Hao Liang
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FDN101
Assignment 06

Introducing to Python Programming

Introduction

Module/Assignment_06 further introduces the fundamentals and uses of functions. Class is used in the module as an efficient way of grouping functions. Fundamental concepts of local/global variables, variable shadowing, and docstring were also discussed with functions.

Topic_1 – encapsulation

One of the main purposes of using function is to encapsulate code. No variables or parameters we create in a function can be used outside of the function. The encapsulation makes the function to exchange information with only parameters and return values in the program. It's related to the concepts of local and global variables.

Topic_2 – returning value types

Function returns multiple values as tuple in default. We can use [] to change the returns to list.

Topic_3 – String join() Method

separator. join(dictionary) joins all items in the dictionary into a string, using a the " separator " defined by the user.

Topic_4 – staticmethod()

@staticmethod was used in the module to create utility function(s) under class. Static method only requires the parameters and it cannot access the properties of a class itself. We use @staticmethod since we intend to group functions to a class and the functions don't need to access any properties of the class.

Topic_5 – docstring

Functions and their explanatory headers at the beginning, or docstrings, are very helpful for us to practice SoC(separation of concerns). We can breakdown docstring as 1. general processing concept; 2. arguments/data, and 3. returns/presentation.

```python
# -- PROCESSING -- #
class DataProcessor:
    """Processing the data within runtime"""

    @staticmethod
    def input_data():
        """Function for storing data to runtime

        Args:
            None

        Returns:
            strings of user's inputs
        """
        strID = input('Enter ID: ').strip()
        strTitle = input('What is the CD\'s title? ').strip()
        strArtist = input('What is the Artist\'s name? ').strip()
        return [strID, strTitle, strArtist]

    @staticmethod
    def table_data(lstStr):
        """Fuction to transfer user's inputs to table

        Args:
            lstStr: user's inputs of strID, strTitle,and strArtist

        Returns:
            list of table(s)
        """
        try:
            intID = int(lstStr[0])
        except:
            print('Please input a valid ID number!')
            intID ='N/A'
        dicRow = {'ID': intID, 'Title': lstStr[1], 'Artist': lstStr[2]}
        lstTbl.append(dicRow)

    @staticmethod
    def del_data(intIDDel):
        """Fuction to delete CD per user's selection

        Args:
            intIDDel: user's selection of CD to be deleted

        Returns:
            if user's selection is found in inventory the entry will be deleted
            if user's selection is missing in inventory then the CD is not found
        """

        intRowNr = -1
        blnCDRemoved = False
```

List 1 docstring practices in Assignment06

Topic_6 – Assignment 6

```
In [9]: runfile('/Users/HAO/_FDNProgramming/Mod_06/Assignment06/
Assignment06.py', wdir='/Users/HAO/_FDNProgramming/Mod_06/Assignment06')
Menu

[l] load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit


Which operation would you like to perform? [l, a, i, d, s or x]: a


Enter ID: 1

What is the CD's title? AAA

What is the Artist's name? BBB
======= The Current Inventory: =======
ID  CD Title (by: Artist)

1   AAA (by:BBB)
======================================
Menu

[l] load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit


Which operation would you like to perform? [l, a, i, d, s or x]: a


Enter ID: 2
What is the CD's title? CCC

What is the Artist's name? DDD
======= The Current Inventory: =======
ID  CD Title (by: Artist)

1   AAA (by:BBB)
2   CCC (by:DDD)
======================================
Menu

[l] load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit


Which operation would you like to perform? [l, a, i, d, s or x]: s

======= The Current Inventory: =======
ID  CD Title (by: Artist)

1   AAA (by:BBB)
2   CCC (by:DDD)
======================================

Save this inventory to file? [y/n] y
Menu

[l] load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit


Which operation would you like to perform? [l, a, i, d, s or x]: l

WARNING: If you continue, all unsaved data will be lost and the Inventory
re-loaded from file.

type 'yes' to continue and reload from file. otherwise reload will be
canceledyes
reloading...
======= The Current Inventory: =======
ID  CD Title (by: Artist)

1   AAA (by:BBB)
2   CCC (by:DDD)
======================================
Menu

[l] load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit


Which operation would you like to perform? [l, a, i, d, s or x]: x
```

Figure 1 screenshot – running assignment 6 script in Spyder

```
(base) Liangs-MBP:Assignment06 HAO$ python Assignment06.py
Menu

[l] load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit

Which operation would you like to perform? [l, a, i, d, s or x]: a

Enter ID: 3
What is the CD's title? EEE
What is the Artist's name? FFF
======= The Current Inventory: =======
ID      CD Title (by: Artist)

1       AAA (by:BBB)
2       CCC (by:DDD)
3       EEE (by:FFF)
======================================
Menu

[l] load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit

Which operation would you like to perform? [l, a, i, d, s or x]: d

======= The Current Inventory: =======
ID      CD Title (by: Artist)

1       AAA (by:BBB)
2       CCC (by:DDD)
3       EEE (by:FFF)
======================================
Which ID would you like to delete? 2
The CD was removed
======= The Current Inventory: =======
ID      CD Title (by: Artist)

1       AAA (by:BBB)
3       EEE (by:FFF)
======================================
Menu

[l] load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit

Which operation would you like to perform? [l, a, i, d, s or x]: s

======= The Current Inventory: =======
ID      CD Title (by: Artist)

1       AAA (by:BBB)
3       EEE (by:FFF)
======================================
Save this inventory to file? [y/n] y
Menu

[l] load Inventory from file
[a] Add CD
[i] Display Current Inventory
[d] delete CD from Inventory
[s] Save Inventory to file
[x] exit

Which operation would you like to perform? [l, a, i, d, s or x]: x

(base) Liangs-MBP:Assignment06 HAO$
```

Figure 2 Screenshot – running assignment6 script in Terminal

GitHub

https://github.com/seahao/Assignment_06

Summary

Function is very powerful for us to organize our coding content, save computer RAM, and encapsulate work units. Class is an important way to group functions for easy accesses. With creating more and more functions and classes in a program, the naming convention becomes very critical.