1. Write a python function that copies a file reading and writing up to 50 characters at a time.

In [62]:
```
def rw():
    f=open("article.txt",'r+')  #opening the file
    s=f.read(50)                #reading only 50 characters
    print(s)
    f.write(s)                   #writing only 50 characters
    f.close()
    f=open("article.txt",'r+')
    print(f.read(50))
    f.close()                   #CLOSING THE FILE

rw()
```

```
What is artificial intelligence?
Hear the term art
What is artificial intelligence?
Hear the term art
```

2. Print all numbers present in the text file and print the number of blank spaces in that file.

In [14]:
```
f=open("article.txt",'r')
s=f.read()
f.close()
count=0
for i in s:
    if i.isdigit():

        print(i,end=' ')
    if i.isspace():
        count+=1
print()
print("No of Blank spaces are ",count)
```

```
1 9 5 0
No of Blank spaces are  161
```

3. Write a function called sed

that takes as arguments a pattern string, a replacement string, and two filenames; it should read the first file and write the contents into the second file (creating it if necessary). If the pattern string appears anywhere in the file, it should be replaced with the replacement string. If an error occurs while opening, reading, writing, or closing files, your program should catch the

In [69]:

```
import sys

def sed(p,r,file1,file2):
    try:
        f1=open(file1,'r')
        f2=open(file2,'w')
        f1_content=f1.read()
        f2.write(f1_content)
        f1.seek(0)
        content_modified=f1_content.replace(p,r)

        print(content_modified)
        print('*'*80)
        f1.close()
        f2.close()

        f2=open(file2,'r')
        f2_content=f2.read()
        print(f2_content)


    except:
        print('error')

sed('if','hi','article.txt','new_article.txt')


```

```
What is arthiicial intelligence?
Hear the term arthiicial intelligence (AI) and you might think of self-drivin
g cars, robots, ChatGPT or other AI chatbots, and arthiicially created image
s. But it's also important to look behind the outputs of AI and understand ho
w the technology works and its impacts for this and future generations.

AI is a concept that has been around, formally, since the 1950s, when it was
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When you consider assigning intelligence to a machine, such as a computer, it
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```

4. Log File Analysis:

You have a log file containing records of user activities on a website.Each line in the file represents a log entry with details like timestamp, user ID, and action performed. Your task is to analyze this log file. a.Write Python code to read the log file and extract specific information, such as the number of unique users or the most common action. b.How would you handle large log files efficiently without loading the entire file into memory ?

In [16]:
```
def parse_log_file(log_file_path):
# Create a dictionary to store Log entries by date
    log_entries_by_date = {}
    with open(log_file_path, 'r')as log_file :
    for line in log_file:
        # Split each Line into timestamp and message
        parts = line.strip().split(' ', 1)
    if len(parts)== 2:
        timestamp, message = parts
        date = timestamp[:10] # Extract the date portion
    if date in log_entries_by_date :
        log_entries_by_date[date].append (message)
    else :
log_entries_by_date[date]= [message]

return log_entries_by_date

# Function to anolyze Log data (you can customize this based on your needs

def analyze_log_data (log_entries_by_date):
    for date, entries in log_entries_by_date.items ():
        print(f"Date : {date}")
        print(f"Total Entries: {len(entries)}")
        print("Sample Entries:")
        for i, entry in enumerate(entries[:5], start=1):
            print(f''{i}. {entry}"")"
        print ("------" )
```

```
  File <tokenize>:4
    with open(log_file_path, 'r')as log_file :
    ^
IndentationError: unindent does not match any outer indentation level
```

5. Text File Search and Replace:

You have a text file with a large a1nount of text, and you want to search for specific words or phrases and replace them with new content. a. Write Python code to search for and replace text within a text file. b. How would you handle cases where you need to perform multiple replacements in a single pass?

In [ ]:

```
import re

def search_replace_in_file(input_file, output_file, search_pattern, repla
    try:
        with open(input_file, 'r') as file:
            content = file.read()

        modified_content = re.sub(search_pattern, replacement, content)

        with open(output_file, 'w') as file:
            file.write(modified_content)

        print(f"Replacements completed and saved to {output_file}.")
    except FileNotFoundError:
        print(f"Input file '{input_file}' not found.")
    except Exception as e:
        print(f"An error occurred: {str(e)}")

search_replace_in_file('input.txt', 'output.txt', 'of', 'the')

```

6. Write a Python script that concatenates the contents of multiple text files into a single output file. Allow the user to specify the input files and the output file.

In [5]:

```
def concatenate_files(input_files, output_file): # Function to concatenate
    with open(output_file, 'w') as output:
        for file_name in input_files:
            with open(file_name, 'r') as input_file:
                output.write(input_file.read())

def conc():

    input_files = []
    while True:
        file_name = input("Enter the name of an input text file (or press
        if not file_name:
            break
        input_files.append(file_name)

    if not input_files:
        print("No input files provided. Exiting.")
        return

    # Get the output file name from the user
    output_file = input("Enter the name of the output text file: ")

    # Concatenate the input files into the output file
    try:
        concatenate_files(input_files, output_file)
        print(f"Concatenated {len(input_files)} files into {output_file}.'
    except Exception as e:
        print(f"An error occurred: {str(e)}")

conc()
```

```
Enter the name of an input text file (or press Enter to finish): input.txt
Enter the name of an input text file (or press Enter to finish): output.txt
Enter the name of an input text file (or press Enter to finish):
Enter the name of the output text file:
An error occurred: [Errno 2] No such file or directory: ''
```

7. You are given a text file named input.txt containing a list of words, one word per line.

Your task is to craete Python that reads the contents of input.txt ,processes the words and write result to a file named output.txt The program shouldl perform the foUowirng operations: i. Read the words from input.txt. ii. for each word in the input file, calculate the length of the word and store in a diclionary where the word is the key and length is the value. iii. Write the word length dictionary to output.txt in the foiowing format: iv.close both input and output file properly

In [4]:
```python
# Function to read input file and calculate word lengths
def calculate_word_lengths(input_file):
    word_lengths = {}  # Dictionary to store word lengths

    with open(input_file, 'r') as file:
        for line in file:
            word = line.strip()  # Remove leading/trailing whitespace
            length = len(word)
            word_lengths[word] = length

    return word_lengths

# Function to write word lengths to output file
def write_word_lengths_to_output(output_file, word_lengths):
    with open(output_file, 'w') as file:
        for word, length in word_lengths.items():
            file.write(f"{word}: {length}\n")

def p7():
    input_file = "input.txt"  # Replace with the path to your input file
    output_file = "output.txt"  # Replace with the path to your output fi

    try:
        word_lengths = calculate_word_lengths(input_file)
        write_word_lengths_to_output(output_file, word_lengths)
        print(f"Word lengths calculated and written to {output_file}.")
    except Exception as e:
        print(f"An error occurred: {str(e)}")


p7()

```

```
Word lengths calculated and written to output.txt.
```

8.Assume that you are developing a student gradebook system for a school.

The system should aloow teachers to input students grades for various subjects,store the data in files, and provide students with the ability to view their grade. Design a python code that accomplishes following: i.Teachers should be able to input grades for students in different subjects. ii.Store the student grade data in separate text files for each subject. iii.Students should be able to view their grades for each subject. iv.Implemet error handling for file operations

In [ ]:

```
import os


def input_grades(subject):# input and store grades for a subject
    grades = {}

    while True:
        student_name = input("Enter student name (or press Enter to finis
        if not student_name:
            break
        try:
            grade = float(input(f"Enter {student_name}'s grade for {subje
            grades[student_name] = grade
        except ValueError:
            print("Invalid grade. Please enter a valid number.")

    filename = f"{subject}_grades.txt"

    try:
        with open(filename, 'w') as file:
            for student, grade in grades.items():
                file.write(f"{student}: {grade}\n")
        print(f"Grades for {subject} have been saved to {filename}.")
    except Exception as e:
        print(f"An error occurred while saving grades: {str(e)}")

def view_grades(subject): #view grades
    filename = f"{subject}_grades.txt"

    try:
        with open(filename, 'r') as file:
            print(f"Grades for {subject}:")
            for line in file:
                print(line.strip())
    except FileNotFoundError:
        print(f"{subject} grades file not found.")
    except Exception as e:
        print(f"An error occurred while reading grades: {str(e)}")

def grade():
    while True:
        print("\nStudent Gradebook System")
        print("1. Input Grades")
        print("2. View Grades")
        print("3. Quit")

        choice = input("Select an option (1/2/3): ")

        if choice == '1':
            subject = input("Enter the subject name: ")
            input_grades(subject)
        elif choice == '2':
            subject = input("Enter the subject name: ")
            view_grades(subject)
        elif choice == '3':
            break
        else:
```

```
            print("Invalid choice. Please select a valid option.")
grade()

```

In [ ]:

```

```