

Gurinder Pabla

Sept. 09, 2023

Foundations of Programming: Python

Assignment 08

<https://github.com/gurindersp/IntroToProg-Python-Mod08>

## Class Final

### Introduction

In this module, we focused mainly on the concepts of classes and the multitude of approaches one can take when constructing their own class. We saw all the components that we had previously learned come together into one. By this I mean, that initially we covered statements, and then formed a function by wrapping the multiple statements into one block, and finally we created a class by placing a collection of similar purposed functions together under said class. Classes also have a method of organization to them, specifically, fields, constructors, properties, and methods. Towards the end, we briefly looked into making the code more developer friendly by including docstrings in our classes to make it clear what each portion of the code is doing, and which parameters are relevant for that section. In the end, our understanding of the course was tested via a final assignment in which we had the task of creating classes in a script that would take in user inputs and complete certain operations.

### Classes

When a developer realizes that they will need to use their functions multiple times in many programs, they will choose to place those functions into a class. A good analogy is that, “a class is like the blueprint for a house. You can use the blueprint to create several houses and even a complete neighborhood. Each concrete house is an object or instance that’s derived from the blueprint”

(<https://realpython.com/python-classes/>, 2023) (External Site). When going about creating a class, there are sections you include to organize the code. These sections include fields, constructors, properties, and methods. Fields are the data members of the class, which are set by using variables and constants. Constructors are used to set the initial data values for the class. Methods are like normal functions but are used to be part of a class’s code rather than the general script’s. Finally, properties are functions used to manage attribute data, and are split into getting data and setting data.

### Module 8 Script Assignment

This week’s task represented the final for the course. As such, the assignment entailed using the entirety of information that we had learned in this class thus far. I began by looking at the provided script and reading through the pseudo-code placed inside. From there, I started working on the Product class and created the necessary constructor and included the method that would overwrite the string function and force it to save the data as comma separated values. Then, I created the properties for the initial data values and set the error handling for those cases. Next, I went into the FileProcessor class, where I created the functions that would save data to the indicated file and read data from that file. Error handling was also included in the form of Try-Except format. From here, I moved onto the IO class which would have functions that would take care of all the inputs and outputs of the script. Finally, I had to code up the main body of the script and make use of all the classes that I had created thus far to complete the task described for the final. Figure 1-X display the outputs on both PyCharm and Terminal.

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## Summary

By the end of this module, we had gone through the basics and fundamentals of the usages for classes in coding. Classes are made up of the following components: fields, constructors, properties, and methods. They are mainly utilized when a developer feels the need to use their functions throughout multiple programs. This new concept allows us to create our script with the purpose of using the code in an industry environment while also organizing the code to a standard that is common in the Python community. To further polish our coding, we also discussed including docstrings in our classes to give brief descriptions on what the purpose of each section is. Overall, I believe what I have learned in this class will be instrumental in whatever I choose to pursue in the future, whether it be advanced courses or implementing coding into my job.

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```
/Users/gurinderpabla/Documents/_PythonClass/Assignment08/venv/bin/python /Users/gurinderpabla/Documents/_PythonClass/Assignment08/_Assignment08-Starter.py
The current products defined are:

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 2

Please enter a product: Lamp
Please assign a price to the product: 20

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program
```

Figure 1: Script on PyCharm

```
Which option would you like to perform? [1 to 5] - 1

The current products defined are:
Lamp,20

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 2

Please enter a product: Desk
Please assign a price to the product: 40

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program
```

Figure 2: Script on PyCharm

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```
Which option would you like to perform? [1 to 5] - 1

The current products defined are:
Lamp,20
Desk,40

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 3

Which product would you like to remove:Lamp

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program
```

Figure 3: Script on PyCharm

```
Which option would you like to perform? [1 to 5] - 1

The current products defined are:
Desk,40

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 4

Save was successful!

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 5

Process finished with exit code 0
```

Figure 4: Script on PyCharm

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```
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The current products defined are:

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 2

Please enter a product: 50
Please assign a price to the product: 50

Please do not include numbers in the product name.
```

Figure 5: Error handling on PyCharm

```
Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 2

Please enter a product: Desk
Please assign a price to the product: Desk

Please do not include alpha characters for the product value.
```

Figure 6: Error handling on PyCharm



The image shows a dark-themed window with a title bar containing three colored circles (red, yellow, green) on the left and a document icon followed by the text 'products.txt' on the right. Below the title bar, the text 'Desk, 40' is displayed in a monospaced font.

Figure 7: Results from script

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```
(base) Gurinders-MacBook-Pro-2:Assignment08 gurinderpabla$ python3 _Assignment08-Starter.py
The current products defined are:

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 2

Please enter a product: Lamp
Please assign a price to the product: 20

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 1

The current products defined are:
Lamp,20

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 2

Please enter a product: Desk
Please assign a price to the product: 40

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 1

The current products defined are:
Lamp,20
Desk,40
```

Figure 8: Script on Terminal

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```
Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 3

Which product would you like to remove: lamp

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 1

The current products defined are:
Desk, 40

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 4

Save was successful!

Menu of Options
1) Show current data
2) Add a new item
3) Remove an existing item
4) Save Data to File
5) Exit Program

Which option would you like to perform? [1 to 5] - 5

(base) Gurinders-MacBook-Pro-2:Assignment08 gurinderpabla$
```

Figure 9: Script on Terminal