Katelin Swanson

August 20, 2022

Foundations of Programming (Python)

Assignment 7

Exception Handling and Pickling.

Introduction

This week we further adapted the CD Inventory exercise to include more robust error handling and introduced the concept of pickling. Both of these functionalities in Python encourage deeper understanding of the input your user may create, and alleviate some of the difficulties someone may have while working with a script.

Topic 1: Exception Handling

Exception handling is one of two types of errors that can be experienced in Python. The first, which aborts your code immediately, is syntax errors. Once these have been alleviated, an exception is something in which the script runs, but does not operate as intended.[1] As such, you can create messages for the user to direct them toward things they can do to fix the mistake. These could be simple reminders for them to check the file name they are using, make sure they are inserting an integer rather than a string, or other features specific to your script.

Topic 2: Pickling

Pickling in Python is a more advanced method of storing data for use later in your session or in future sessions.[2] Interestingly, there are ethical implications of pickling as there are ways in which script writers can improperly store user data. If not stored securely, or used for malicious intent, pickling can have adverse implications.
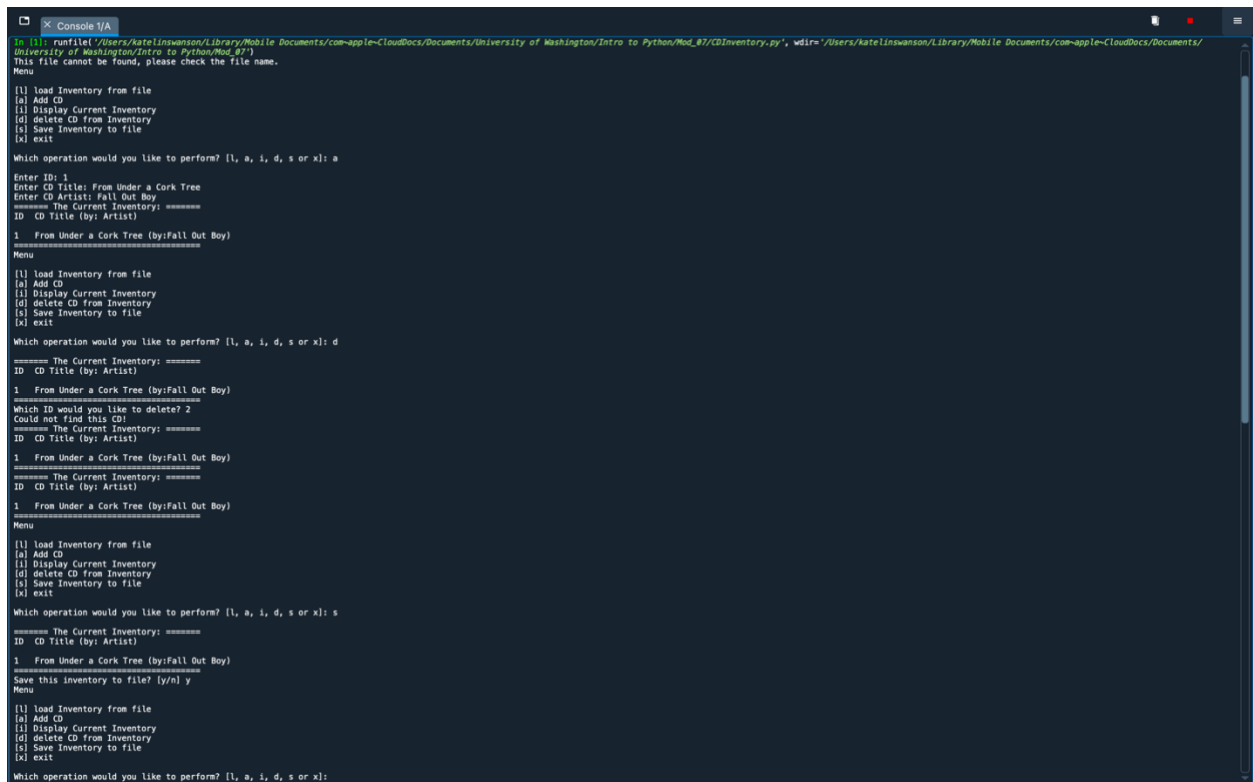
Topic 3: Adding to CDInventory.py

My first task was to evaluate the CD Inventory script for places in which exception handling and pickling made sense. Immediately, the instructions direct toward user interactions, file accessing operations, or type casting. Exception handling is important for user interactions and file accessing, while pickling is important for type casting. I decided to add exception handling messages to the Read_File(), Write_File(), inventory loading user

---

[1] https://www.geeksforgeeks.org/python-exception-handling/
[2] https://www.synopsys.com/blogs/software-security/python-pickling/

interaction, cd delete user interaction, and cd save user interaction. Pickling functions were included Read_File() and Write_File().

Figure 1 includes the Spyder console, noting the exception handling message on the first line as there was not a CDInventory.txt file in the folder with the script originally.

Figure 1: Spyder Console

Figure 2 shows the terminal example of the script running.

```
Last login: Fri Aug 19 10:22:05 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_07/
(base) Katelins-MBP:Mod_07 katelinswanson$
(base) Katelins-MBP:Mod_07 katelinswanson$ 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
[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)

=====================================
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
Enter CD Title: Take the Sadness out of Sunday
Enter CD Artist: Bleachers
======= The Current Inventory: =======
ID      CD Title (by: Artist)

1       Take the Sadness out of Sunday (by:Bleachers)
=====================================
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       Take the Sadness out of Sunday (by:Bleachers)
=====================================
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]: 
```

Figure 2: Terminal running the script

Summary

In summary, exception handling improves the user experience to inform them of mistakes they may have made while using your script. It provides communication with them so that they can troubleshoot common issues on their own and catch minute mistakes. Pickling is another means of making code robust to input errors, so that you define how file interactions occur. The GitHub link corresponding to this weeks assignment is https://github.com/kswanson2014/Assignment_07.