LAB 2

Q: create a text file and process its contents based on structured operations. The operations performed include:

1. Information
2. Retrieval
3. Corpus
4. Listing
5. Any Choice of yours

Program:

```
# Step 1: Create and Write to a Text File
file_name = "sample_text.txt"

content = """Python is a powerful programming language.
It is widely used for machine learning, data analysis, and web
development.
Python makes coding efficient and fun."""

with open(file_name, "w") as file:
    file.write(content)

# Step 2: Perform Structured Operations

# 1. Information: Read and display file content
def display_content():
    with open(file_name, "r") as file:
        print("File Content:\n", file.read())

# 2. Retrieval: Search for a specific word
def search_word(word):
    with open(file_name, "r") as file:
        text = file.read()
        if word in text:
            print(f"'{word}' found in the text.")
        else:
            print(f"'{word}' not found in the text.")

# 3. Corpus: Count word occurrences
def word_count():
    with open(file_name, "r") as file:
```

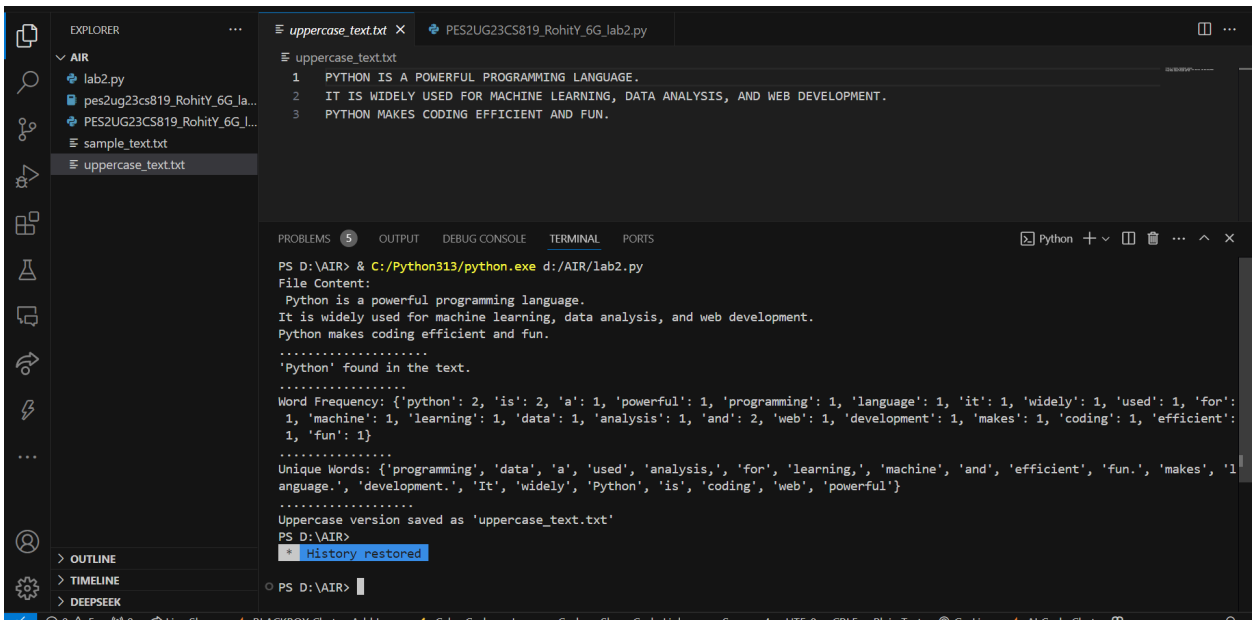
```
        text = file.read()
        words = text.split()
        word_freq = {}
        for word in words:
            word = word.strip(".,").lower()  # Normalize words
            word_freq[word] = word_freq.get(word, 0) + 1
        print("Word Frequency:", word_freq)

# 4. Listing: List all unique words
def unique_words():
    with open(file_name, "r") as file:
        text = file.read()
        words = set(text.split())
        print("Unique Words:", words)

# 5. Transformation: Convert text to uppercase
def convert_to_uppercase():
    with open(file_name, "r") as file:
        text = file.read().upper()
    with open("uppercase_text.txt", "w") as file:
        file.write(text)
    print("Uppercase version saved as 'uppercase_text.txt'")

# Running the operations
display_content()
search_word("Python")
word_count()
unique_words()
convert_to_uppercase()
```

Output:


EXPLORER
AIR
lab2.py
pes2ug23cs819_RohitY_6G_la...
PES2UG23CS819_RohitY_6G_l...
sample_text.txt
uppercase_text.txt
OUTLINE
TIMELINE
DEEPSEEK
uppercase_text.txt
PES2UG23CS819_RohitY_6G_lab2.py
uppercase_text.txt
1 PYTHON IS A POWERFUL PROGRAMMING LANGUAGE.
2 IT IS WIDELY USED FOR MACHINE LEARNING, DATA ANALYSIS, AND WEB DEVELOPMENT.
3 PYTHON MAKES CODING EFFICIENT AND FUN.
PROBLEMS 5
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Python
PS D:\AIR> & C:/Python313/python.exe d:/AIR/lab2.py
File Content:
Python is a powerful programming language.
It is widely used for machine learning, data analysis, and web development.
Python makes coding efficient and fun.
.....
'Python' found in the text.
.....
Word Frequency: {'python': 2, 'is': 2, 'a': 1, 'powerful': 1, 'programming': 1, 'language': 1, 'it': 1, 'widely': 1, 'used': 1, 'for': 1, 'machine': 1, 'learning': 1, 'data': 1, 'analysis': 1, 'and': 2, 'web': 1, 'development': 1, 'makes': 1, 'coding': 1, 'efficient': 1, 'fun': 1}
.....
Unique Words: {'programming', 'data', 'a', 'used', 'analysis,', 'for', 'learning,', 'machine', 'and', 'efficient', 'fun.', 'makes', 'language.', 'development.', 'It', 'widely', 'Python', 'is', 'coding', 'web', 'powerful'}
.....
Uppercase version saved as 'uppercase_text.txt'
PS D:\AIR>
* History restored
PS D:\AIR>