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**IT FDN 110**

**Assignment 05**

[**https://github.com/jwins66/IntroToProg-Python**](https://github.com/jwins66/IntroToProg-Python)

**Working With Lists and Dictionaries**

**Introduction:**

The difference between lists and dictionaries is that Lists refers to a collection of index value pairs. Whereas, a dictionary refers to a structure of pairs of keys and values. As a result, the dictionary is faster than a list in Python. It is more efficient to use dictionaries for the lookup of elements as it is faster than a list and takes less time to traverse. Moreover, lists keep the order of the elements while a dictionary does not.

<https://favtutor.com/blogs/list-vs-dictionary>

The ToDoList in PyCharm:

Graphical user interface, text, application

Description automatically generated

Screenshot of the ToDoList script running.

The steps within the script seem to work as written with the exception of Step # 5. As written, the script does not accurately complete Step # 5. More work needs to be done to make sure Step # 5 can be run without error.

Text

Description automatically generated

Screenshot of the ToDoList text file.

To read a file into a list in Python, use the file.read() fuction to return the entire content of the file as a string and then use the string.split() function to split a text file into a list. The split() method returns the list of strings after breaking the given string by a specified separator.

For example:

Graphical user interface, text, application, email

Description automatically generated

(The above example from <https://appdividend.com/2022/11/04/how-to-read-file-into-list-in-python/>)

To read a file into a dictionary in Python, use the built-in open() function to open a file. This function returns a file object, also called a handle, as it used to read or modify the file. The mode can be specified while opening a file.

For example:

Graphical user interface, text, application

Description automatically generated

The line “objFile = open(strFile, “r”) under # Process the data shows how to open the file named “MyData.txt’ and read what is in the file as denoted with the “r” on the same line.

The “for loop” is pulling data from the list in the open file (first two rows under the line starting with “for”) and then using it to build a Dictionary as indicated by the use of “append”

**Summary:**

Whether using a List or a Dictionary to lookup elements may depend on whether or not there is concern with the order of the data elements. A list will keep the order of the elements while a dictionary will not.

As noted by: <https://python-course.eu/python-tutorial/dictionaries.php>,

A list is an ordered sequence of objects, whereas dictionaries are unordered sets. However, the main difference between them is that items in dictionaries are accessed via keys and not via their position.

More theoretically, we can say that dictionaries are the Python implementation of an abstract data type, known in computer science as an associative array. Associative arrays consist - like dictionaries of (key, value) pairs, such that each possible key appears at most once in the collection. Any key of the dictionary is associated (or mapped) to a value. The values of a dictionary can be any type of Python data. So, dictionaries are unordered key-value-pairs.

Dictionaries don't support the sequence operation of the sequence data types like strings, tuples and lists. Dictionaries belong to the built-in mapping type, but so far, they are the sole representative of this kind!