**Q1. Display Line Numbers Write a Python program that reads a file (data.txt) and displays each line with its line number.**

with open("data.txt","r") as file:

    for line\_number,line in enumerate (file,start=1):

        print(f"{line\_number}:{line.strip()}")

# 1:hello it is a sample file handling operation

# 2:hello it is a sample file handling operation

# 3:hello it is a sample file handling operation

# 4:hello it is a sample file handling operation

# 5:hello it is a sample file handling operation

# line\_number is holding the current line\_number and line is holding the text in each corresponding line\_number.

**Q2.Write a program that reads data.txt and counts how many times each unique word appears in the file. Ignore case and punctuation.**

import string

word\_count={}

with open("data.txt","r") as file:

    for line in file:

        line=line.lower()

        line=line.translate(str.maketrans("","",string.punctuation))

        words=line.split()

        for word in words:

            word\_count[word]=word\_count.get(word,0)+1

for word,count in word\_count.items():

    print(f"{word}:{count}")

# hello:5

# it:5

# is:5

# a:5

# sample:5

# file:5

# handling:5

# operation:5

**Q3. Remove Blank and Whitespace-Only Lines Write a Python program that removes all empty lines or lines with only spaces from a file and writes the result into a new file called cleaned\_data.txt.**

with open ("data.txt","r") as file:

    cleaned\_lines=[line for line in file if line.strip()!= ""]

with open ("cleaned\_data.txt","w") as outfile:

    outfile.writelines(cleaned\_lines)

print("Empty lines removed output saved to new file cleaned\_Data.txt")

**Q4. Extract and Count Email Addresses Given a file emails.txt that contains random text and email addresses, write a program to: - Extract all email addresses using regular expressions - Count how many unique emails are found - Display them in alphabetical order.**

import re

with open("data.txt","r")as file:

    content=file.read()

pattern = r'[a-zA-Z0-9.\_%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}'

emails=re.findall(pattern,content)

unique\_emais = sorted(set(emails))

print(f"Total unique emails found:{len(unique\_emais)}")

print("\n Emails in alphabetical order:")

for email in unique\_emais:

    print(email)

**Q5. Rename All .txt Files in a Folder Write a Python program that renames all .txt files in a given folder by prefixing them with the word processed\_. Example: notes.txt becomes processed\_notes.txt**

import os

folder\_path = r"C:\Users\rajmd\OneDrive\Desktop\ASD\Assignments\PYTHON\Assignment5"

for filename in os.listdir(folder\_path):

    if filename.endswith(".txt") and not filename.startswith("processed\_"):

        old\_path = os.path.join(folder\_path,filename)

        new\_filename = f"processed\_{filename}"

        new\_path=os.path.join(folder\_path,new\_filename)

        os.rename(old\_path,new\_path)

        print(f"Renamed:{filename}->{new\_filename}")

print("Renaming done")

# Renamed:cleaned\_data.txt->processed\_cleaned\_data.txt

# Renamed:data.txt->processed\_data.txt

# Renaming done