1. ☐ **Define a function that will create the external output file (createOutputFile)**
2. ☐ **Define a function that will check the data type of the size of the list (checkIntDataType)**
3. ☐ **Define a function that will check the data type of the temperature (checkFloatDataType))**
4. ☐ **Define a function that will read the data and store inside an array/list**
5. ☐ **Define a function will be able to write unsorted and sorted list of temperatures to the output file (writeResults)**
6. ☐ **Define a function to Calculate the average temperatures (calculateAvg)**
7. ☐ **Define a function that finds all the temperatures greater than or equal to (>=) 75° and write this list along with the number of temperatures greater than or equal to 75°.**
8. ☐ **Comments / documentations throughout the source program module and the myCustomFunctions program (worth 1 point)**
9. ☐ **Store all the customized functions inside a separate program called (worth 3 points)**

   myCustomFunctions.py

10. ☐ **Next, use the import statement to import the functions**
    i.e.
    from myCustomFunctions import *
11. ☐ **Call all the functions inside of the main function of Assignment #12.**
12. ☐ **There should be no more than one defined function in Assignment #12**
13. ☐ **The myCustomFunctions.py program will have all of the 8 functions and other functions from previous work.**
14. ☐ **Comments must be entered everywhere as in the examples testAvg, testScores, wTemp etc. [VERY IMPORTANT]**PYTHON INPUT SAMPLE:

Enter a file name where the output will be written

lastname_firstname_A12_W_Temperature_output

Enter the name of the state you are recording the daily temperature for:
[i.e. Florida, Georgia, New York]
Florida

How many days will you record the outdoor Temperature for the State of Florida?
12
What is the outdoor temperature in Florida on day # 1
75
What is the outdoor temperature in Florida on day # 2
62
What is the outdoor temperature in Florida on day # 3
79
What is the outdoor temperature in Florida on day # 4
78
What is the outdoor temperature in Florida on day # 5
55
What is the outdoor temperature in Florida on day # 6
48
What is the outdoor temperature in Florida on day # 7
58
What is the outdoor temperature in Florida on day # 8
67
What is the outdoor temperature in Florida on day # 9
76
What is the outdoor temperature in Florida on day # 10
46
What is the outdoor temperature in Florida on day # 11
48
What is the outdoor temperature in Florida on day # 12
59

PYTHON WEATHER TEMPERTURE OUTPUT SAMPLE

```
=====================================================================
            Unsorted Temperature List for the state of Florida
=====================================================================
                          wTemp[  1] =  75.00°
                          wTemp[  2] =  62.00°
                          wTemp[  3] =  79.00°
                          wTemp[  4] =  78.00°
                          wTemp[  5] =  55.00°
                          wTemp[  6] =  48.00°
                          wTemp[  7] =  58.00°
                          wTemp[  8] =  67.00°
                          wTemp[  9] =  76.00°
                          wTemp[ 10] =  46.00°
                          wTemp[ 11] =  48.00°
                          wTemp[ 12] =  59.00°
=====================================================================
                    The minimum Temperature  =  46.00°
                    The maximum Temperature  =  79.00°
                    The average Temperature  =  62.58°
=====================================================================
=====================================================================
              Sorted Temperature List for the state of Florida
=====================================================================
                          wTemp[  1] =  46.00°
                          wTemp[  2] =  48.00°
                          wTemp[  3] =  48.00°
                          wTemp[  4] =  55.00°
                          wTemp[  5] =  58.00°
                          wTemp[  6] =  59.00°
                          wTemp[  7] =  62.00°
                          wTemp[  8] =  67.00°
                          wTemp[  9] =  75.00°
                          wTemp[ 10] =  76.00°
                          wTemp[ 11] =  78.00°
                          wTemp[ 12] =  79.00°
=====================================================================
                    The minimum Temperature  =  46.00°
                    The maximum Temperature  =  79.00°
                    The average Temperature  =  62.58°
=====================================================================
=====================================================================
                 TEMPERATURES GREATER THAN OR EQUAL TO 75°
=====================================================================
                          wTemp[  9] =  75.00°
                          wTemp[ 10] =  76.00°
                          wTemp[ 11] =  78.00°
                          wTemp[ 12] =  79.00°
=====================================================================
                 TEMPERATURE(S) >= 75° OCCUR(S) 4 time(s).
=====================================================================
```

use practical weather temperatures

SUBMISSIONS FOR ASSIGNMENT #12

1. ☐ **SUBMIT THE FOLLOWING FILES INSIDE THE DROP BOX FOR Assignment #12 PROJECT:**

   lastname_firstname_A12_Temperature.py (source code)

   lastname_firstname_A12_Temperature_output.txt (output file)

   myCustomFunctions.py (customized functions)