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SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE	**DEPARTMENT OF COMPUTER SCIENCE ENGINEERING**

ProgramName:B. Tech	**Assignment Type: Lab**	**AcademicYear:**2025-2026

CourseCoordinatorName	Venkataramana Veeramsetty
Instructor(s)Name	Dr. V. Venkataramana (Co-ordinator) Dr. T. Sampath Kumar Dr. Pramoda Patro Dr. Brij Kishor Tiwari Dr.J.Ravichander Dr. Mohammand Ali Shaik Dr. Anirodh Kumar Mr. S.Naresh Kumar Dr. RAJESH VELPULA Mr. Kundhan Kumar Ms. Ch.Rajitha Mr. M Prakash Mr. B.Raju Intern 1 (Dharma teja) Intern 2 (Sai Prasad) Intern 3 (Sowmya) NS_2 (Mounika)

CourseCode	24CS002PC215	**CourseTitle**	AI Assisted Coding
Year/Sem	II/I	**Regulation**	R24
Date and Day of Assignment	Week1 - Wednesday	**Time(s)**	
Duration	2 Hours	**Applicableto Batches**	24CSBTB01 To 24CSBTB39

AssignmentNumber:2.3(Present assignment number)/**24**(Total number of assignments)

Q.No.	**Question**	***ExpectedTime to complete***
1	Lab 2: Exploring Additional AI Coding Tools – Gemini (Colab) and Cursor AI **Lab Objectives:**	Week1 - Wednesday

- To explore and evaluate the functionality of Google Gemini for AI-assisted coding within Google Colab.
- To understand and use Cursor AI for code generation, explanation, and refactoring.
- To compare outputs and usability between Gemini, GitHub Copilot, and Cursor AI.
- To perform code optimization and documentation using AI tools.

Lab Outcomes (LOs):

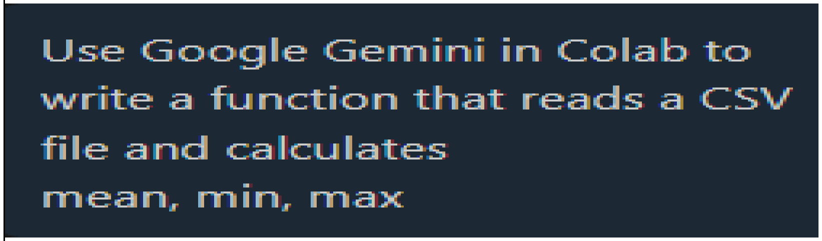
After completing this lab, students will be able to:

- Generate Python code using Google Gemini in Google Colab.
- Analyze the effectiveness of code explanations and suggestions by Gemini.
- Set up and use Cursor AI for AI-powered coding assistance.
- Evaluate and refactor code using Cursor AI features.
- Compare AI tool behavior and code quality across different platforms.

Task Description#1

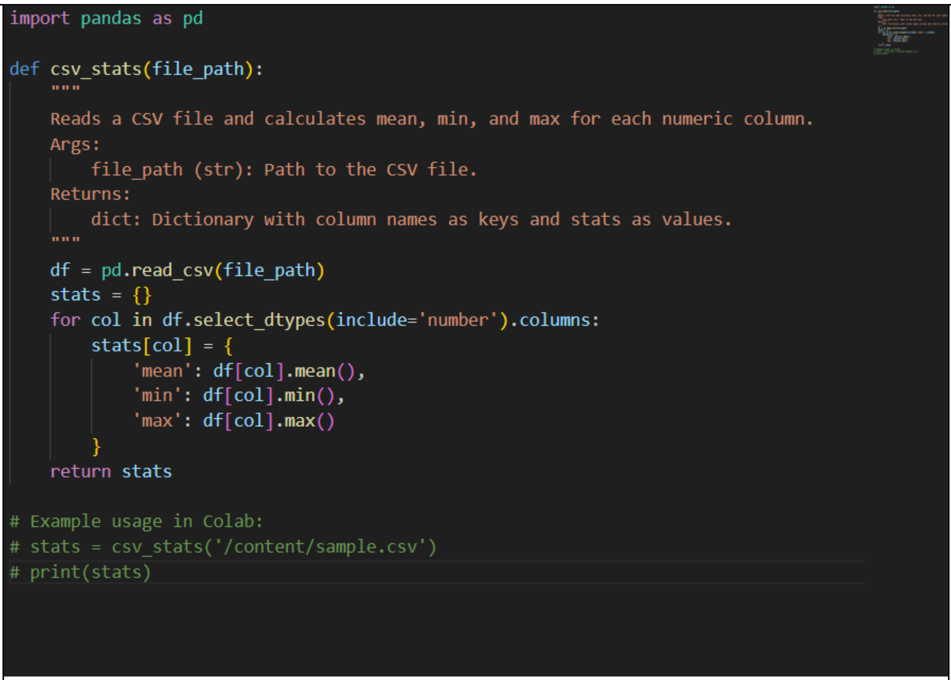
- Use Google Gemini in Colab to write a function that reads a CSV file and calculates mean, min, max.

Prompt:



Use Google Gemini in Colab to
write a function that reads a CSV
file and calculates
mean, min, max

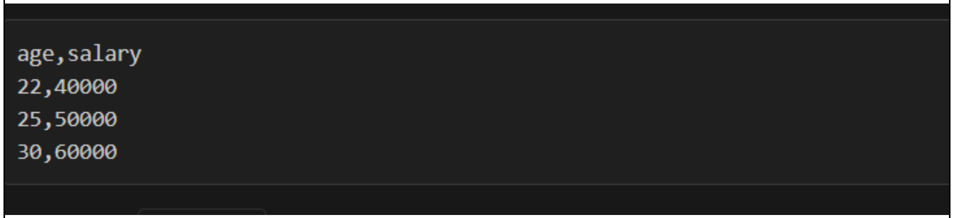
Code:



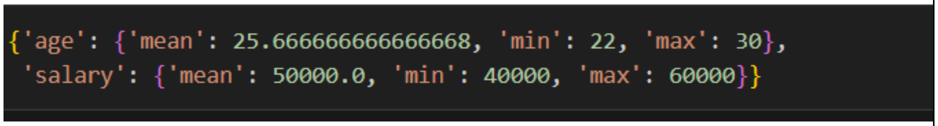
```
import pandas as pd

def csv_stats(file_path):
    """
    Reads a CSV file and calculates mean, min, and max for each numeric column.
    Args:
        file_path (str): Path to the CSV file.
    Returns:
        dict: Dictionary with column names as keys and stats as values.
    """
    df = pd.read_csv(file_path)
    stats = {}
    for col in df.select_dtypes(include='number').columns:
        stats[col] = {
            'mean': df[col].mean(),
            'min': df[col].min(),
            'max': df[col].max()
        }
    return stats

# Example usage in Colab:
# stats = csv_stats('/content/sample.csv')
# print(stats)
```

Expected Output#1

- Functional code with output and screenshot



```
age,salary
22,40000
25,50000
30,60000
```

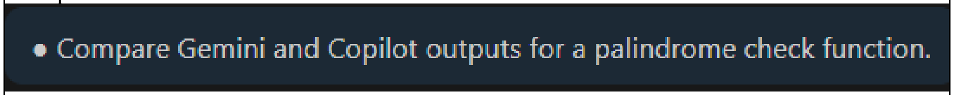


```
{'age': {'mean': 25.666666666666668, 'min': 22, 'max': 30},
 'salary': {'mean': 50000.0, 'min': 40000, 'max': 60000}}
```

Task Description#2

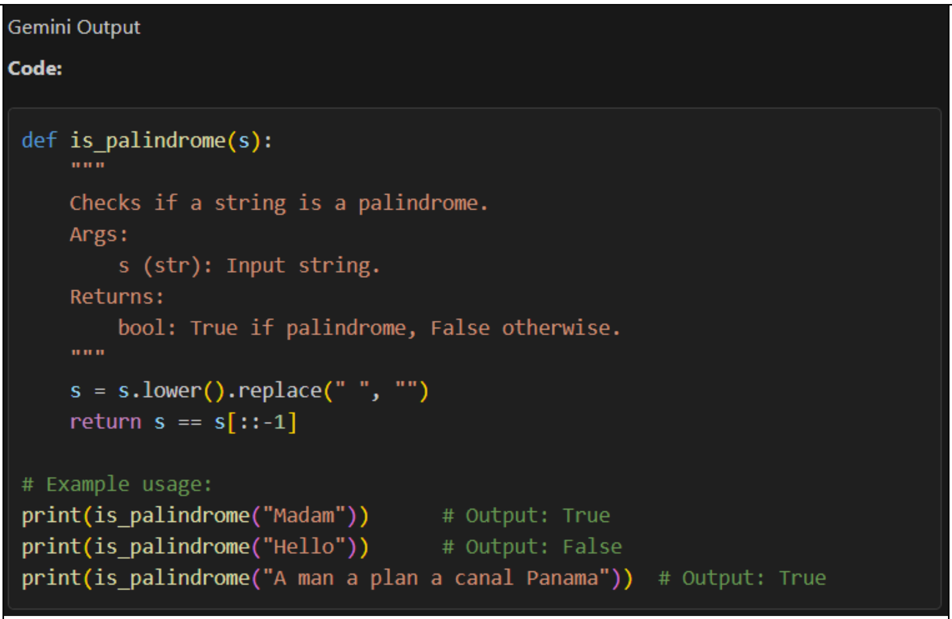
- Compare Gemini and Copilot outputs for a palindrome check function.

Prompt:



- Compare Gemini and Copilot outputs for a palindrome check function.

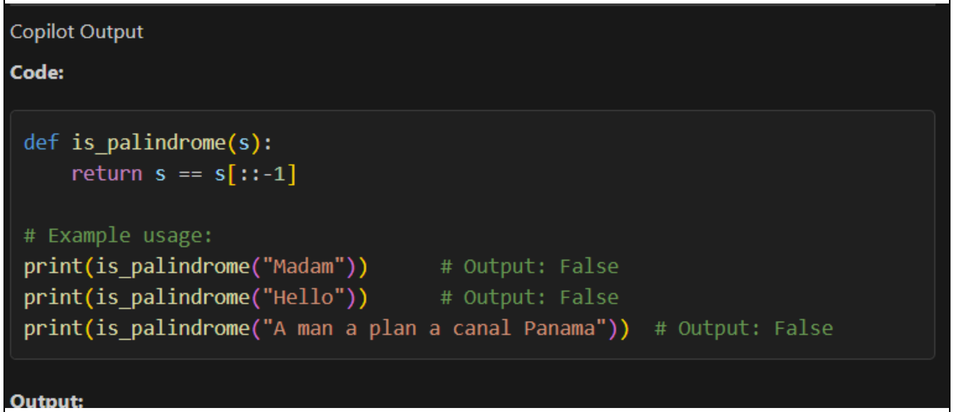
Code:



Gemini Output

Code:

```python
def is_palindrome(s):
    """
    Checks if a string is a palindrome.
    Args:
        s (str): Input string.
    Returns:
        bool: True if palindrome, False otherwise.
    """
    s = s.lower().replace(" ", "")
    return s == s[::-1]

# Example usage:
print(is_palindrome("Madam"))      # Output: True
print(is_palindrome("Hello"))      # Output: False
print(is_palindrome("A man a plan a canal Panama"))  # Output: True
```



Copilot Output

Code:

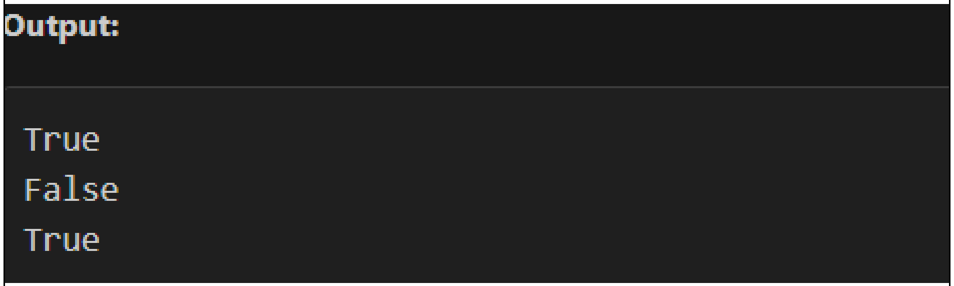
```python
def is_palindrome(s):
    return s == s[::-1]

# Example usage:
print(is_palindrome("Madam"))      # Output: False
print(is_palindrome("Hello"))      # Output: False
print(is_palindrome("A man a plan a canal Panama"))  # Output: False
```

Output:

Expected Output#2

- Side-by-side comparison and observations

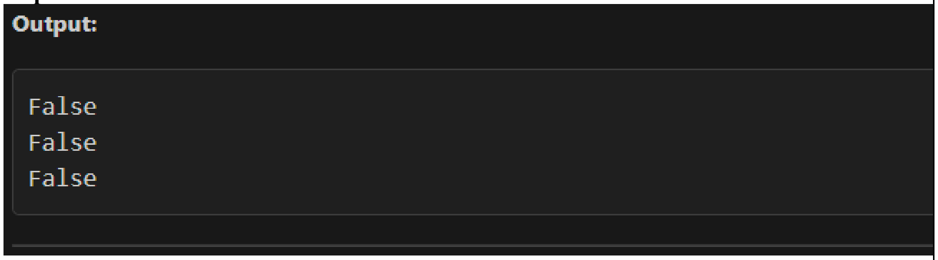
Gemini output:



Output:

```
True
False
True
```

Copilot:



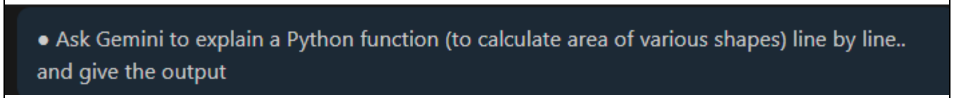
Output:

```
False
False
False
```

Task Description#3

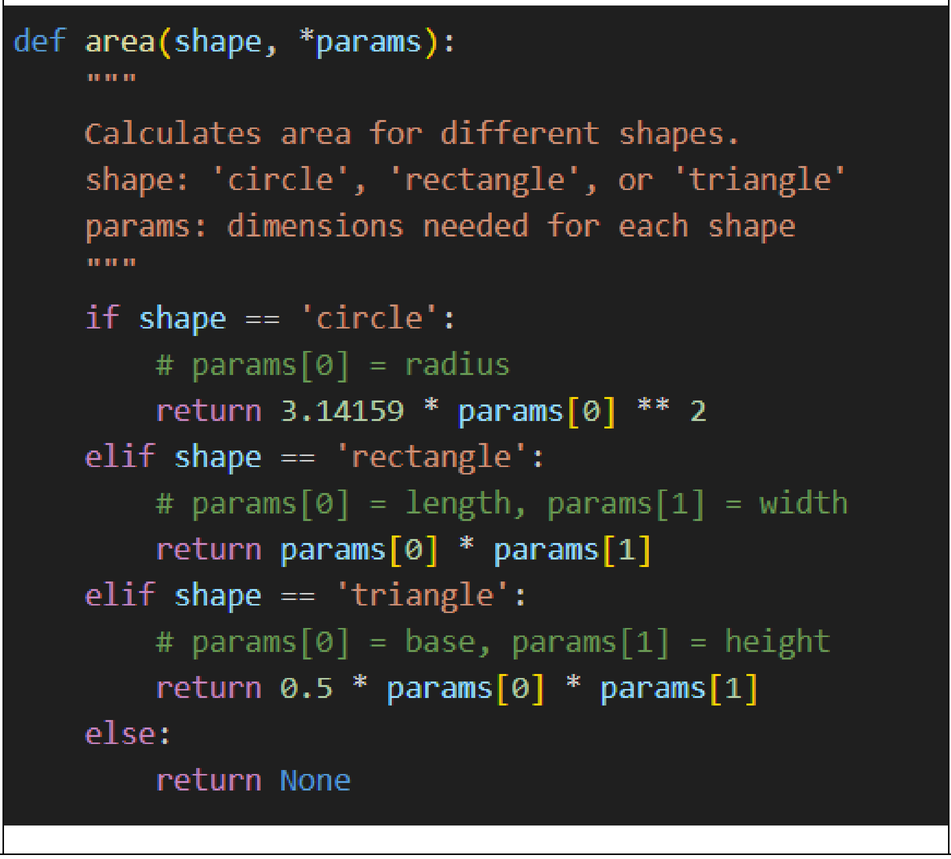
- Ask Gemini to explain a Python function (to calculate area of various shapes) line by line..

Prompt:

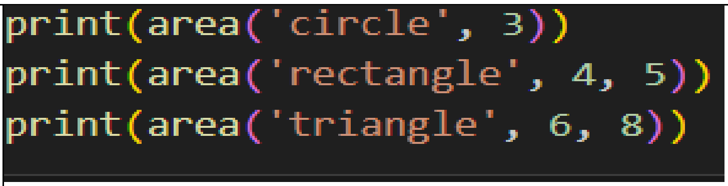


● Ask Gemini to explain a Python function (to calculate area of various shapes) line by line..
and give the output

Code:



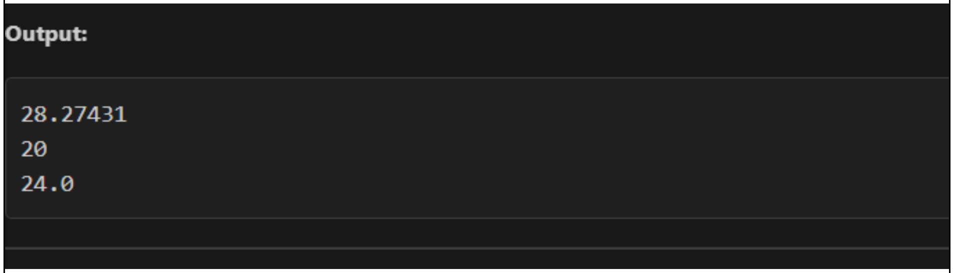
```python
def area(shape, *params):
    """
    Calculates area for different shapes.
    shape: 'circle', 'rectangle', or 'triangle'
    params: dimensions needed for each shape
    """
    if shape == 'circle':
        # params[0] = radius
        return 3.14159 * params[0] ** 2
    elif shape == 'rectangle':
        # params[0] = length, params[1] = width
        return params[0] * params[1]
    elif shape == 'triangle':
        # params[0] = base, params[1] = height
        return 0.5 * params[0] * params[1]
    else:
        return None
```



```
print(area('circle', 3))
print(area('rectangle', 4, 5))
print(area('triangle', 6, 8))
```

Expected Output#3

- Detailed explanation with code snippet



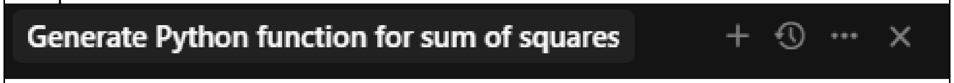
Output:

```
28.27431
20
24.0
```

Task Description#4

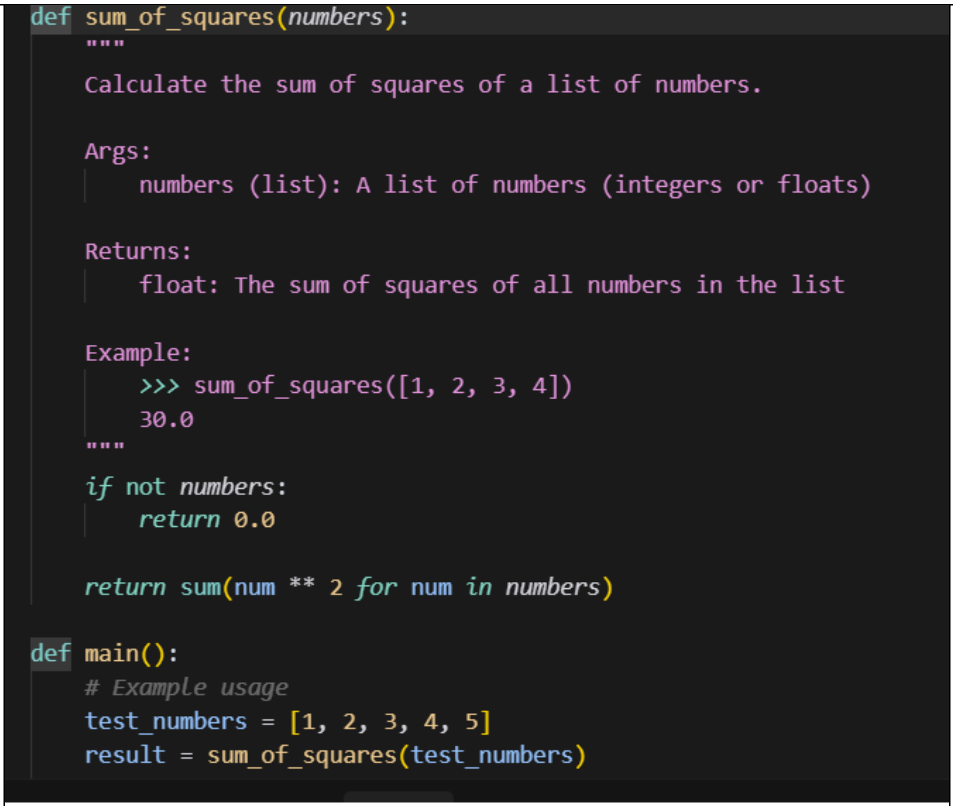
- Install and configure Cursor AI. Use it to generate a Python function (e.g., sum of squares)

Prompt:

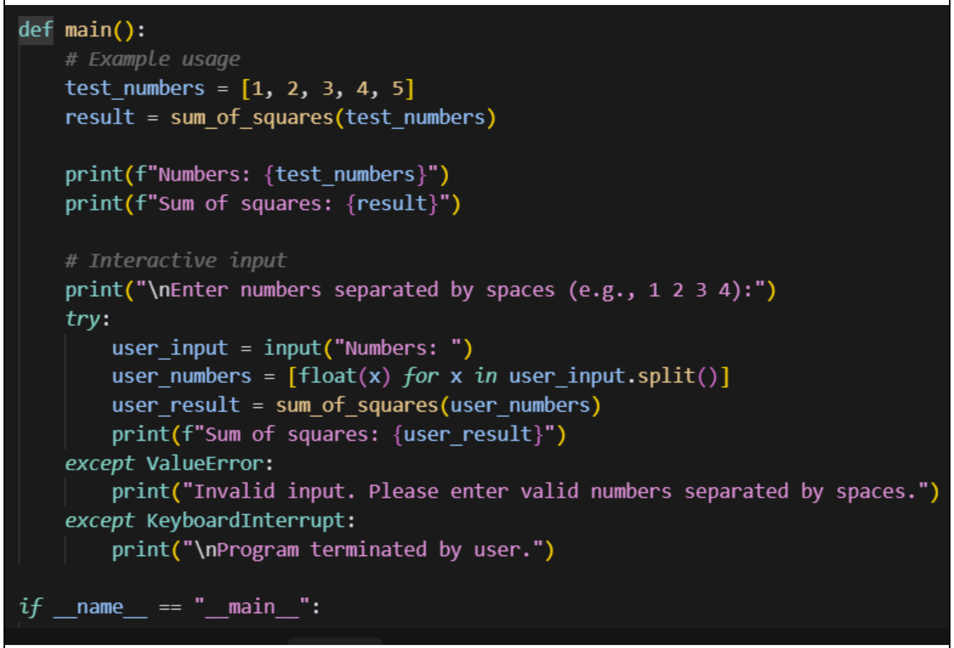


Generate Python function for sum of squares

Code:



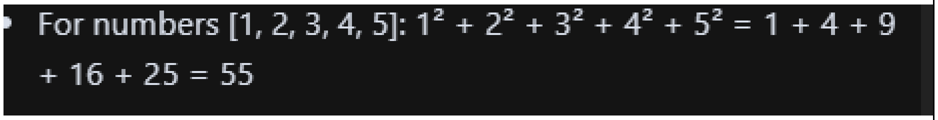
```
def sum_of_squares(numbers):
    """
    Calculate the sum of squares of a list of numbers.

    Args:
        numbers (list): A list of numbers (integers or floats)

    Returns:
        float: The sum of squares of all numbers in the list

    Example:
        >>> sum_of_squares([1, 2, 3, 4])
        30.0
    """
    if not numbers:
        return 0.0

    return sum(num ** 2 for num in numbers)

def main():
    # Example usage
    test_numbers = [1, 2, 3, 4, 5]
    result = sum_of_squares(test_numbers)
```



```
def main():
    # Example usage
    test_numbers = [1, 2, 3, 4, 5]
    result = sum_of_squares(test_numbers)

    print(f"Numbers: {test_numbers}")
    print(f"Sum of squares: {result}")

    # Interactive input
    print("\nEnter numbers separated by spaces (e.g., 1 2 3 4):")
    try:
        user_input = input("Numbers: ")
        user_numbers = [float(x) for x in user_input.split()]
        user_result = sum_of_squares(user_numbers)
        print(f"Sum of squares: {user_result}")
    except ValueError:
        print("Invalid input. Please enter valid numbers separated by spaces.")
    except KeyboardInterrupt:
        print("\nProgram terminated by user.")

if __name__ == "__main__":
```

Expected Output#4

- Screenshots of working environments with few prompts to generate python code

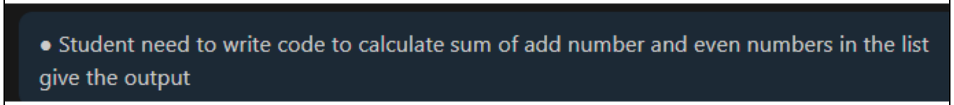


- For numbers [1, 2, 3, 4, 5]: $1^2 + 2^2 + 3^2 + 4^2 + 5^2 = 1 + 4 + 9 + 16 + 25 = 55$

Task Description#5

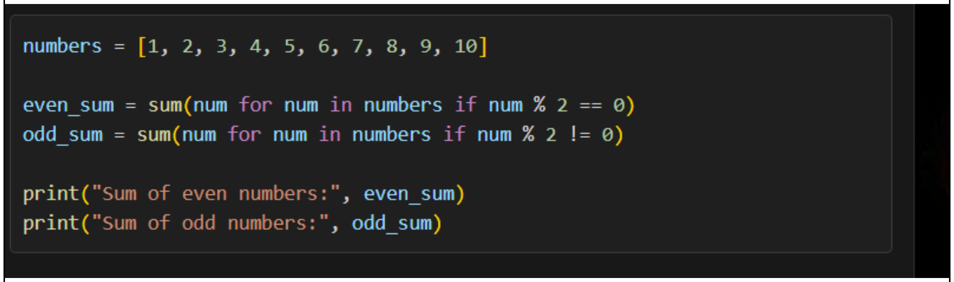
- Student need to write code to calculate sum of add number and even numbers in the list

Prompt:



- Student need to write code to calculate sum of add number and even numbers in the list give the output

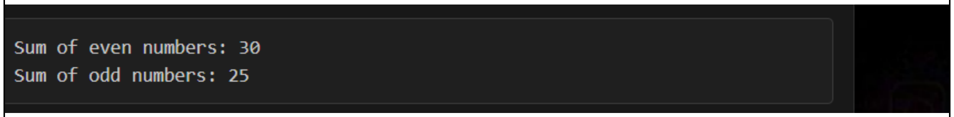
Code:



```python
numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

even_sum = sum(num for num in numbers if num % 2 == 0)
odd_sum = sum(num for num in numbers if num % 2 != 0)

print("Sum of even numbers:", even_sum)
print("Sum of odd numbers:", odd_sum)
```

Expected Output#5

- Refactored code written by student with improved logic



```
Sum of even numbers: 30
Sum of odd numbers: 25
```

Note: Report should be submitted a word document for all tasks in a single document with prompts, comments & code explanation, and output and if required, screenshots

Evaluation Criteria:

Criteria	Max Marks
Successful Use of Gemini in Colab (Task#1 & #2)	1.0
Code Explanation Accuracy (Gemini) (Task#3)	0.5

	Cursor AI Setup and Usage (Task#4)	0.5		
	Refactoring and Improvement Analysis (Task#5)	0.5		
	Total	**2.5 Marks**		