

Katelin Swanson

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Foundations of Programming (Python)

Assignment 8

GitHub Link: https://github.com/kswanson2014/Assignment_08

Software Objects

Introduction

This week we further adapted the CD Inventory script to provide examples of the differences between classes and objects from a class. The main things I struggled with, and am curious to receive feedback on, are when to use “@staticmethod” and “self.”

Topic 1: CD Class

For this assignment, there are three primary features of a CD object. These include the ID, the title, and the artist. Despite self not being an “official” keyword, I referenced each important element of a CD object back as its self.

Topic 2: Processing, Presentation, and Main Body

The two methods in the processing section include saving the CD inventory and loading a previously created inventory. These both reference the file name from the beginning of the document, as a .txt file. The presentation section includes user input and script output. The main body of the script includes a while loop informing the script of what to do with each user input. Like past assignments, I largely used script examples that I had already constructed. These are slightly modified based on my review of my peers’ work in past weeks. I tried to improve error handling so that I don’t get the file not found error before the script even starts. Additionally, I maintained the ability for a user to delete a CD by ID because I find this to be particularly useful. I am not sure if it was left out intentionally, or just left out by mistake.

Topic 3: Running the script

I began in Spyder, stepping through each possible action in the script.

```
Python 3.9.5 (default, May 25 2021, 07:41:55)
Type "copyright", "credits" or "license" for more information.

IPython 7.34.0 -- An enhanced Interactive Python.

In [1]: runfile('/Users/katelinswanson/Library/Mobile Documents/com~apple~CloudDocs/Documents/University of Washington/Intro to Python/Mod_08/Assignment08')
Existing inventory file not found.

Menu

[l] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[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
Enter CD Title: Gone Now
Enter CD Artist: Bleachers

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

1   Gone Now (by:Bleachers)
=====
```

Figure 1 Spyder adding a CD

```
Menu

[l] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[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
Enter CD Title: Chase This Light
Enter CD Artist: Jimmy Eat World

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

1   Gone Now (by:Bleachers)
2   Chase This Light (by:Jimmy Eat World)
=====
```

Figure 2 Spyder adding an additional CD

Menu

```
[l] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[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   Gone Now (by:Bleachers)
2   Chase This Light (by:Jimmy Eat World)
```

=====

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

Figure 3 Spyder saving the inventory to CDInventory.txt

Menu

```
[l] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[s] Save Inventory to File
[x] Exit
```

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

===== The Current Inventory: =====

ID CD Title (by: Artist)

```
1   Gone Now (by:Bleachers)
2   Chase This Light (by:Jimmy Eat World)
```

=====

Figure 4 Spyder viewing the inventory

```

Menu

[l] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[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   Gone Now (by:Bleachers)
2   Chase This Light (by:Jimmy Eat World)
=====

Which ID would you like to delete? 1
The CD was removed

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

2   Chase This Light (by:Jimmy Eat World)
=====

```

Figure 5 Spyder deleting a CD by ID

```

Menu

[l] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[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)

2   Chase This Light (by:Jimmy Eat World)
=====

Which ID would you like to delete? 2
The CD was removed

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

=====

```

Figure 6 Spyder deleting an additional CD by ID

```
Menu
[l] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[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 'y' to continue and reload from file. Otherwise reload will be canceled
y
reloading...

===== The Current Inventory: =====
ID   CD Title (by: Artist)
1    Gone Now (by:Bleachers)
2    Chase This Light (by:Jimmy Eat World)
=====
```

Figure 7 Spyder loading back the saved inventory to recover deleted CDs

```
Menu
[l] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[s] Save Inventory to File
[x] Exit

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

In [2]:
```

Figure 8 Spyder exiting

Similarly in the terminal,

```
Last login: Mon Aug 29 12:27:47 on ttys000

The default interactive shell is now zsh.
To update your account to use zsh, please run 'chsh -s /bin/zsh'.
For more details, please visit https://support.apple.com/kb/HT208050.
(base) Katelins-MBP:~ katelinswanson$ cd ~/Library/Mobile\ Documents/com-apple-CloudDocs/Documents/University\ of\ Washington/Intro\ to\ Python/Mod_08/Assignment08
(base) Katelins-MBP:Assignment08 katelinswanson$ python CDInventory.py
python: can't open file 'CDInventory.py': [Errno 2] No such file or directory
(base) Katelins-MBP:Assignment08 katelinswanson$ python CDInventory.py
Menu
[
[1] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[s] Save Inventory to File
[x] Exit

Which operation would you like to perform? [1, a, i, d, s or x]: 1

WARNING: If you continue, all unsaved data will be lost and the Inventory re-loaded from file.
Type 'y' to continue and reload from file. Otherwise reload will be canceled
y
reloading...

===== The Current Inventory: =====
ID      CD Title (by: Artist)
1       Gone Now (by: Bleachers)
2       Chase This Light (by: Jimmy Eat World)
=====
```

Figure 9 Terminal loading the file originally created in Spyder

```
Menu

[1] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[s] Save Inventory to File
[x] Exit

Which operation would you like to perform? [1, a, i, d, s or x]:
Which operation would you like to perform? [1, a, i, d, s or x]: a

Enter ID: 3
Enter CD Title: Strange Trails
Enter CD Artist: Lord Huron

===== The Current Inventory: =====
ID      CD Title (by: Artist)
1       Gone Now (by: Bleachers)
2       Chase This Light (by: Jimmy Eat World)
3       Strange Trails (by: Lord Huron)
=====
```

Figure 10 Terminal adding a third CD

```

Menu

[l] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[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       Gone Now (by: Bleachers)
2       Chase This Light (by: Jimmy Eat World)
3       Strange Trails (by: Lord Huron)
=====

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

```

Figure 11 Terminal updating the saved file to include the third CD

```

Menu

[l] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[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       Gone Now (by: Bleachers)
2       Chase This Light (by: Jimmy Eat World)
3       Strange Trails (by: Lord Huron)
=====

Which ID would you like to delete? 3
The CD was removed

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

1       Gone Now (by: Bleachers)
2       Chase This Light (by: Jimmy Eat World)
=====

```

Figure 12 Terminal deleting the third CD

```
Menu
[l] Load Inventory from File
[a] Add CD
[i] Display Current Inventory
[d] Delete CD
[s] Save Inventory to File
[x] Exit

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

(base) Katelins-MBP:Assignment08 katelinswanson$
```

Figure 13 Terminal exiting

Summary

In summary, we have taken a simple idea surrounding creating an inventory of CDs and expanded upon it to build a CD class. This can be extrapolated to other projects and ideas, or made more complex with additional object classes.