Essentials of Data Science

Assignment:- 1

By Suyash Hadole(CS7-73)

Topic:- File Operation & Program on Character Count

NAME:- Suyash S. Hadole

PRN:- 202401110055

Roll No:- CS7-73

Class:-CS7

Batch:-C74

1) Introduction to File Operations:-

File handling is essential in programming for reading, writing, and managing data. Python simplifies file operations, making it easy to process logs, configurations, and source code files. One key application is counting program lines, useful for code analysis and project tracking. In this session, we'll explore Python's file operations and techniques to count total and meaningful lines efficiently. Let's get started!

Why Use File Operations in Python?

1.Data Persistence:-Store and retrieve data after the program closes. Store user settings, game saves, and more.

2.Data Input/Output:-Read data from CSV or text files for analysis. Write processed results to files.

Types of File Operation in Python

- Opening Files
- Writing to Files
- Appending Data
- Reading from Files
- Deleting Files
- Copying Files

• Opening Files:-

To work with files in Python, you first need to open them using the open() function. This function takes two primary arguments the file name and the mode

Modes:
“r”: Read mode (default) Opens a file for reading.
“w”: Write mode Opens a file for writing (overwrites existing content).
“a”: Append mode Opens a file for appending new content
“b”: Binary mode - used for binary files (e.g., images)

Code For Opening Files:-

```
# Opening a file in read mode
file = open("example.txt", "r")
content = file.read() # Read the entire content print(content)
file.close() #Always close the file after use
```

- # Writing to File:-

You can write data to files using the write() or writelines () methods. The write() method writes a string, while writelines () can take a list of strings

Example:-

```
#Writing to a file
file= open("example.txt" "w")  #This will overwrite any existing content
file.write("Hello, Python!\n")
file.write("Welcome to file operations")
file.close()
```

• Appending Data

If you want to add data without deleting existing content use append mode (a)

Example:

```
#Appending data to a file
file open("example.txt" "a")
file write("\nAppending new line")
file.close()
```

• Reading From File

Reading from a file in Python means accessing the contents of a file and storing it in a variable using functions like read().

Example:-

```
file = open('example.txt', 'r')  # Open the file in read mode
content = file.read()  # Read the entire content
print(content)   # Print the content
file.close()  # Close the file
```

• Deleting Files

Deleting a file in Python means permanently removing a file from the filesystem using functions like os.remove().

Example:-

```
import os
os.remove('example.txt')
# Deletes the file named 'example.txt'
print("File deleted.")
```

• Copying Files

Copying a file means creating an exact duplicate of a file using functions like shutil.copy().

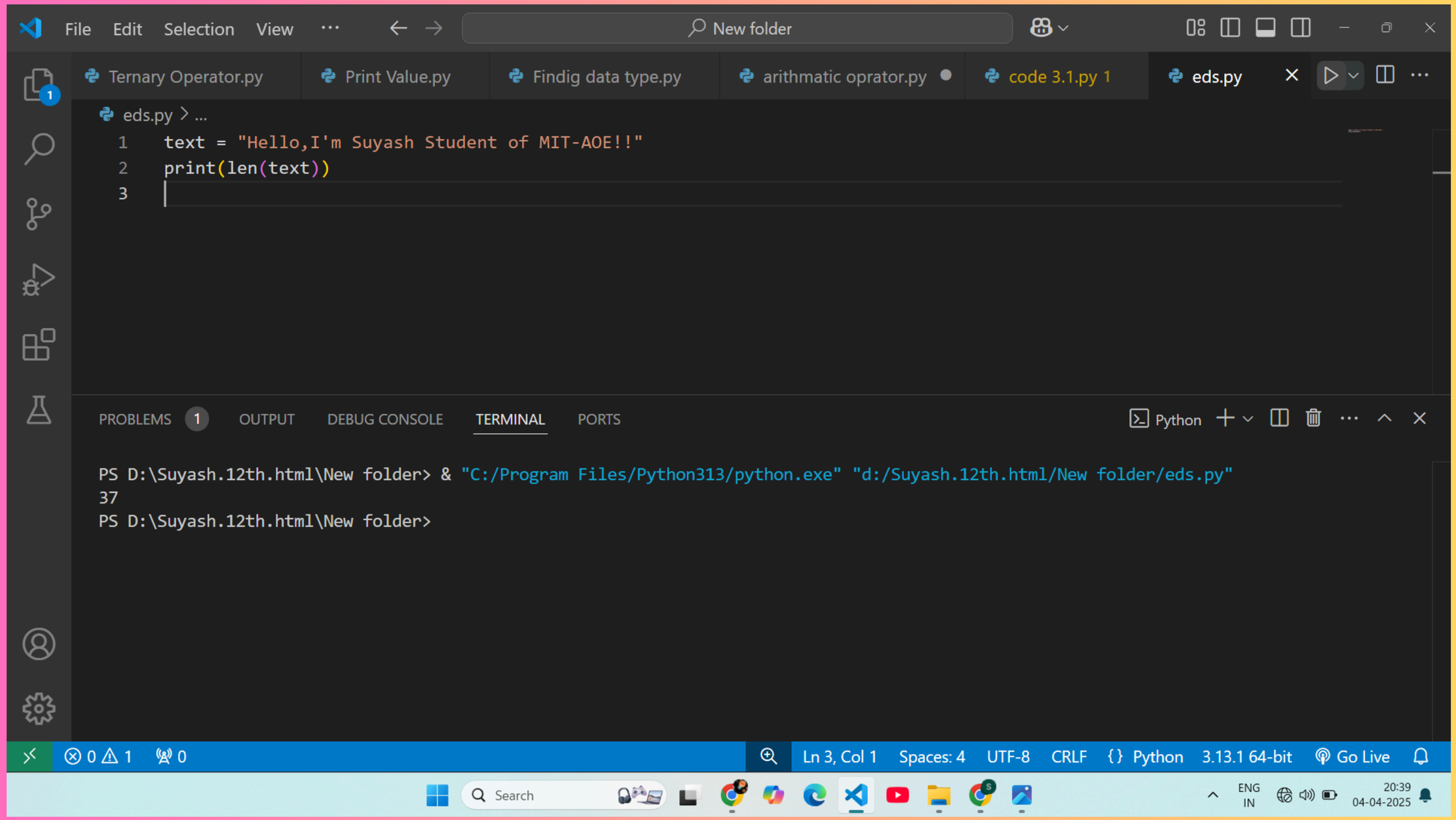
Example:-

```
import shutil
shutil.copy('source.txt', 'destination.txt')
# Copies source to destination
print("File copied.")
```

B)What is Character Count?

Character count in Python refers to counting the total number of characters (including letters, numbers, spaces, and symbols) in a string using functions like len().

Example:-


File Edit Selection View
New folder
Ternary Operator.py
Print Value.py
Findig data type.py
arithmatic oprator.py
code 3.1.py 1
eds.py
eds.py > ...
1 text = "Hello,I'm Suyash Student of MIT-AOE!!"
2 print(len(text))
3
PROBLEMS 1
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Python
PS D:\Suyash.12th.html\New folder> & "C:/Program Files/Python313/python.exe" "d:/Suyash.12th.html/New folder/eds.py"
37
PS D:\Suyash.12th.html\New folder>
Ln 3, Col 1
Spaces: 4
UTF-8
CRLF
Python
3.13.1 64-bit
Go Live
Search
ENG
IN
20:39
04-04-2025

Conclution:-

- Python provides easy methods to handle files using open(), read(), write(), etc.
- The line count program in Python demonstrates basic file reading and line manipulation.
- File handling is crucial for working with real-world applications like logs, reports, and data storage

Thank You

By Suyash S. Hadole(CS7-73)