ASSIGNMENT – 2

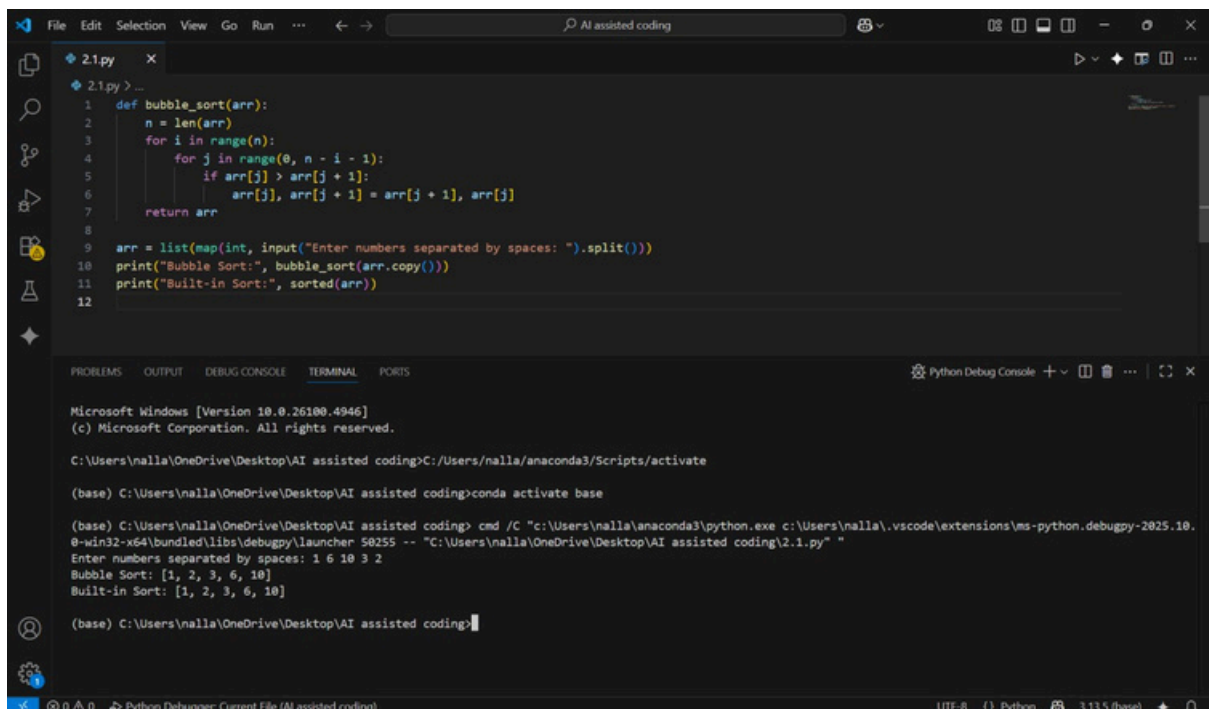***NAME : T.SWARANJITH HALL TICKET NO : 2403A52049 BATCH NO***

: AIB03 TASK 1 : Open Google Colab and use Google Gemini to generate Python code
that performs sorting of a list using both the bubble sort algorithm and Python's built-in sort() function. Compare the twoimplementations

PROMPT :

Generate Python code that performs sorting of a list using both the bubble sort algorithm and Python's built-in sort() function. Compare the two
implementations.

CODE :

OBSERVATION :

This program sorts a list of numbers using **bubble sort**.
It defines a function bubble_sort(arr) that takes a list as input.
Inside the function, nested loops compare each pair of adjacent elements and swap them if they are in the wrong order, repeatedly pushing the largest numbers to the end.
The program asks the user to enter numbers separated by spaces and converts them into a list.
Finally, it prints the sorted list using both the custom bubble_sort function and Python's built-in sorted() function for comparison.

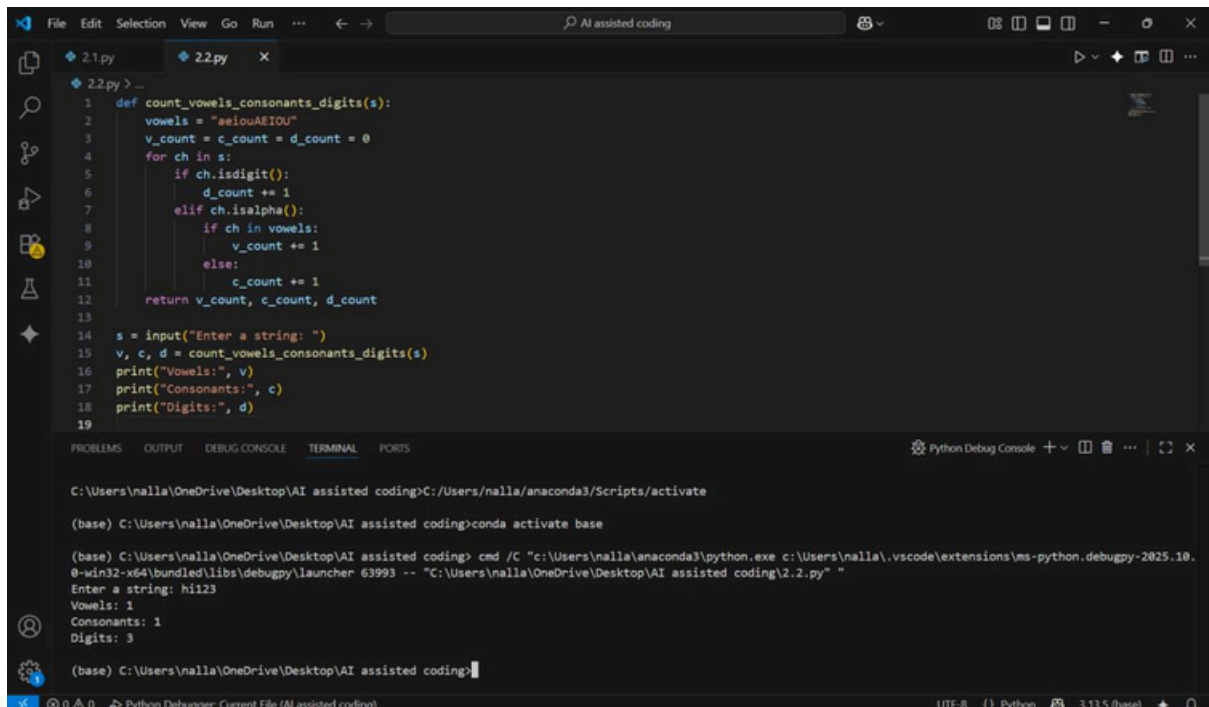## TASK 2:

In Colab, use Google Gemini to generate a Python function that takes a string and returns:The number of vowels, The number of consonants, The number of digits in the string

PROMPT :

Generate a Python function that takes a string and returns:
The number of vowels, The number of consonants, The number of digits in the string

CODE :

OBSERVATION:

This program counts the number of vowels, consonants, and digits in a string.It defines a function count_vowels_consonants_digits(s) that takes a string as input.Inside the function, it loops through each character and checks if it is a digit, a vowel, or a consonant, updating separate counters for each.The program asks the user to enter a string and calls the function with that input.Finally, it prints the counts of vowels, consonants, and digits in the string.

TASK 3 :

Install and set up Cursor AI. Use it to generate a Python program that performs file handling:
Create a text file
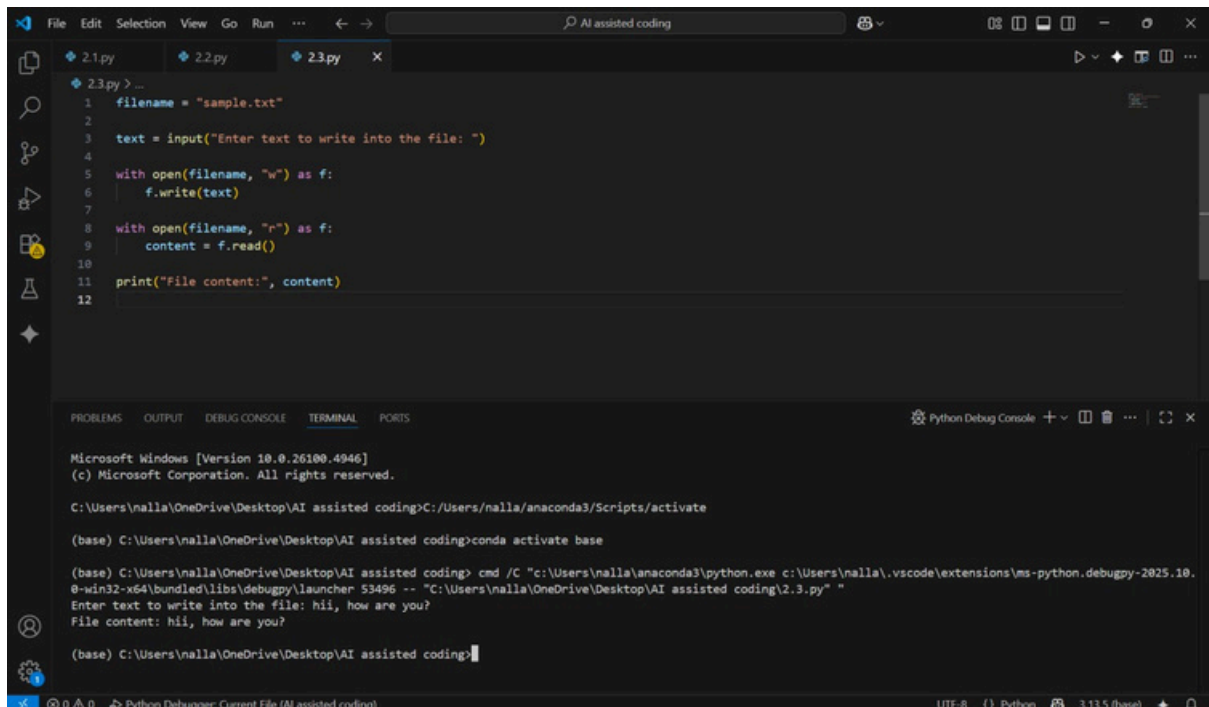Write sample text
Read and display the content

PROMPT :

generate a Python program that performs file handling:
Create a text file
Write sample text
Read and display the content

CODE :

OBSERVATION :

This program allows the user to write text into a file and then read it back. It first defines a file named "sample.txt" and asks the user to enter some text. Using the with open statement in write mode ("w"), the program writes the entered text into the file. After that, it opens the same file in read mode ("r") to read its contents. Finally, the program displays the text from the file, showing that the writing and reading operations were successful.
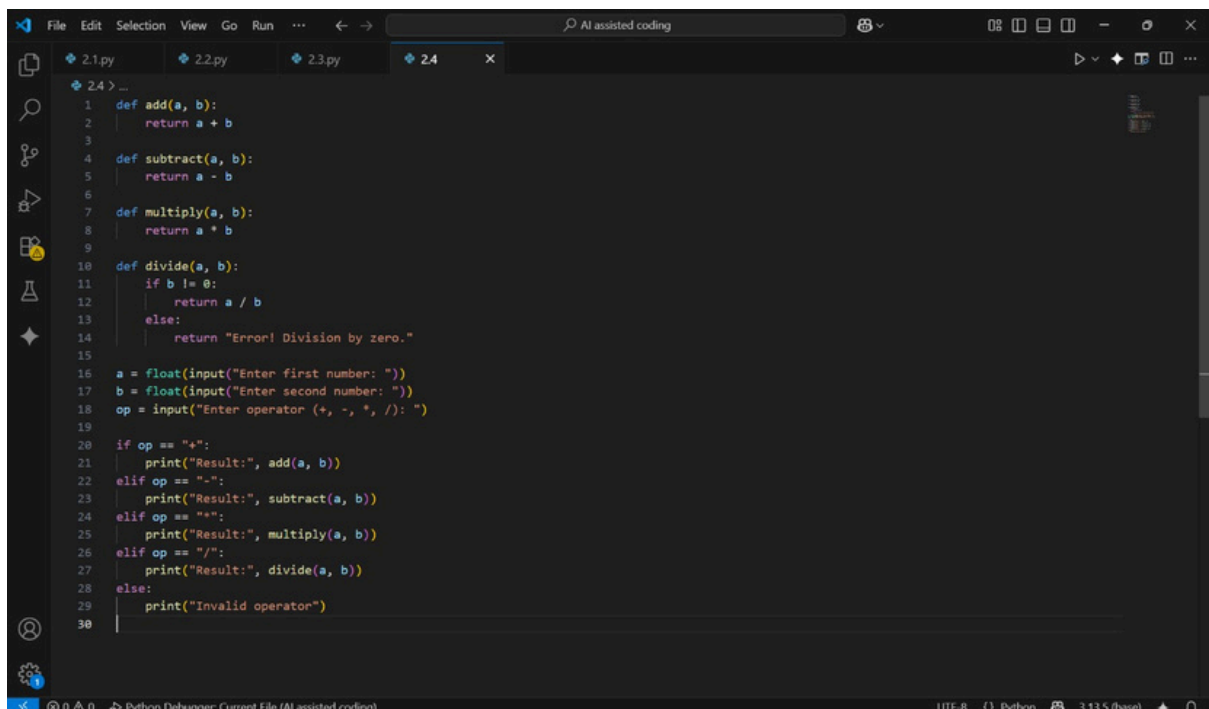
TASK 4 :

Ask Google Gemini to generate a Python program that implements a simple calculator using
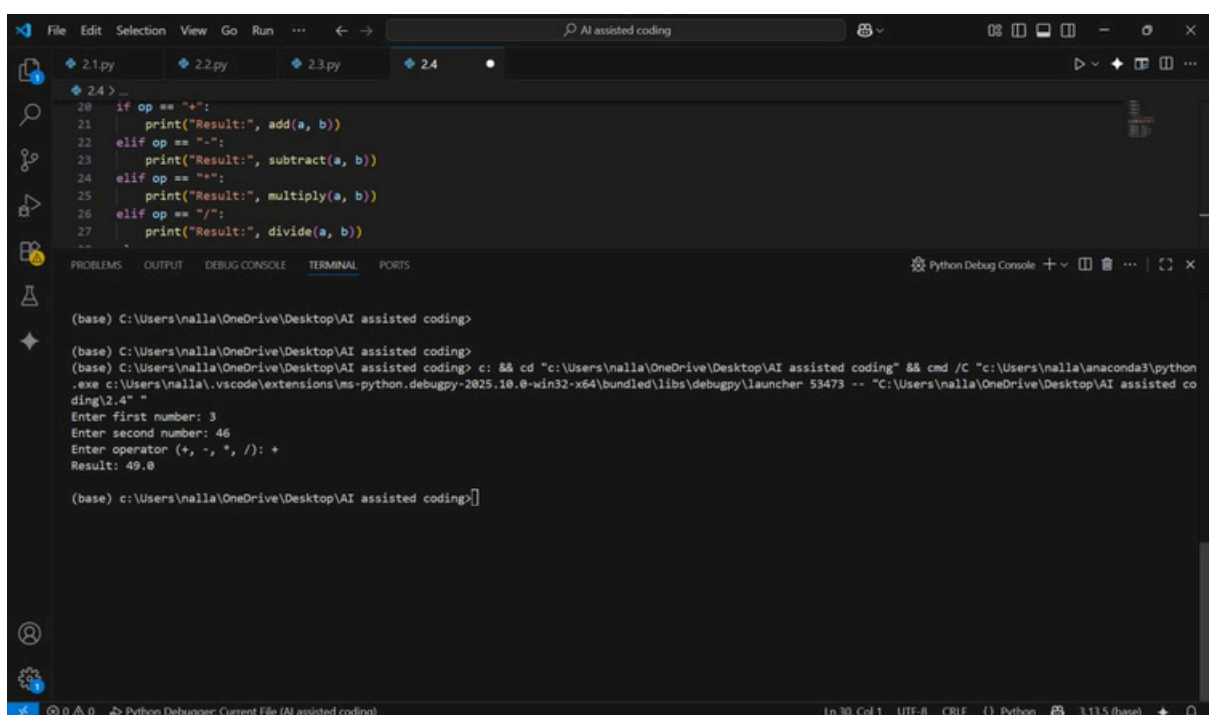functions (add, subtract, multiply, divide). Then, ask Gemini to explain how the code works

PROMPT :

Generate a Python program that implements a simple calculator using functions (add, subtract, multiply, divide).

CODE :

OBSERVATION :

This program is a simple calculator that performs addition, subtraction, multiplication, or division based on user input. It defines four separate

functions: add, subtract, multiply, and divide, each taking two numbers as arguments. The divide function also checks for division by zero to avoid errors. The program then asks the user to enter two numbers and an operator (+, -, *, or /). Based on the operator entered, it calls the corresponding function and prints the result, or displays an error message if the operator is invalid.
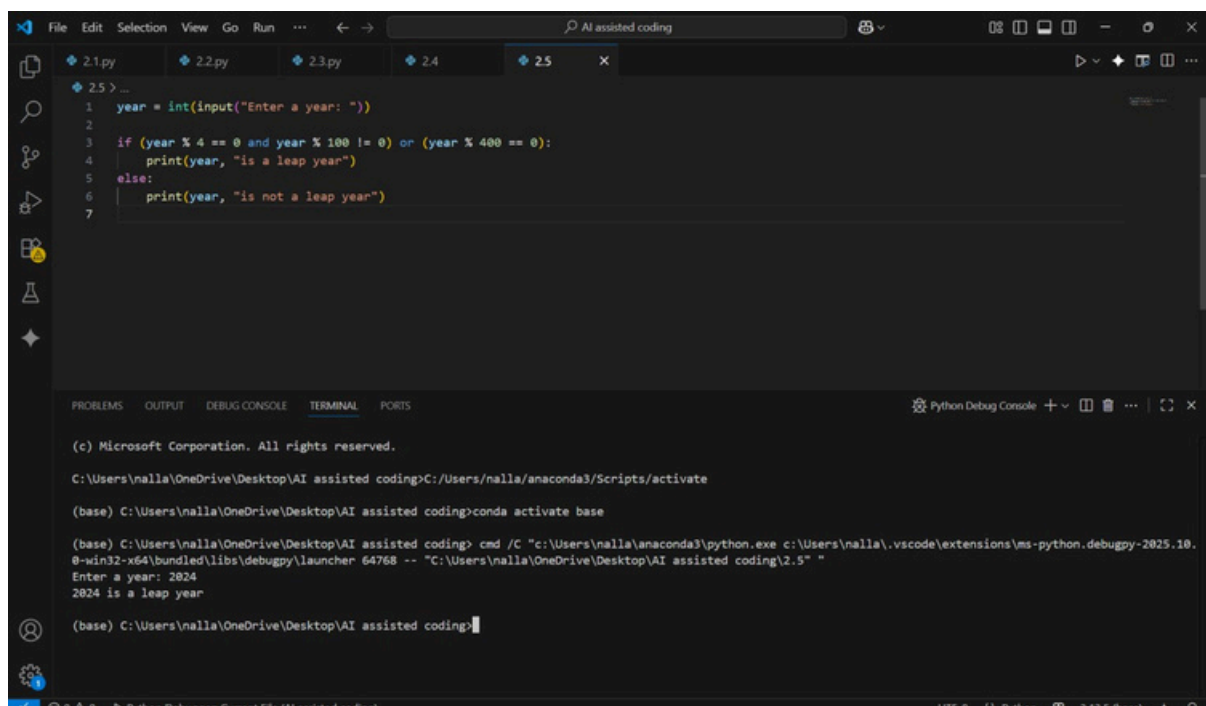
TASK 5 :

Use Cursor AI to create a Python program that checks if a given year is a leap year or not. Try
different prompt styles and see how Cursor modifies its code suggestions

PROMPT :

create a Python program that checks if a given year is a leap year or not.

CODE :

OBSERVATION:

This program checks whether a given year is a leap year or not. It first asks the user to enter a year. Then it uses a condition that checks if the

year is divisible by 4 but not by 100, or if it is divisible by 400. If either condition is true, the program prints that the year is a leap year; otherwise, it prints that it is not a leap year.