Lab Assignment

Cybersecurity Professional Program

Introduction to Python for Security

File System & Error Handling

PY-04-LS6
OS Module

Lab Objective

Understand how to interact with the operating system using the OS module and other Python modules.

Lab Mission

Create a directory and a file within it using the OS module.

Lab Duration

30–40 minutes

Requirements

- Basic knowledge of error handling

Resources

- Environment & Tools
    - Windows
        - PyCharm
        - Python3

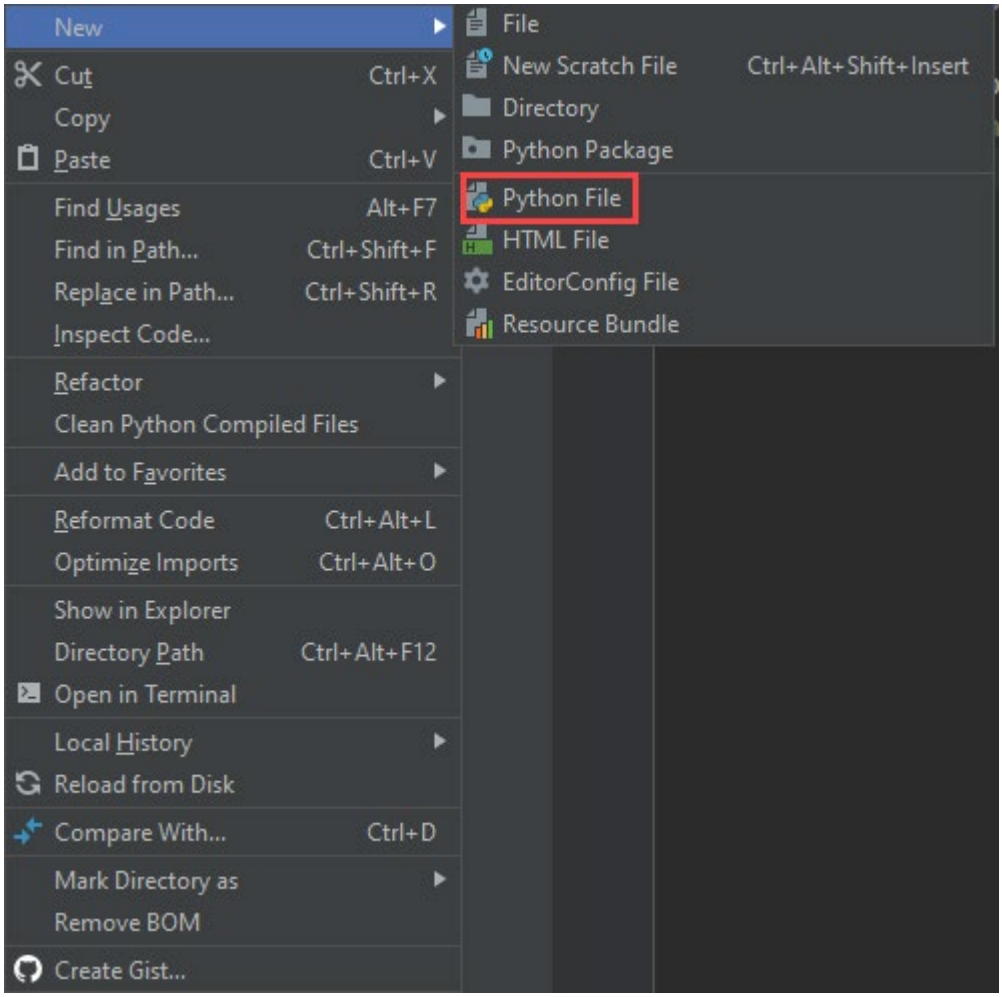
Textbook References

- Chapter 4: File System and Error Handling
    - Section 3: Module Definition and Usage

Lab Task: OS Module

Create a file and a directory using names specified by the user. Then list all files that exist in the directory.

1 Create a new Python file in PyCharm by right-clicking the project you created and selecting **New** > ***Python File***.



2 Import the OS and ***datetime*** modules.

```
import os
import datetime
```

3 Create an infinite loop.

```
import os
import datetime

while True:
```

4 Within the loop, print the current working directory.

```
import os
import datetime

while True:
    print("Current directory: " + os.getcwd())
```

5 Ask the user for a directory name and store the name in a new variable.

```
import os
import datetime

while True:
    print("Current directory: " + os.getcwd())
    new_dir_name = input("Choose a name for a new directory: ")
```

6 Create the specified directory and navigate to it.

```
import os
import datetime

while True:
    print("Current directory: " + os.getcwd())
    new_dir_name = input("Choose a name for a new directory: ")
    os.mkdir(new_dir_name)
    os.chdir(new_dir_name)
```

7 Print the current directory to verify that you moved to the directory that was just created.

```
import os
import datetime

while True:
    print("Current directory: " + os.getcwd())
    new_dir_name = input("Choose a name for a new directory: ")
    os.mkdir(new_dir_name)
    os.chdir(new_dir_name)
    print("Current directory: " + os.getcwd())
```

8 Create an ***if*** statement that will check if the directory exists.

```
import os
import datetime

while True:
    print("Current directory: " + os.getcwd())
    new_dir_name = input("Choose a name for a new directory: ")
    os.mkdir(new_dir_name)
    os.chdir(new_dir_name)
    print("Current directory: " + os.getcwd())
    if new_dir_name:
```

9 Ask the user for a file name and store the name in a new variable.

```
import os
import datetime

while True:
    print("Current directory: " + os.getcwd())
    new_dir_name = input("Choose a name for a new directory: ")
    os.mkdir(new_dir_name)
    os.chdir(new_dir_name)
    print("Current directory: " + os.getcwd())
    if new_dir_name:
                file_name = input("Choose a text file name ")
```

10 Open the newly created file with read and write permissions.

```
import os
import datetime

while True:
    print("Current directory: " + os.getcwd())
    new_dir_name = input("Choose a name for a new directory: ")
    os.mkdir(new_dir_name)
    os.chdir(new_dir_name)
    print("Current directory: " + os.getcwd())
    if new_dir_name:
        file_name = input("Choose a text file name ")
        with open("{}.txt".format(file_name), "w+") as new_file
```

11 Print a message to tell the user the file was successfully created and the current date and time.

```
import os
import datetime

while True:
    print("Current directory: " + os.getcwd())
    new_dir_name = input("Choose a name for a new directory: ")
    os.mkdir(new_dir_name)
    os.chdir(new_dir_name)
    print("Current directory: " + os.getcwd())
    if new_dir_name:
        file_name = input("Choose a text file name ")
        with open("{}.txt".format(file_name), "w+") as
new_file:
            new_file.write("New file was created, good job!" +
str(datetime.datetime.now()))
```

12 Add a line to list the contents of the current working directory and then add a break.

```
import os
import datetime

while True:
    print("Current directory: " + os.getcwd())
    new_dir_name = input("Choose a name for a new directory: ")
    os.mkdir(new_dir_name)
    os.chdir(new_dir_name)
    print("Current directory: " + os.getcwd())
    if new_dir_name:
        file_name = input("Choose a text file name ")
        with open("{}.txt".format(file_name), "w+") as
new_file:
            new_file.write("New file was created, good job!" +
str(datetime.datetime.now()))
            print("The following files are in the directory: "
+ str(os.listdir()))
            break
```

13 Write a ***try*** block to handle the file access.

```
import os
import datetime

while True:
    print("Current directory: " + os.getcwd())
    new_dir_name = input("Choose a name for a new directory:
")
    os.mkdir(new_dir_name)
    os.chdir(new_dir_name)
    print("Current directory: " + os.getcwd())
    if new_dir_name:
        try:
            file_name = input("Choose a text file name ")
            with open("{}.txt".format(file_name), "w+") as
new_file:
                new_file.write("Good job! New file was created
on: " + str(datetime.datetime.now()))
                print("The following files are in the
directory: " + str(os.listdir()))
                break
```

14 Add an ***except*** block to the ***try*** block to handle exceptions.

```
import os
import datetime

while True:
    print("Current directory: " + os.getcwd())
    new_dir_name = input("Choose a name for a new directory:
")
    os.mkdir(new_dir_name)
    os.chdir(new_dir_name)
    print("Current directory: " + os.getcwd())
    if new_dir_name:
        try:
            file_name = input("Choose a text file name ")
            with open("{}.txt".format(file_name), "w+") as
new_file:
                new_file.write("Good job! New file was created
on: " + str(datetime.datetime.now()))
                print("The following files are in the
directory: " + str(os.listdir()))
                break
        except:
            print("Error")
```