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IT FDN 110 A Au21: Foundations of Programming: Python

Assignment Module 05: Lists and Dictionaries

GitHubURL: https://github.com/GermanGornalusse/IntroToProg-Python

How to Read/Import a Text File into a Dictionary and from a Dictionary to a List

# Introduction

In this paper, I will use an example of a script in which the user will read a text file containing tasks and priorities into a dictionary and how the dictionary will be converted into a list. The script will also ask the user for different choices that include to visualize the current data, add a new item, remove an existing item, save the data to a file or exit the program. The script will be written applying the concept of Separation of Concerns (SoC), to improve the readability.

For simplicity, I will assume you will be using Windows operating system.

## **Step 1. Create a subfolder in your C: Drive\\_PythonClass**

The following instructions will allow you to create this subfolder in your hard drive: **C:/\_PythonClass/Assignment05**

a) Left double click on “\_PythonClass” folder (to open it)

b) Right click> New > Folder

c) Name the folder as Assignment 05\_Yourlastname

I am showing you how the final path to this folder will look like (**Figure 1**):



**Figure 1. Path to the folder where you will save your Assignment 05. I used my last name (“Gornalusse”) as an example to personalize my subfolder.**

## **Step 2. Create a new Project in PyCharm**

You will create a new project in PyCharm that uses the \_PythonClass\Assignment05\_last name folder as its location. I assume you will have installed PyCharm on your C:\ drive or on your desktop.

a) Double click the icon “PyCharm Community Edition 2021.2.3”. Mine shows up on my desktop.

b) Select: File> New Project

c) In location type C:\\_PythonClass\Assignment05 to select the file subfolder wherein you will save your project. Alternatively, you can browse the destination folder by selecting the “open folder” symbol at the end of “Location” and manually by browsing and selecting the final folder. [See yellow arrow, on **Figure 2**]

d) Select “New environment using Virtualenv” option. And “Create a main.py” welcome script option. [See orange arrow, Figure 2]. Make sure the Base interpreter is set “Python 3.10” (or the latest version you installed in your computer).

e) Select “Create” (lower right corner of your screen). [**Figure 2**]

Text

Description automatically generated

**Figure 2 How to create a new project in C:\\_PythonClass\Assignment 05 subfolder using the IDE PyCharm**

Note: in my case, because I previously created this folder, I needed to open it.

To do that:

a) File> Open

b) Select Assignment 05 subfolder

c) Select either “This window” or “New Window”. Notice how, on the left-hand side, the “Assignment 05” subfolder shows up. In **Figure 3** I am illustrating this example.

A picture containing graphical user interface

Description automatically generated

**Figure 3. PyCharm window showing current folder where your Python script Assignment05 will be saved**

## **Step 3. Open a Python Script in the Project Folder: “Assignment05\_Starter”.**

At this point, you should have copied and pasted the file “Assignment05\_Starter” from Module 05 to Assingnment05\_Gornalusse folder.

Figure 2 above shows you the initial script loaded into “Assignment05\_Starter”.

## **Step 4. Add Code to the Python File “Assignment05\_Starter.py”.**

You will start writing the header and comments, as indicated in the **Figure 3** above. And then, you add the code shown above.

Once you finish completing the code, I renamed the file to “Assignment05\_Gornalusse.py”.

## **Step 5. Run the Script using PyCharm and the OS Command Shell**

First you will run your code using PyCharm.

a) Select your block of code.

b) Right Click > Run

c) In the bottom of the PyCharm screen, it will show the program working (**Figure 4**)

A screenshot of a computer

Description automatically generated with medium confidence

**Figure 4 Screening shot of PyCharm showing the script "Assignment05\_Starter.py" working properly.**

I will now check that the Script can be also run from the OS Command Shell.

a) Open CMD from the Windows menu

b) Use the command cd to access Assignment05\_Gornalusse directory as shown in **Figure 5**.

b) Paste the path to the file “Assignment05\_Gornalusse.py”, as shown in **Figure 6.**

Text

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**Figure 5 Screenshot of the OS command shell showing how to change directories**

Text

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**Figure 6 Screenshot of the OS command shell that script runs properly.**

**Step 5. Verify that the Data Entered were Captured and Saved in the Text File**

Enter the folder Assignment05\_Gornalusse and you must see the text file “ToDoFile.txt” (see purple arrow, **Figure 7** below)

Graphical user interface, text, application, email

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**Figure 7 Creation of the text file "ToDoFile" in the folder "Assignment05\_Gornalusse"**

Once you open the text file, you will see that the it contains different dyads of Tasks and Priorities, separated by commas (**Figure 8**).

Graphical user interface, text, application

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**Figure 8 Verification that the text file contains actual data entered by the user**

# Summary

In this simple script, I showed how to create a program that asks the user to select one of five options. Embedded in this script, I tried to show the user how the data can “flow” from a Text file into a table and from table to a dictionary. I also demonstrated how to write a file, adding new items entered by the user. This script sets the stage for the use of functions to simplify the code and recall repetitive actions.