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Sub: FP(Functional Programming)

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-----------------------------PRACTICAL 7-----------------------------

- ▪ **Question-1 :**

A book reviewer needs to analyse the book chapter wise. He wants to ease his work through the review machine. The machine needs to count the number of characters, words, and lines of the given chapter. A whitespace character separates words. The program should prompt the user to enter a filename.

- ✓ **Source Code :**

```python
filename = input("Enter a File Name : ")

try:
    with open(filename)as file:
        char_count = 0
        word_count = 0
        line_count = 0

        for line in file:
            line_count += 1
            # Strip Whitespace and Count Characters
            char_count += len(line.strip())
            # Split line into Words and Count them
            words = line.split()
            word_count += len(words)
        print("Character Count : ", char_count)
        print("Words Count : ", word_count)
        print("Line Count : ", line_count)
except FileNotFoundError:
    print(f"Error: {filename} not Found.!")
```

✓ **Output :**

```
tushar@tushar in ~/Documents/FP/7 via 🐍 v3.10.10
λ python 1.py
Enter a File Name : marvel.txt
Character Count :  1150
Words Count :  155
Line Count :  101
```

✓ **Question-2 :**

For some security reasons an employee has to secure his documents. He has encoded the file by adding 5 to every byte in the file. Write a program that prompts the user to enter an input filename and an output filename and saves the encrypted version of the input file to the output file. Also, for backup point, he needs the original document on his side; but he is always going to communicate using the encoded format to the client. The client will be provided the private key (i.e. the decoded output) for his use. Write a program to decode an encrypted file and save the unencrypted version of the input file to the output.

✓ **Source Code :**

```python
def encrypt_file(input_filename, output_filename):
    with open(input_filename, 'rb') as input_file:
        with open(output_filename, 'wb')as output_file:
            while True:
                byte = input_file.read(1)
                if not byte:
                    break
                encrypted_byte = bytes([byte[0]+5])
                output_file.write(encrypted_byte)


def decrypt_file(input_filename, output_filename):
    with open(input_filename, 'rb')as input_file:
        with open(output_filename, 'wb')as ouptut_file:
            while True:
                byte = input_file.read(1)
                if not byte:
                    break
                decrypted_file = bytes([byte[0]-5])
                ouptut_file.write(decrypted_file)


encrypt_file('villain.txt', 'encrypted.txt')
print("File is Encrypted Sucessfully.")
decrypt_file('encrypted.txt', 'decrypted.txt')
print("File is Decrypted Sucessfully.")
```

✓ **Output :**

```
┌tushar@tushar in ~/Documents/FP/7 via 🐍 v3.10.10 took 6s
└λ python 2.py
File is Encrypted Sucessfully.
File is Decrypted Sucessfully.
```

Encrypted File Screenshot:

Decrypted File Screenshot :

✓ **Question-3 :**

PM Narendra Modi has generated one circular regarding Swachh Bharat Mission and posted it on to his twitter account. His Followers has to read that circular and share their suggestions through their tweeted comments. Help PM by providing help in: a) Generating the circular in text file. b) Reading that circular and printing it. c) As a follower, write suggestion below circular and generate new document appending new comments w.r.t original tweet stating the no of suggestions generated for a point in circular.

✓ **Source Code :**

```python
txt = "Swachh Bharat Mission\n"

with open('circular.txt', 'w') as f:
    f.write(txt)

with open('circular.txt', 'r') as f:
    circular = f.read()
    print(circular)

while True:
    suggestion = input("Enter Your Suggestion : \n")
    with open('circular.txt', 'a') as f:
        f.write(f"\n{suggestion}")
    confirm = input("Enter Another Suggestion?[Y/N] :")
    if confirm == 'N':
        break
    elif confirm != 'Y':
        print("ERROR : Invalid Input!")
        break
```

✓ **Output :**

```
tushar@tushar in ~/Documents/FP/7 via 🐍 v3.10.10 took 22ms
λ python 3.py
Swachh Bharat Mission

Enter Your Suggestion :
Do Not Spit or Throw Litter on Roads
Enter Another Suggestion?[Y/N] :N

tushar@tushar in ~/Documents/FP/7 via 🐍 v3.10.10 took 15s
λ python 3.py
Swachh Bharat Mission

Enter Your Suggestion :
Use recycled and eco-friendly products like paper or jute bags.
Enter Another Suggestion?[Y/N] :Y
Enter Your Suggestion :
Do Not Spit or Throw Litter on Roads
Enter Another Suggestion?[Y/N] :N
```
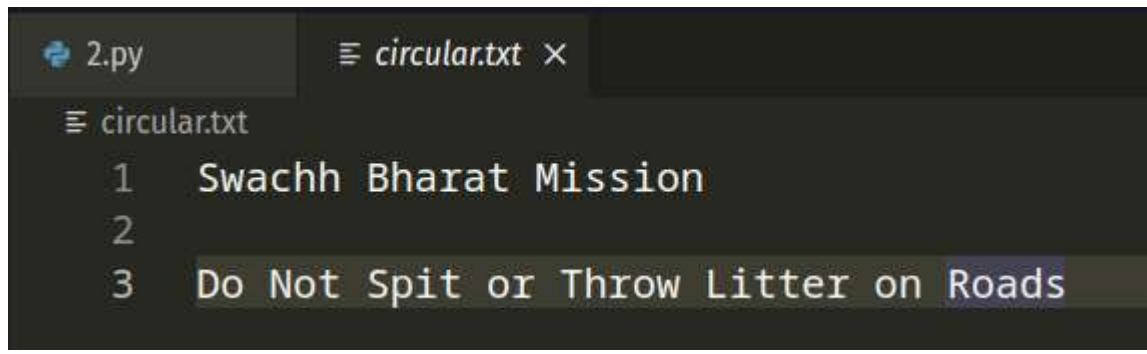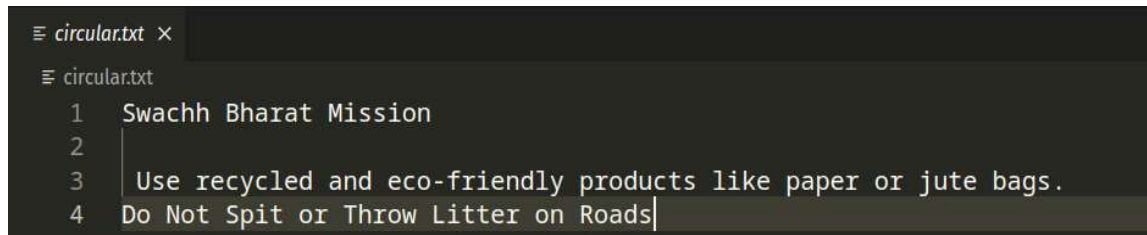
```
2.py          ≡ circular.txt  ×

≡ circular.txt
    1      Swachh Bharat Mission
    2
    3      Do Not Spit or Throw Litter on Roads
```

```
≡ circular.txt  ×

≡ circular.txt
    1      Swachh Bharat Mission
    2
    3       Use recycled and eco-friendly products like paper or jute bags.
    4      Do Not Spit or Throw Litter on Roads
```