Foundations of Programming (Python)

by Dirk Biesinger

Assignment 08

Overview

In this activity you'll get introduced to Software Objects. We'll expand on this in the next Module int Object Oriented Programming. This Module covers the basics. We will cover Classes and Objects, Constructors, Fields, Attributes and Methods. We'll also look at typehints. Docstring for classes and how to use classes. We also will expand the understanding of git and GitHub.

Note: Make sure to work diligently thru this module, as it is the basis for the next module. Also, the result of this module's labs will be used in the next module and next module's assignment.

You will practice posting your code to GitHub.

You will perform the following tasks:

1. Watch the module videos.
2. Read a book chapter.
3. Read web articles.
4. Watch additional videos.
5. Apply your knowledge.
6. Document your knowledge.
7. Post your files to GitHub.
8. Submit your work.

We are trying to answer the following questions:

- What is the difference between a class and the objects made from a class?
- What are the components that make up the standard pattern of a class?
- What is the purpose of a class constructor?
- When do you use the keyword "self"?
- When do you use the keyword "`@staticmethod`"?
- How are fields and attributes and property functions related?
- What is the difference between a property and a method?
- Why do you include a docstring in a class?

Assignment Steps

The following assignment steps ask you to read about, perform, and write about programming.

*Note: Course assignments help you learn through **reading, watching** demonstrations, **performing** programming in Python, and **reflecting** on what you learned through **writing**. You are strongly encouraged to continue your learning by **experimentation**.*

Step 1 - Watch the module videos:

Links are collected here: https://saravji.github.io/saravjis_hut/FDN_Prog/Modules.html (external site)

Work thru the Module #08 part only!

Step 2 - Read a book chapter

Please **read chapter eight** in your textbook. You **do not have to perform the exercises or type in the code**, but it is best if you open the script files as you read about them. You can find the book files as download on Canvas for your convenience.

Step 3 - Read web articles

Please review the following webpages. It presents the materials in a different way:

- https://realpython.com/python3-object-oriented-programming/ (external site)

Step 4 - Watch additional videos

Watch this video, it is additional information on git and GitHub. It also introduces extended concepts (using git from the command line, integrating version control into IDEs).

- Git and GitHub https://youtu.be/IHaTbJPdB-s (external site)

Step 5 - Apply your knowledge

For this assignment, a starter script is included. There is no code included, but it includes pseudocode. Your task is to read and understand the pseudocode, then add code to make the application work. Make sure to include error handling!

Step 5.1 Create a new Folder

Inside the course folder create another folder called Assignment08 and save the starter script file into this subfolder as CD_Inventory.py.

Step 5.2 Modify code

Modify the script as required. Don't overlook to update docstrings and add your involvement to the header.

Step 5.3 Run Your Script

With the script created and saved in the proper location, run the script in spyder, and then capture an image of it working on your computer. Repeat in a terminal window and capture an image of it working.

Step 5.4 Verify correct functioning

Test all options in your script in both start options and verify the data being written to file correctly.

Step 6 - Document your knowledge

After you have created and tested your Python script, create a document describing the steps you took in performing this assignment.

Note: Make sure you put it in the proper, professional level, formatting! It does not have to be perfect, but if you turn in a simple blob of text, you won't get credit for it! Here is a link that may help you understand what I am looking for: https://youtu.be/rRRVHNN0K7E - Creating Professional Documents (External Site)

Step 7 - Submit your work

In this Module, you need to post your files on a public GitHub repository so that others can review it. Make sure to post your python script and Knowledge Document:

- Login to github.com
- Create a repository "Assignment_08" (don't forget to check the "create README.md"
- Upload files: Knowledge Document and python script and if applicable other required files.
- Commit changes
- Add the link to your GitHub repository to your knowledge document.
- Now place your document with the Python script in the Assignment08 folder, then Zip this folder into a ".zip" file, upload the file to the assignment page on Canvas.

Congratulations! You're done!