Assignment # 7
Foundations of Programming, Python

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1 Introduction

In this document, I will outline the steps I took to create a Python program as part of the seventh assignment for *Foundations of Programming, Python.* This program serves as data storage for CD information, but builds on top of the features of the fourth, fifth, and sixth assignments, while incorporating knowledge about saving files as binary data, as well as error handling and exceptions.

2 Code Design

2.a Outline

This assignment involves creating a program to store CD information in a program as an archive. Previous programs have featured this functionality; this assignment requires that we convert from saving text files to binary files. We are also to implement error handling for things like user input, type casting, and file reading.

The code changes are relatively few. I had already added non-exception-based if statements to handle certain errors. For example, if the file does not exist, I already had code in place to create an empty file, so there will be no read errors. I also had a check for duplicate IDs to make deletion more straightforward.

I modified the code to use the pickle module to load/save the table as binary data in a text file. Since I already had error handling for if the file did not exist, I added a different exception. In the case that the file is somehow corrupted, and the pickle module can't load it, I catch that error and load nothing, while warning the user. In testing, I noticed that there were several different errors I might run into it while loading, so I just caught a generic exception, though I could've made specific clauses if I wanted to. I added catches for IDs not being integers as well, for both adding and deleting CDs. The assignment ended up being fairly straightforward.

3 Script Results

```
In [16]: runfile('C:/Users/patri/Downloads/Mod_07/Assignment07/
CDInventory.py', wdir='C:/Users/patri/Downloads/Mod_07/Assignment07')
Error loading file!
<class 'MemoryError'>

Out of memory.

Program started, but nothing was loaded...

Menu

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


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

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


======================================
Menu

[l] load Inventory from file
[a] Add CD
[i] Display Current Inventory
```

Figure 1: Results of running program in Spyder

```
                2 Dir(s)  183,477,545,280 bytes free

(base) C:\Users\patri\Downloads\Mod_07\Assignment07>python CDInventory.py
Menu

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

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

Enter ID: sdf
That is not an integer!

<class 'ValueError'>
invalid literal for int() with base 10: 'sdf'
Inappropriate argument value (of correct type).
Please try again.


Enter ID: 5
What is the CD's title? Onyx
What is the Artist's name? Excision
======= The Current Inventory: =======
ID      CD Title (by: Artist)

2       Island (by:Seven Lions)
1       Awake (by:Illenium)
10      Sun and Moon (by:Above & Beyond)
101     Ashes (by:Illenium)
5       Onyx (by:Excision)
======================================
Menu

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

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

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

2       Island (by:Seven Lions)
1       Awake (by:Illenium)
10      Sun and Moon (by:Above & Beyond)
101     Ashes (by:Illenium)
5       Onyx (by:Excision)
======================================
Which ID would you like to delete? sdf
<class 'ValueError'>
invalid literal for int() with base 10: 'sdf'
Inappropriate argument value (of correct type).
Which ID would you like to delete? 1
The CD was removed
======= The Current Inventory: =======
ID      CD Title (by: Artist)

2       Island (by:Seven Lions)
10      Sun and Moon (by:Above & Beyond)
101     Ashes (by:Illenium)
5       Onyx (by:Excision)
======================================
Menu

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

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

Figure 2: Results of running program in terminal

4 Conclusion

I learned about how Python classifies and throws exceptions, as well as using other modules. There wasn't too much new information that was difficult, so I feel like I was well-prepared for this assignment from the given materials. I have some minor experience in Java, so exception handling wasn't out of the ordinary. I had never used the pickle module, so that was new.