**Assignment 5: Advanced Collections and Error Handling**

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**Abstract**

Data can be stored as a collection of tuples, lists, dictionaries, or sets. Dictionary is a collection of data in term of keys and values. It makes it easier to not only save data but also access it.

Keywords: dictionary, key, value.

**Assignment 5: Advanced Collections and Error Handling**

Assignment 5 is the fifth coding assignment of the IT Fundamentals (IT FDN 110 A) course I am taking at University of Washington. The goal of this assignment is to help me understand the usage of dictionaries to save data and write in file. This the [link](https://github.com/ruchanimbalkar/IntroToProg-Python-Mod05) to my GitHub account for Assignment 05.

In this assignment, a Python script gives the user a menu of choices. It is an upgrade of Assignment 4 wherein we are performing similar tasks, but we are saving the data in dictionary variables instead of list variables. We are using JSON files, and we are also managing errors using error handling tools in Python.

**Reflection**

In this week, I learnt more about dictionaries. I first learnt about dictionaries in Module 04. Dictionaries have the format of Key and Value to store data, and they make data access easier.

**Program Summary**

I began the program using the starter file provided for Assignment 4. From my previous assignment, I have learnt to never change the code of another person without informing them and to never delete variables declared by another developer. I first updated the script header with my name (please refer fig. 1) and then I added the dictionary row variable (please see figure 2).

**Figure 1**

*Assignment 05 Python Starter Code with appropriate updates*

*A black screen with white text

Description automatically generated*

**Figure 2**

*Assignment 05 Dictionary variable added to the code.*

A screenshot of a computer program

Description automatically generated

1After completing the module lessons, I added code to import JSON, and JSONDECODE ERROR for using JSON file and methods, and managing exceptions respectively. I also added the new variable like json\_data. I changed the file name extension from “Enrollments.csv” to “Enrollments.json”. I updated the students variable datatype to dictionary and then I commented out old variables that I believe I won’t be using in this code. This is something I learnt in the live session with Professor Root as mentioned previously. Assuming I am using somebody else’s code, I will not remove anything unless absolutely necessary and just comment code that is not used and add meaningful comments to explain why certain section of the code are commented out (Please see figure 3).

**Figure 3**

*Assignment 05 New variable is added and unused variables are commented out*

A screenshot of a computer program

Description automatically generated

Then I added the code for reading the contents of "Enrollments.json" file into students which is a two-dimensional list table (a list of dictionary rows) along with the exceptions for file not found error and other errors as shown in figure 4.

**Figure 4**

*Assignment 05 Read the file contents when program starts*

A screen shot of a computer program

Description automatically generated

Then I started working on menu\_choice “3” wherein the user input should be saved to the JSON file. in write mode using the open() function. The contents of the students variable are written to the JSON file using the dump () function. After that I added lines to show what was saved in the file. I also added exception handling to my code to avoid errors in writing that I learnt in the demo videos.

**Figure 5**

*Assignment 05 Write in the file and display what was saved in the file*

A screenshot of a computer program

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After that I started working on menu\_choice “1” to add exceptions for non-alphabetic input for first name and last name as shown in figure 6.

**Figure 6**

*Assignment 05 Handle exceptions for inappropriate input for student name*

A computer screen shot of text

Description automatically generated

**References**

Randall, R.(n.d.). *IT Fundamentals* *110 A* [MOOC]. University of Washington. [Foundations of Programming (Python) - UW Professional & Continuing Education](https://www.pce.uw.edu/courses/foundations-of-programming-python)