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Foundations of Programming: Python

Assignment 09

<https://github.com/jayohhhh/IntroToProg-Python-Mod09>

Module Linking Documentation

# Introduction

In this assignment, the goal was to link several modules into one to further streamline the script. Additionally, the usage of modules means that the individual modules can be called for different scripts and especially future scripts as opposed to always copying and pasting in the class information. This puts the onus on the coder to ensure that the scripts are compatible and useful in the future.

Data Classes

Data classes help define the data which is being stored into python. Figure 1 shows the properties of the first name input. It will raise an exception if the name is a number.

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Figure : Data Class Script 1

Figure 2 shows the properties for the last name data input. Again if the input is a number than an exception will be raised. Lastly the string methods will allow for the printing of the data to return a specific string as opposed to the python default.

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Figure : Data Class Script 2

The employee class defines the input data which the user will input for a new employee. The definition of this data shows that there will be 3 attributes, id, first name, and last name. Figure 3 shows that the id must be a number and if that is not properly inputted, then an exception will be raised. The first and last name attributes were defined above and is able to do so thanks to how the variable is called out.

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Figure : Data Script Class 3

Figure 4 shows a similar string method like what was done in the person class. Here when printed, the employee class will print out a string different than the python default.

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Figure : Data Class Script 4

Processing Classes

The processing classes create functions which will allow the script to process a specific file. In this instance, there are two functions created. These functions are saving data from python into a file and reading data from a file and plugging that into python. Figure 5 shows the initiation of the processing class as well as the save data to file function.

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Figure 5: Processing Class Script 1

Figure 6 shows the read data from file function. This function breaks up the string in the file and saves that into usage list in python.

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Figure 6: Processing Class Script 2

IO Classes

IO Classes are the functions that will act with the user’s input. These are the main driving functions that will guide the user through the script. Figure 7 shows the print menu item function which simply prints the list of available options that a user can select.

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Figure 7: IO Class Script 1

Figure 8 show 2 functions, input menu options and print current list of data. These 2 functions will correlate to the options that the user can select. The input menu options simply calls for an input function for assistance while the print current list items take the variable list which is being utilized and breaks it apart into a viewable string.

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Figure 8: IO Class Script 2

Figure 9 shows the last part of the IO class which is the input employee data. This will prompt the user to utilize the input function which stores more information into the running list variable.

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Figure 9: IO Class Script 3

Test Harness

In the figure below, the script runs through the classes discussed above and checks to ensure that the functions work accordingly. The start of this script begins with importing all of the classes into test harness. Then the script proceeds to checking all of the classes functions.

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Figure 10: Test Harness Script

Main Script

The following figures show the main script which takes all of the classes discussed above and proceeds on with the assignment in calling in the proper functions in the right order. Figure 11 simply imports the modules in and gives them a shorthand for easier recall.

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Figure 11: Main Script 1

Figure 13 initiates some variables which will be used later on in the script.

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Figure 12: Main Script 2

Figure 13 is the workhorse of the main script. It prints out the choices available and inquires an input from the user on how to proceed. Then it initiates an if conditional which checks the user’s input and provides a pathway after that choice.

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Figure 13: Main Script 3

Pycharm Outputs

The following figures show the outputs of the main script when executed in Python. Figure 14 shows the start of the script prints out the menu of options followed by what occurs when an option 1 is selected. The current items are printed. Option 2 selection will initiate the input function in which the user can input in an employee id, first name, and last name.

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Figure 14: Pycharm Output 1

Option 1 was selected again to verify that new input was indeed accepted into the list variable. Option 3 selection will save the list variable into the initial text file that was opened in the beginning of the module.

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Figure 15: Pycharm Output 2

Finally Figure 16 shows the conclusion when option 4 is selected. The user is booted out of the script and printed with a goodbye!

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Figure 16: Pycharm Output 3

Figure 17 shows the aftermath of the execution of this file with the user input saved into the text file.

Graphical user interface, text, application

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Figure 17: Text File Output

Summary

Through importing multiple modules in the beginning of the script, the main script now is much cleaner and only contains functions which create the information that is shown to the user. This will be useful in the future as other modules can be brought in from different creators to add to a final script.