

Muhammad Mannan

August 29 2021

IT FDN 110

Assignment08

## Module 08

### Introduction:

The goal of this assignment was to start getting familiar and to start working with object oriented programming python by creating our own objects and implementing them into the CDInventory script that we have been working on.

### Creating out objects:

We need each cd entry to be its own object and in order to do that we first need to create a class for the object where all its data can be processed (see figure 1)

```
1 #Figure-1-
2 class CD:-
3     """Stores data about a CD:-
4     """
5     properties:-
6     .....cd_id: (int) with CD ID-
7     .....cd_title: (string) with the title of the CD-
8     .....cd_artist: (string) with the artist of the CD-
9     methods:-
10 ~
11 .....
```

and where all its constructors will be located (see figure 2.1-2.2).

```
1 #Figure-2.1-
2 def __init__(self, cd_id, cd_title, cd_artist):-
3     .....self.__cd_id = cd_id-
4     .....self.__cd_title = cd_title-
5     .....self.__cd_artist = cd_artist
```

Constructors are special methods which are invoked when we create an object. The constructor method used in python is known as the dunder init method which helps us instantiate an object when it is called. When the dunder init method is called by python it passes any arguments that we have setup, in this case the cd's id, title, and artist, when creating an object to the dunder init method (see figure 2.1-2.2).

```
1 #Figure-2.2-
2 def cd_id(self):-
3     .....return self.cd_id-
4     .....
5     def cd_title(self):-
6     .....return self.cd_title-
7     .....
8     def cd_artist(self):-
9     .....return self.cd_artist
```

### Updating our existing code:

After creating our class we then need to edit our existing code. The key parts that we need to edit are where we ask the user for the info about the cd. We need to be able to pass in the information into our CD class to create a new cd object (see figure 3).

```

1 #Figure-3~
2 def cdInfo():~
3     while True:~
4         try:~
5             strID = int(input('Enter ID: ').strip())~
6             break~
7         except ValueError:~
8             print('Please enter a number!')~
9             strTitle = input('What is the CD\'s title? ').strip()~
10            strArtist = input('What is the Artist\'s name? ').strip()~
11            cdObj = CD(strID, strTitle, strArtist)~
12            return cdObj~
13    pass

```

Next we need to change the code for the area where we delete an entry from the inventory that the user would like to get rid of (see figure 4.1-4.2).

```

1 #Figure-4.1
2 def removeInfo():~
3     """Asks user to input the CD ID to determine which entry to remove from inventory currently in
    memory.~
4     Returns:~
5     Int: entry (integer) number.~
6     """~
7     while True:~
8         try:~
9             intIDDel = int(input('Which ID would you like to delete? ').strip())~
10            break~
11        except ValueError:~
12            print('Please enter an ID number')~
13    return intIDDel

```

```

1 #Figure-4.2
2 def removeCD(cdNumber, cdList):~
3     """Function that is utilized to delete an entry from the inventory or~
4     an element from the list containing dictionaries. The value/entry number~
5     the user enters is used to search in the dictionary containing the key~
6     and value the user has entered and then deletes that element from the 2d table (lstTbl).~
7     Args:~
8     cdNumber (integer): an integer value is entered which corresponds to the entry number for the cd the~
9     user would to remove from inventory~
10    cdList (list containing dictionaries): 2D table of data (or a list of dictionaries)~
11    which contains the data in memory during the time the program is running.~
12    Returns:~
13    None.~
14    """~
15    intRowIdx = -1~
16    for row in cdList:~
17        try:~
18            intRowIdx += 1~
19            tmp = row~
20            checknum = tmp.get("CD_cd_id")~
21            if checknum == (cdNumber):~
22                del cdList[intRowIdx]~
23            else:~
24                print("Please pick a valid entry to remove")~
25        except UnboundLocalError:~
26            print("Please pick a valid entry to remove")

```

Finally the last place we need to edit our code is in how we show our inventory. Because we are trying to print out an object we need a function, in this case the `__str__` function to help print out our object as a readable string (see figure 5).

```

1 #Figure-5~
2 def __str__(self):~
3     return(str(self.__cd_id)+';'+self.__cd_title+'by:'+self.__cd_artist)

```

## Summary:

Finally here is what our code looks like running in spyder (see figure 6) and in terminal (see figure 7).

```

1 #Figure 6~
2 runfile('E:/UW PYTHON/Mod_08/Assignment_08_Starter.py', wdir='E:/UW PYTHON/Mod_08')~
3 Menu~
4 ~
5 [l] load Inventory from file~
6 [a] Add CD~
7 [i] Display Current Inventory~
8 [d] delete CD from Inventory~
9 [s] Save Inventory to file~
10 [x] exit~
11 ~
12 ~
13 Which operation would you like to perform? [l, a, i, d, s or x]: l~
14 ~
15 WARNING: If you continue, all unsaved data will be lost and the Inventory re-loaded from file.~
16 ~
17 type 'yes' to continue and reload from file. otherwise reload will be canceled yes~
18 reloading...~
19 ===== The Current Inventory: =====~
20 ID CD Title (by: Artist)~
21 ~
22 1, mike by: mike~
23 3, dale by: dale~
24 =====~
25 Menu~
26 ~
27 [l] load Inventory from file~
28 [a] Add CD~
29 [i] Display Current Inventory~
30 [d] delete CD from Inventory~
31 [s] Save Inventory to file~
32 [x] exit~
33 ~
34 ~
35 Which operation would you like to perform? [l, a, i, d, s or x]: a~
36 ~
37 ~
38 Enter ID: 2~
39 ~
40 What is the CD's title? tyler~
41 ~
42 What is the Artist's name? tyler~
43 ===== The Current Inventory: =====~
44 ID CD Title (by: Artist)~
45 ~
46 1, mike by: mike~
47 3, dale by: dale~
48 2, tyler by: tyler~
49 =====~
50 Menu~
51 ~
52 [l] load Inventory from file~
53 [a] Add CD~
54 [i] Display Current Inventory~
55 [d] delete CD from Inventory~
56 [s] Save Inventory to file~
57 [x] exit~
58 ~
59 ~
60 Which operation would you like to perform? [l, a, i, d, s or x]: d~
61 ~
62 ===== The Current Inventory: =====~
63 ID CD Title (by: Artist)~
64 ~
65 1, mike by: mike~
66 3, dale by: dale~
67 2, tyler by: tyler~
68 =====~
69 ~
70 Which ID would you like to delete? 3~
71 The CD was removed~
72 ===== The Current Inventory: =====~
73 ID CD Title (by: Artist)~
74 ~
75 1, mike by: mike~
76 2, tyler by: tyler~
77 =====~
78 Menu~
79 ~
80 [l] load Inventory from file~
81 [a] Add CD~
82 [i] Display Current Inventory~
83 [d] delete CD from Inventory~
84 [s] Save Inventory to file~
85 [x] exit~
86 ~
87 ~
88 Which operation would you like to perform? [l, a, i, d, s or x]: s~
89 ~
90 ===== The Current Inventory: =====~
91 ID CD Title (by: Artist)~
92 ~
93 1, mike by: mike~
94 2, tyler by: tyler~
95 =====~
96 ~
97 Save this inventory to file? [y/n] y~
98 Menu~
99 ~
100 [l] load Inventory from file~
101 [a] Add CD~
102 [i] Display Current Inventory~
103 [d] delete CD from Inventory~
104 [s] Save Inventory to file~
105 [x] exit~
106 ~
107 ~
108 Which operation would you like to perform? [l, a, i, d, s or x]: x

```

```

1 #Figure 7-
2 Microsoft Windows [Version 10.0.19042.1165]-
3 (c) Microsoft Corporation. All rights reserved.-
4 ~
5 C:\Users\usman>cd E:-
6 E:\-
7 ~
8 C:\Users\usman>E:-
9 ~
10 E:\>cd "UW PYTHON"-
11 ~
12 E:\UW PYTHON>cd Mod_08~
13 ~
14 E:\UW PYTHON\Mod_08>python-
15 Python 3.9.4 (tags/v3.9.4:1f2e308, Apr 6 2021, 13:40:21) [MSC v.1928 64 bit (AMD64)] on win32-
16 Type "help", "copyright", "credits" or "license" for more information.-
17 >>> exit-
18 Use exit()-or Ctrl-Z plus Return to exit-
19 >>> ^Z-
20 ~
21 ~
22 E:\UW PYTHON\Mod_08>python Assignment_08_Starter.py-
23 Menu-
24 ~
25 [l] load Inventory from file-
26 [a] Add CD-
27 [i] Display Current Inventory-
28 [d] delete CD from Inventory-
29 [s] Save Inventory to file-
30 [x] exit-
31 ~
32 Which operation would you like to perform? [l, a, i, d, s or x]: l-
33 ~
34 WARNING: If you continue, all unsaved data will be lost and the Inventory re-loaded from file.-
35 type 'yes' to continue and reload from file. otherwise reload will be canceled yes
36 reloading...
37 ===== The Current Inventory: =====
38 ID..... CD Title (by: Artist)-
39 ~
40 1, mike by: mike-
41 2, tyler by: tyler-
42 =====
43 Menu-
44 ~
45 [l] load Inventory from file-
46 [a] Add CD-
47 [i] Display Current Inventory-
48 [d] delete CD from Inventory-
49 [s] Save Inventory to file-
50 [x] exit-
51 ~
52 Which operation would you like to perform? [l, a, i, d, s or x]: d-
53 ~
54 ===== The Current Inventory: =====
55 ID..... CD Title (by: Artist)-
56 ~
57 1, mike by: mike-
58 2, tyler by: tyler-
59 =====
60 Which ID would you like to delete? 1-
61 The CD was removed-
62 ===== The Current Inventory: =====
63 ID..... CD Title (by: Artist)-
64 ~
65 2, tyler by: tyler-
66 =====
67 Menu-
68 ~
69 [l] load Inventory from file-
70 [a] Add CD-
71 [i] Display Current Inventory-
72 [d] delete CD from Inventory-
73 [s] Save Inventory to file-
74 [x] exit-
75 ~
76 Which operation would you like to perform? [l, a, i, d, s or x]: a-
77 ~
78 Enter ID: 1-
79 What is the CD's title? mike-
80 What is the Artist's name? mike-
81 ===== The Current Inventory: =====
82 ID..... CD Title (by: Artist)-
83 ~
84 2, tyler by: tyler-
85 1, mike by: mike-
86 =====
87 Menu-
88 ~
89 [l] load Inventory from file-
90 [a] Add CD-
91 [i] Display Current Inventory-
92 [d] delete CD from Inventory-
93 [s] Save Inventory to file-
94 [x] exit-
95 ~
96 Which operation would you like to perform? [l, a, i, d, s or x]: s-
97 ~
98 ===== The Current Inventory: =====
99 ID..... CD Title (by: Artist)-
100 ~
101 2, tyler by: tyler-
102 1, mike by: mike-
103 =====
104 Save this inventory to file? [y/n] y-
105 Menu-
106 ~
107 [l] load Inventory from file-
108 [a] Add CD-
109 [i] Display Current Inventory-
110 [d] delete CD from Inventory-
111 [s] Save Inventory to file-
112 [x] exit-
113 ~
114 Which operation would you like to perform? [l, a, i, d, s or x]: x-
115 ~
116 ~
117 E:\UW PYTHON\Mod_08>

```

And here is the output of our code (see figure 8).

```
1 E[FOOT]E[DEFINUTLNU]NUTLNU] " (E[BS main "E[STXCD""") "}" (E
2 CD cd_id"K[STXE]
3 CD cd_title"E[ENOTyler]"E[SO CD cd_artist"E[ENOTyler]"ubhE[ETX]" "}" (h[ACKK[SO]h[BET]
E[FOOT]mike"h E[FOOT]mike"ube.
```

Figure 8