Lab Assignment
& Solution

Cybersecurity Professional Program

Introduction to Python
for Security

File System & Error Handling

PY-04-LS3
Handling Files

Note: Solutions for the instructor are shown inside the green box.

Lab Objective

Understand how to perform file operations while handling errors in Python.

Lab Mission

Practice working with files and error handling.

Lab Duration

10–20 minutes

Requirements

- Basic knowledge of Python
- Working knowledge of an IDE environment
- Working knowledge of loops and error handling

Resources

- Environment & Tools
    - Windows
        - PyCharm
        - Python 3

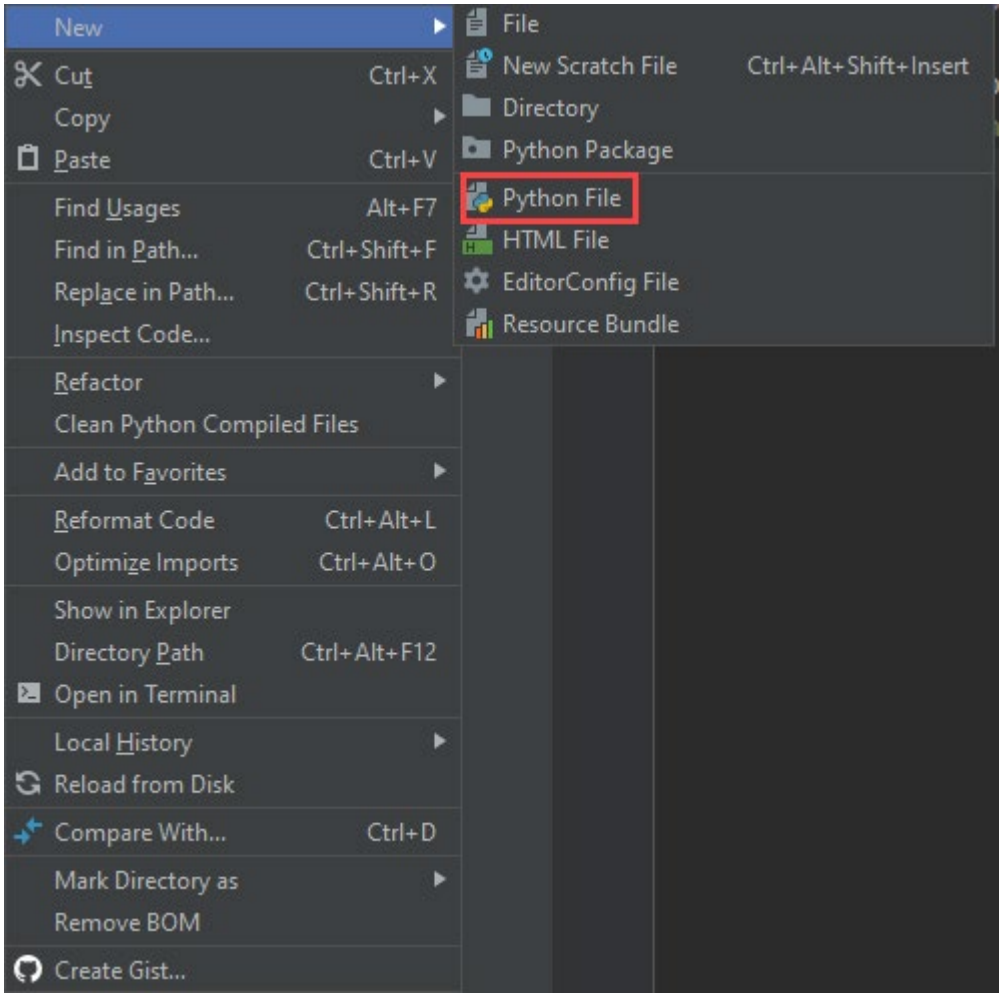
Textbook References

- Chapter 4: File System and Error Handling
    - Section 2: File Manipulation

Lab Task 1: Write Error

Create a ***with()*** statement that opens a file in read mode and then try to write to it.

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



2 Create a ***with()*** statement to open a text file in read mode with a variable.

```
with open("text.txt", "r") as text:
```

3 Write any text in the opened file.

```
with open("text.txt", "r") as text:
    text.write("Test")
```

4 Put the code in a ***try*** block.

```
try:
    with open("text.txt", "r") as text:
        text.write("Test")
```

5 Create an exception block to handle the error and print an error message explaining that an open file cannot be written to in read mode.

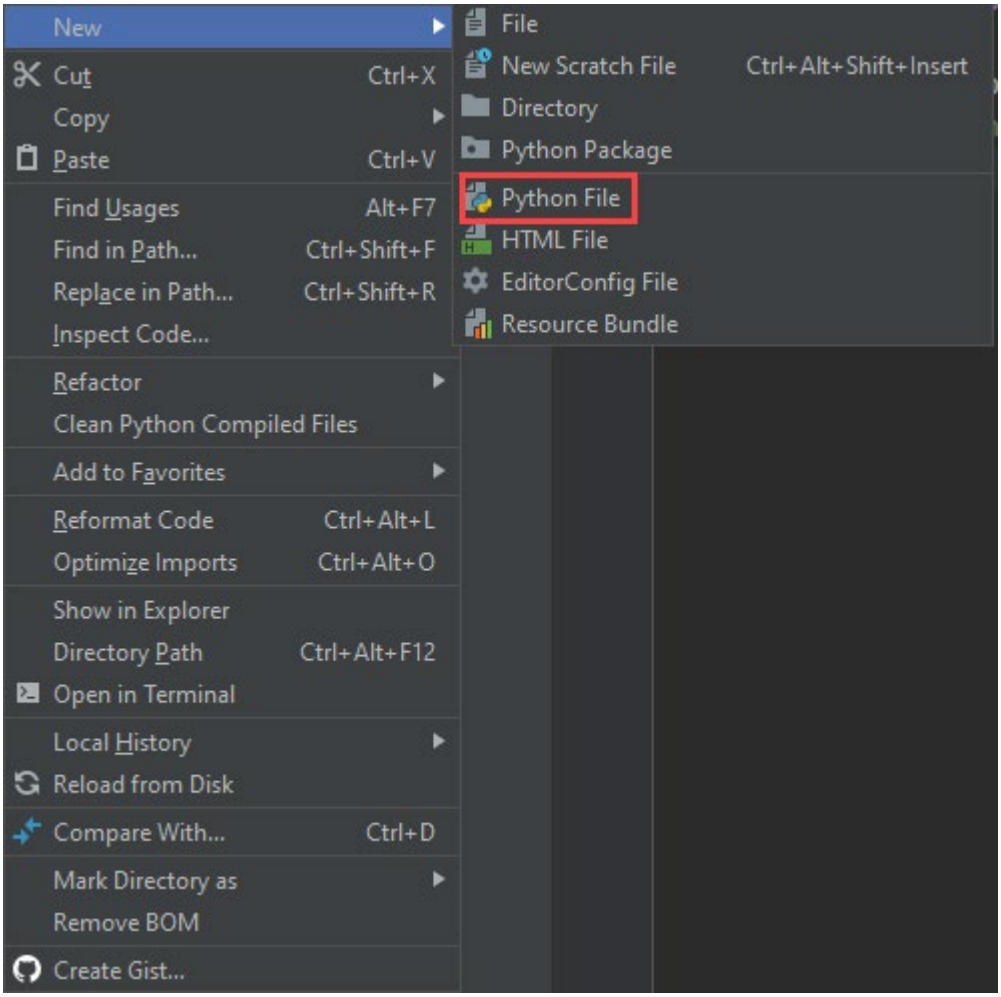
```
try:
    with open("text.txt", "r") as text:
        text.write("Test")

except Exception:
    print("Unsupported Operation, cannot write in read mode.")
```

Lab Task 2: Handling Files

Using the appropriate methods in Python, write a script that will open a file, take input from a user, and use the input to write to a file before exiting.

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



2. Open a non-existent file in append mode and set it to a variable. Note that using append to open a file will create a file if it doesn't exist.

```
file = open("file.txt", "a")
```

3 Add an infinite while loop that will take user input and set it to a variable.

```
file = open("file.txt", "a")
while True:
    message = input("Enter text! ('Exit' to exit): ")
```

4 If the user input is *exit*, the loop will end.
Note: Make sure the user input is in lowercase letters.

```
file = open("file.txt", "a")
while True:
    message = input("Enter text! ('Exit' to exit): ")
    if message.lower() == "exit":
        break
```

5 If the input is not *exit*, write the input to the file and move to the next line.

```
file = open("file.txt", "a")
while True:
    message = input("Enter text! ('Exit' to exit): ")
    if message.lower() == "exit":
        break
    else:
        file.write(message + "\n")
```

6 Once the loop is done running, use the ***close()*** method to close the file.

```
file = open("file.txt", "a")
while True:
    message = input("Enter text! ('Exit' to exit): ")
    if message.lower() == "exit":
        break
    else:
        file.write(message + "\n")
file.close()
```

7 Put your code in a ***try*** block.

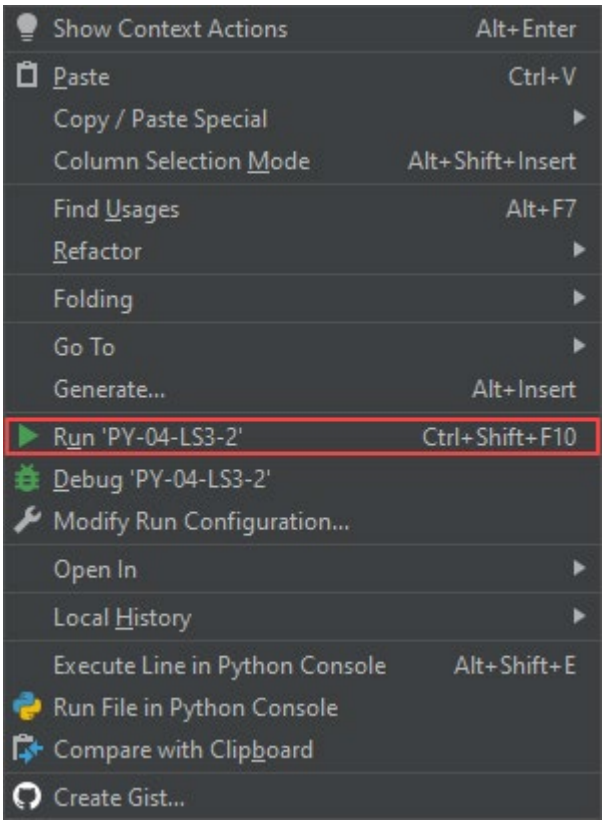
```
try:
    file = open("file.txt", "a")
    while True:
        message = input("Enter text! ('Exit' to exit): ")
        if message.lower() == "exit":
            break
        else:
            file.write(message + "\n")
    file.close()
```

8 Add an ***except*** block after the ***try*** block to handle any unexpected errors while opening the file.

```
try:
    file = open("file.txt", "a")
    while True:
        message = input("Enter text! ('Exit' to exit): ")
        if message.lower() == "exit":
            break
        else:
            file.write(message + "\n")
    file.close()

except:
    print("An error occurred while trying to open the file.")
```

9 Run the code by right-clicking it and selecting **Run '[python file name]'**.



10 Input several lines of text and exit the script. In the Project Files list in PyCharm, find the newly created ***file.txt***, open it, and confirm that the text that was input during the script's execution is present in the file.