420-LCU-05 Programming in Python - Lab Exercise 10
April 7, 2022

Goals for this lab:

- Read data from a text file and store in a nested dictionary.

- Formatted Printing

- This lab is designed to help you create the basic ground work you need for A3.

Your submission for this lab should be in 1 python file. Include the identification section at the top of your file. Type all the code in your Python file and run your code after each part.

1   Application - Create a Nested Dictionary

In this part, you will write the code to read the file books.txt that was provided for A3 and create the dictionary Books as described in A3. Here are the basic steps required:

- Open the file books.txt. You read the file line by line using a for loop. **Hint:** Use one of the 3 methods shown in class and in Lecture 10 examples.

- Initialize your Book dictionary to contain all the data

  ```
  Books ={} #dictionary of dictionaries
  ```

- Regardless of the chosen read method, you will create a **for loop** to process the data. The next steps are performed inside the for loop for each line of data (book record).

  1. Remember that each line of data as read from the file is a **string** exactly as when getting user input using the input() function.

  2. Data items in the file are separated by commas. Use split method to create a list of strings (book_record).

  3. create a temp dictionary variable that will hold the info for one book.

     ```
     book_dict ={}
     ```

  4. Now fill book_dict with the info you read for 1 book from book_record. Use keys as described in A3.

     ```
     #book title is not in book_dict because it is the key
     book_dict['author']=book_record[1]
             ...
             ...
     ```

  5. You have just successfully created a dictionary for 1 book.

  6. Now, print(book_dict) to ensure that it is setup correctly.

  7. Add book_dict on the Books dictionary. Use book title as key and book_dict as value.

- Make sure that your Books dictionary is structured correctly for all books. You can use a simple for loop to print the content.

- print the contents of Books dictionary in alphabetical order based on the book title using a simple for loop (refer to L9 and Lab-9 if needed). Iterate over the keys and printing the values.

- Well, the loop is simple but you will be using a formatted print to print the file content in a tabular format.

  ```
  for k in Books: #k is title & Books[k] has the rest of the fields
      print(.......)
  ```

- Inspect the data file to determine the right format (type and width) that you should use for each field.