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May 31, 2022

Foundation of Programming: Python

Assignment 07

My Github Repository

Exception Handling & Pickling

Introduction

This paper is about the exception handling & pickling. I will use the knowledge I gathered from the internet and incorporate them into my python script.

What is Exception Handling?

What is an Exception?

An exception is an event, which an event, which occurs during the execution of a program that disrupts the normal flow of the program's instructions. In general, when a Python script encounters a situation that it cannot cope with, it raises an exception. An exception is a Python object that represents an error.

When a Python script raises an exception, it must either handle the exception immediately otherwise it terminates and quits.

Handling an Exception

If you have some suspicious code that may raise an exception, you can defend your program by placing the suspicious code in a try: block. After the try: block, include an except: statement, followed by a block of code which handles the problem as elegantly as possible. I chose this site because it has a list of standard exceptions. (External Reference: https://www.tutorialspoint.com/python/python_exceptions.htm). (Figure 1).

```
try:
You do your operations here;
......................
except ExceptionI:
If there is ExceptionI, then execute this block.
except ExceptionII:
If there is ExceptionII, then execute this block.
......................
else:
If there is no exception then execute this block.
```

Figure 1. An example of exception handling.

Below is a sample of exception handling in my script (Figure 2).

```
try:
    Processor.read_data_from_file( file_name=file_name_str,
list_of_rows=table_lst)  # read file data
except Exception as e:
    print("\n",e.__doc__, "\n")
    print(e.__str__())
    print()
```

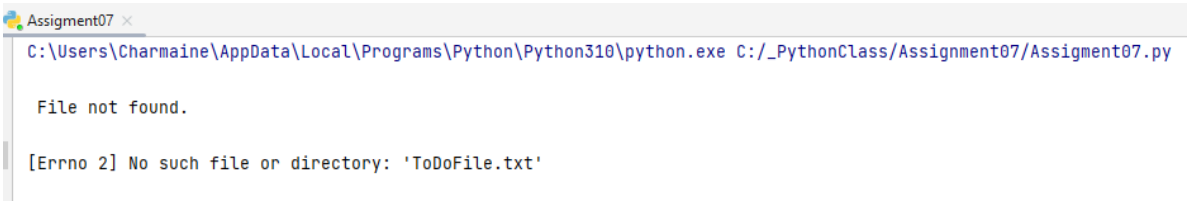

Figure 2. A sample of exception handling code (top) and output (bottom).

What is Pickling?

Python pickle module is used for serializing and de-serializing python object structures. The process to converts any kind of python objects (list, dict, etc.) into byte streams (0s and 1s) is called pickling or serialization or flattening or marshalling. We can converts the byte stream (generated through pickling) back into python objects by a process called as unpickling. (External Reference: https://www.tutorialspoint.com/python-pickling). Below shows an example of pickling (Figure 3).

```
import pickle
mylist = ['a', 'b', 'c', 'd']
with open('datafile.txt', 'wb') as fh:
   pickle.dump(mylist, fh)
```

Figure 3. An example of pickling.

Below shows an example of unpickling (Figure 4).

```
import pickle
pickle_off = open ("datafile.txt", "rb")
emp = pickle.load(pickle_off)
print(emp)
```

Figure 4. An example of unpickling.

Script Execution

Below shows the script running in PyCharm (Figure 5).

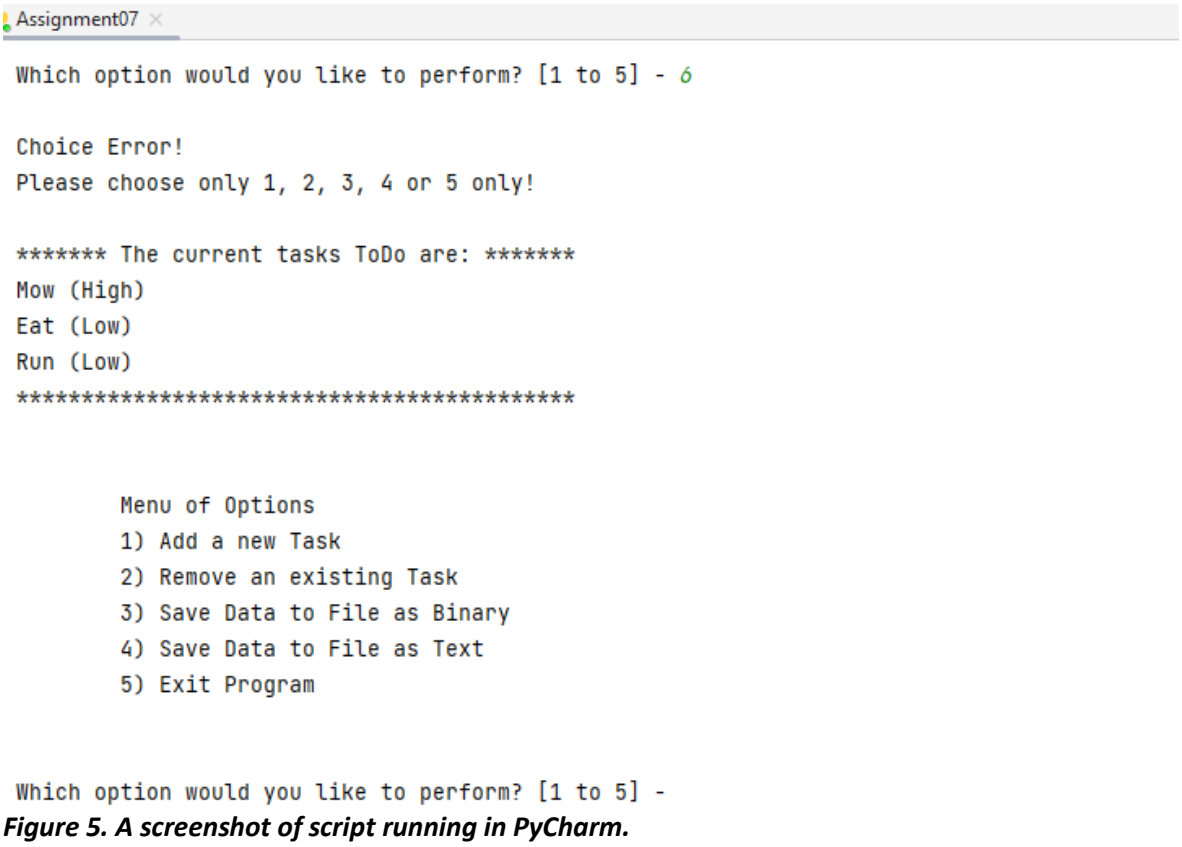

Figure 5. A screenshot of script running in PyCharm.

Below shows the script running in command shell (Figure 6).

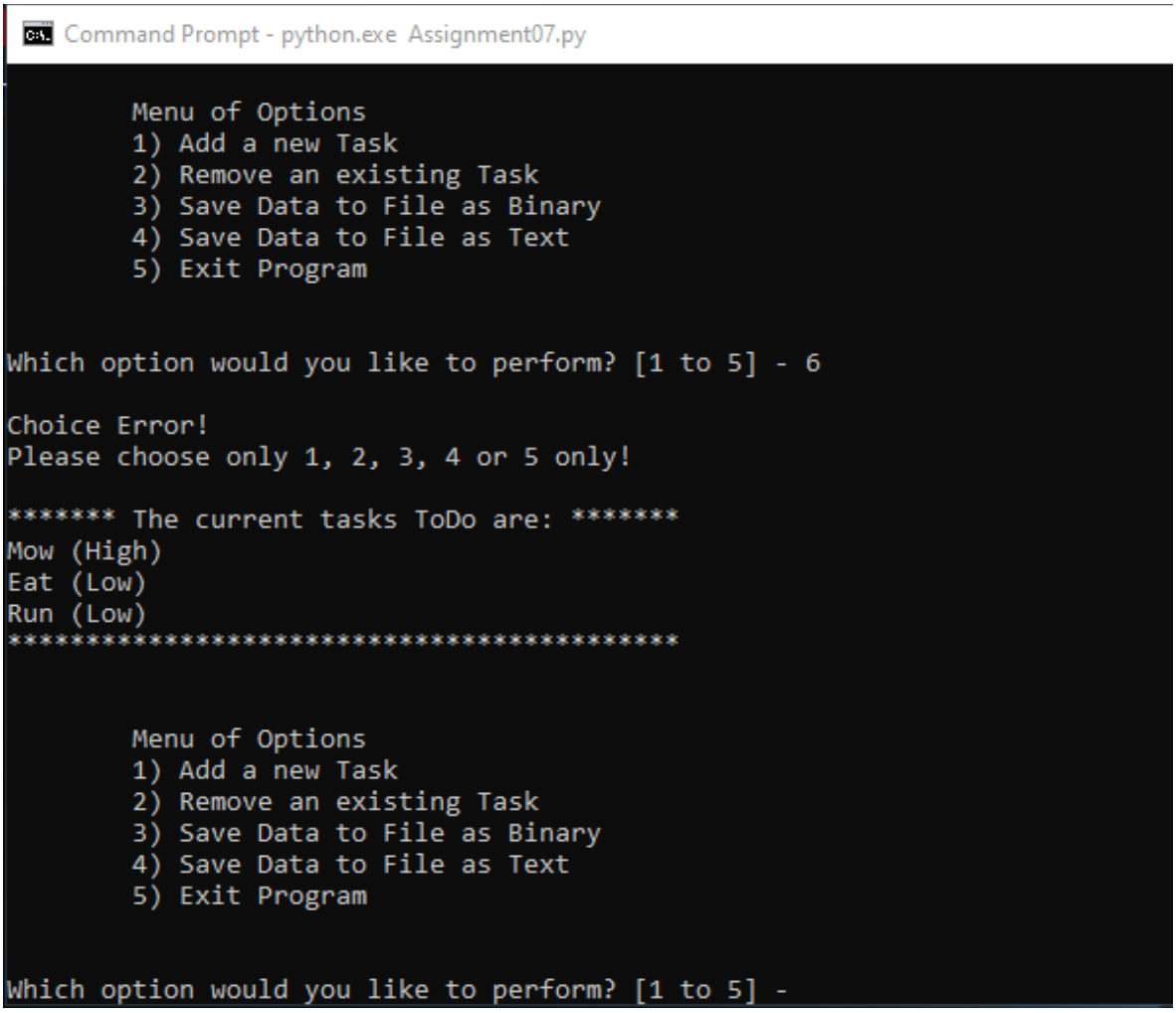

Figure 6. A screenshot of the script running in command shell.

Summary

In this assignment, I found several internet sources for exception handling and pickling. Most of the websites provided examples and usage. I chose the website tutorialspoint.com because it also provided a list of standard exceptions.