Sandra D Harvie
December 8th 2020
Foundations of Programming: Python

MODULE 08: Objects and Classes
ASSIGNMENT 08: Working with Classes

1. **Introduction**

   This paper documents my learning from Module 8, the goal of which was to learn about creating scripts using custom classes. We also learned how to use GitHub Desktop to post our files to the GitHub repository.

   I have demonstrated my learning by
   - Being able to answer the questions provided in the Assignment
   - Creating a script that performs this week's task
   - Running the script within both PyCharm and a command shell
   - Posting my files on GitHub using the GitHub Desktop application
     https://github.com/seattlethistle/IntroToProg-Python-Mod08

2. **Background**

   I watched the video "Mod08 Course Video" and followed along with the class notes "_Mod8Python ProgrammingNotes.pdf". I also watched the Session 8 Q&A recording. Finally I watched the "Starting Assignment 08" video.

   I read the eight chapter of "Python Programming, 3rd Edition" entitled "Software Objects: The Critter Caretaker Program", and read the Wikibooks web article on Classes.

   I also watched the video titled "Learn Git in 20 minutes" and installed GitHub Desktop.

3. **Questions**

   • What is the difference between a class and the objects made from a class?
      The object is an instance of the class. The object is a collection of data (variables) and methods (functions) i.e. it is an actual thing, whereas the class is the template with which you create the object.

   • What are the components that make up the standard pattern of a class?
      The standard pattern of a class is made of Fields, Constructor, Attributes, Properties and Methods.

   • What is the purpose of a class constructor?
      The class constructor is used to construct the object, you use them to set the initial value of your fields.

   • When do you use the keyword "self?"

Python made a rule that you include a parameter called "self" in each method meant to be used from an object instance.

- When do you use the keyword "@staticmethod?"
  You use the keyword "@staticmethod" when you want to include methods called directly from the class.

- How are fields and attributes and property functions related?
  Properties are functions used to manage field or attribute data. You typically create two properties for each field/attribute, one for "getting" data and one for "setting data.

- What is the difference between a property and a method?
  The property allows you to get and set values as you do for normal attributes.

- Why do you include a docstring in a class?
  Docstrings are strings used right after the definition of a function, method or class and are used to document our code.

- What is the difference between Git and GitHub?
  Git is a version control system that lets you manage and keep track of your source code history. GitHub is a cloud-based hosting service that lets you manage Git repositories. If you have open-source projects that use Git, then GitHub is designed to help you better manage them.

- What is GitHub Desktop?
  GitHub desktop is a desktop or command prompt application that lets you work with GitHub on your local hard drive instead of through a web browser.
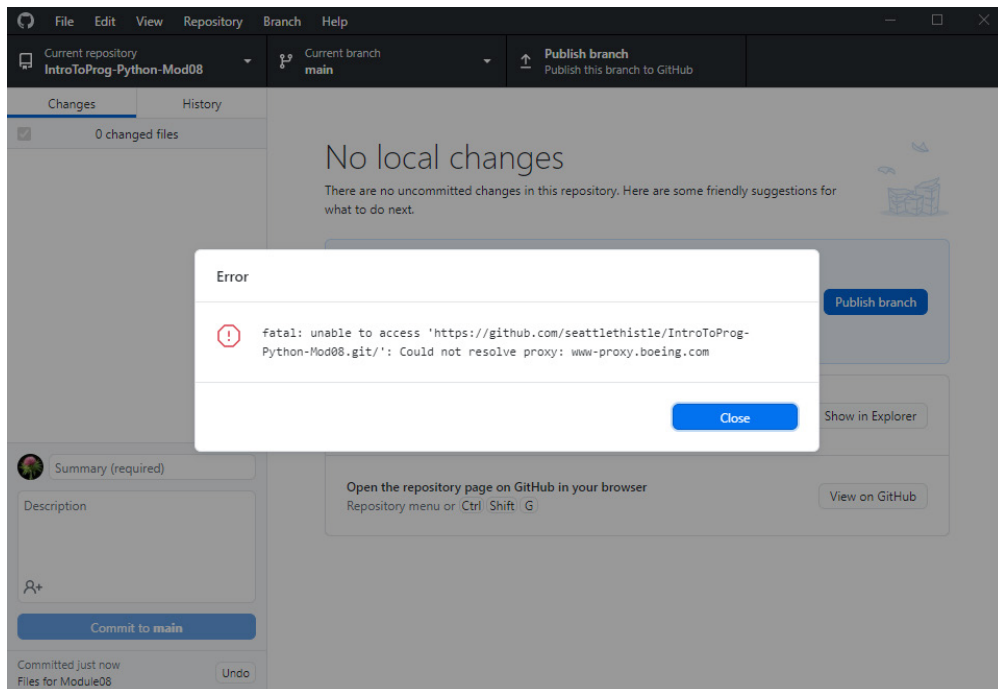
4. **Assignment**

The goal of this assignment is to modify the starter script to collect user data on Product Name and Price.

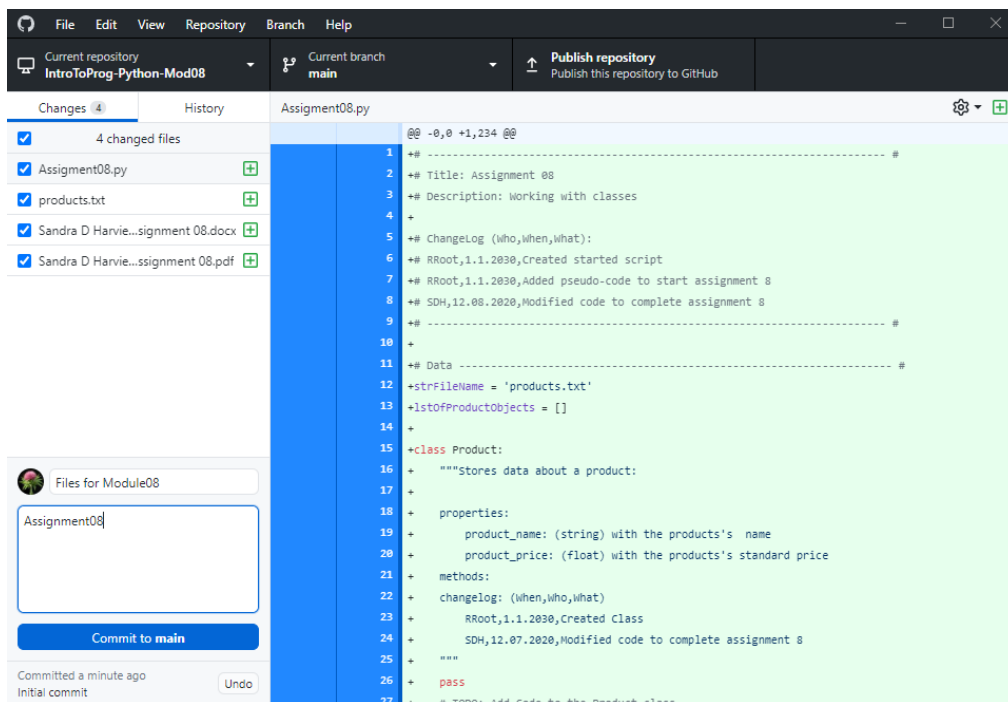- Create a sub folder called Assignment08
- Create a new project in PyCharm within the Assignment08 folder
- Add the starter file, "Assigment08_Starter.py," to the project
- Add code to the script to perform the task described above
- Run the script in BOTH PyCharm and an OS command/shell
- Document the knowledge gained

5. **GitHub Desktop**

I was unable to use GitHub Desktop to upload my files to GitHub. I have been carrying out my assignments on my Boeing issued Windows laptop as I want to learn Python using Windows which is where I'll be using it for work purposes going forward (rather than using my Macbook.) However there is clearly some issue with the Boeing proxy server where it will not allow me to upload or download to a repository. I get the error message shown below.

However I did go through the process as outlined in Assignment 08. I installed GitHub Desktop and was able to create a new repository that was then created on the GitHub website. I was able to store my files to a GitHub folder on my hard drive and see when they had been changed within the GitHub Desktop. I was just unable to upload the actual files. I plan to ask Boeing IT support if they can help.

6. **Discussion**

I had a lot of difficulty with this week's assignment. Despite reading/watching all of the material provided, I was thoroughly confused by Classes. Reading the answer code that was provided (A8AnswerCode.pdf) actually just intimidated me further.

I wasted too much time trying to understand the new Module 08 material while in retrospect I should have at least created a script that did the basic menu/user input/file writing actions.

I have detailed what little I managed to achieve below.

(a) My first (and only successful) step was to take the code from Listing02.py and insert it into the starter code to check that I could get the class to run. I modified it from using first_name to being product_name, and I switched Sue and Bob for Apple and Microsoft. I then added a second attribute for product_price.

```python
    pass
    # TODO: Add Code to the Product class

    # -- Constructor --
    def __init__(self, product_name=''):
        #Attributes
        self.strProdName = product_name

    #        -- Attributes --
    # -- Properties --
    # -- Methods --
# --End of class--


# --- Use the class ----
objP1 = Product()   # with no argument
objP2 = Product(product_name="Apple", product_price="1000")

print(objP1.strProdName,)
objP1.strProdName = "Microsoft"
objP1.strProdPrice = "800"
print(objP1.strProdName, objP1.strProdPrice)
print("-------------")
print(objP2.strProdName, objP2.strProdPrice)
```

```
C:\Users\dq460e\Python39\python.exe C:/Users/dq460e/_PythonClass/Module08/Mod08Listings/Assigment08-2.py

Microsoft 800
-------------
Apple 1000

Process finished with exit code 0
```

(b) My next intention was to copy the user selection menu that I used in Assignment 06 and convert that to collect Product Name and Product Price, adding in required functions to the **FileProcessor** and **IO** classes. However in the end I got very little of it to run. I was trying to do too much at once.

(c) I did not run my script at a command prompt - there really wasn't any point.

7. <u>**Image Captures**</u>
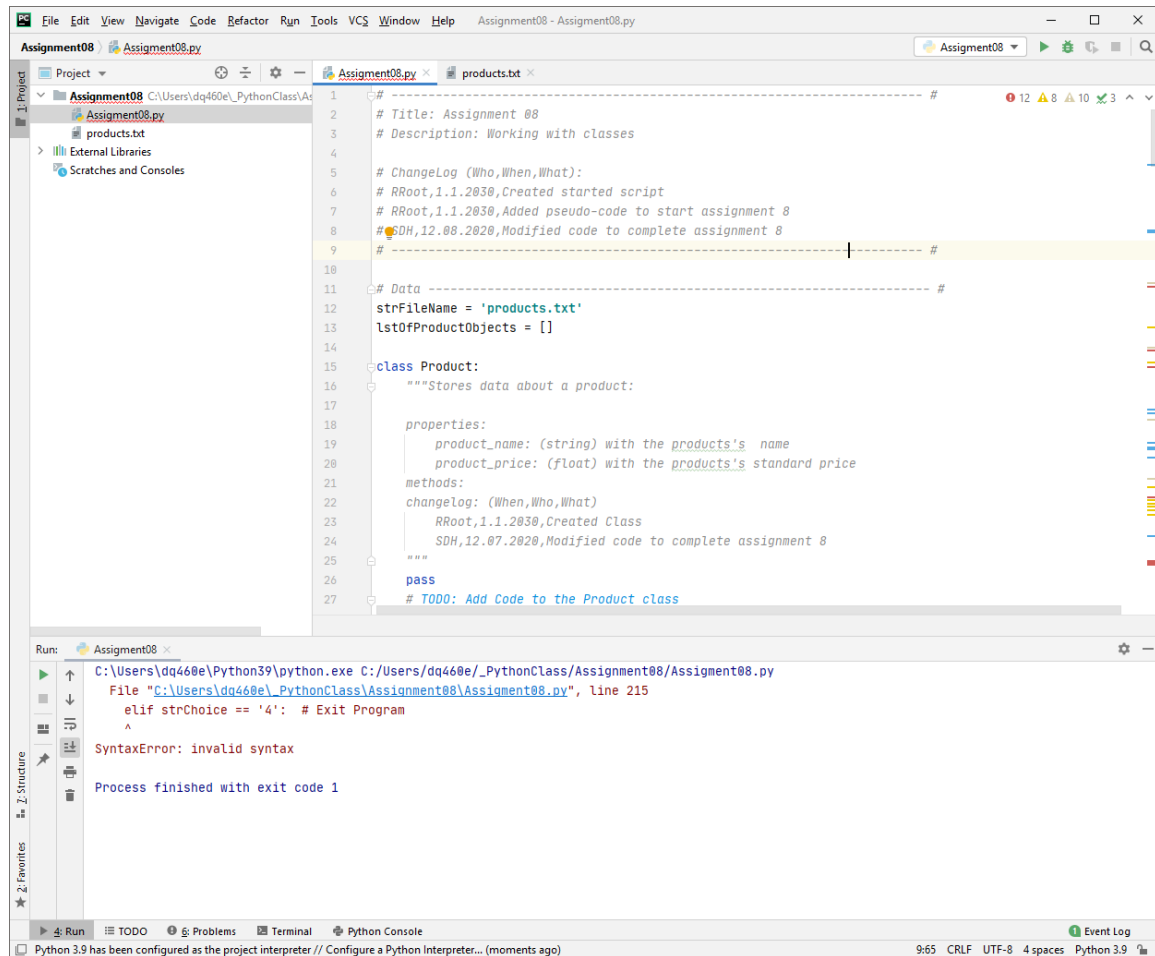

Figure 1: Script file in PyCharm

8. <u>**Conclusion**</u>

In conclusion I'm not sure what I learned this week.