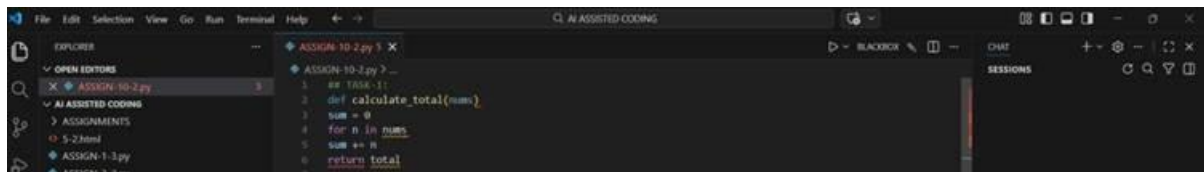


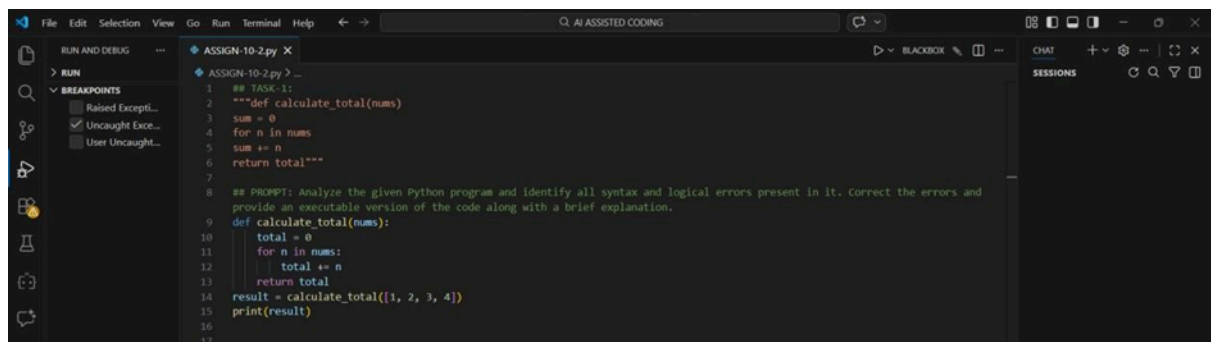
School of Computer Science and Artificial Intelligence**Lab Assignment # 10.2**

Program : B. Tech (CSE)
Specialization : -
Course Title : AI Assisted Coding
Course Code : 23CS002PC304
Semester : II
Academic Session : 2025-2026
Name of Student : Macharla Naniprasad
Enrollment No. : 2403A51L11
Batch No. : 51
Date : 10/02/26

Submission Starts here**TASK-1: Error Detection and Correction****Sample Input Code:**

```
1 # Task-1:
2 def calculate_total(nums):
3     sum = 0
4     for n in nums:
5         sum += n
6     return total
```

Prompt: Analyse the given Python program and identify all syntax and logical errors present in it. Correct the errors and provide an executable version of the code along with a brief explanation. **Corrected Input Code:**



```
1 # Task-1:
2 """def calculate_total(nums)
3 sum = 0
4 for n in nums
5 sum += n
6 return total"""
7
8 # PROMPT: Analyze the given Python program and identify all syntax and logical errors present in it. Correct the errors and
9 provide an executable version of the code along with a brief explanation.
10 def calculate_total(nums):
11     total = 0
12     for n in nums:
13         total += n
14     return total
15 result = calculate_total([1, 2, 3, 4])
16 print(result)
```

Output:

```

5 sum = 0
6 return total'''
7
8 ## PROMPT: Analyze the given Python program and identify all syntax and logical errors present in it. Correct the errors and
9 provide an executable version of the code along with a brief explanation.
10 def calculate_total(nums):
11     total = 0
12     for n in nums:
13         total += n
14     return total
15 result = calculate_total([1, 2, 3, 4])
16 print(result)
17
18 PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS ALIGNMENT NEXT EDIT
19 PS C:\Users\sarik\OneDrive\Desktop\AI ASSISTED CODING> & C:\Users\sarik\AppData\Local\Python\pythoncore-3.14-64\python.exe "C:\Users\sarik\OneD
20 rive\Desktop\AI ASSISTED CODING\ASSIGN-10-2.py"
21
22 PS C:\Users\sarik\OneDrive\Desktop\AI ASSISTED CODING>

```

Explanation: The original code contained syntax errors such as missing colons and improper indentation, which prevented execution. A logical error was also

present where an undefined variable was returned. These issues were corrected to make the function executable and reliable.

TASK-2: Code Style Standardization Sample

Input Code:

```

10 ## TASK-2:
11 def findSum(a,b):return a+b
12 print(findSum(5,10))
13
14
15
16
17
18
19
20
21
22

```

Prompt: Refactor the given Python code so that it follows standard coding style guidelines such as proper formatting, spacing, and naming conventions.

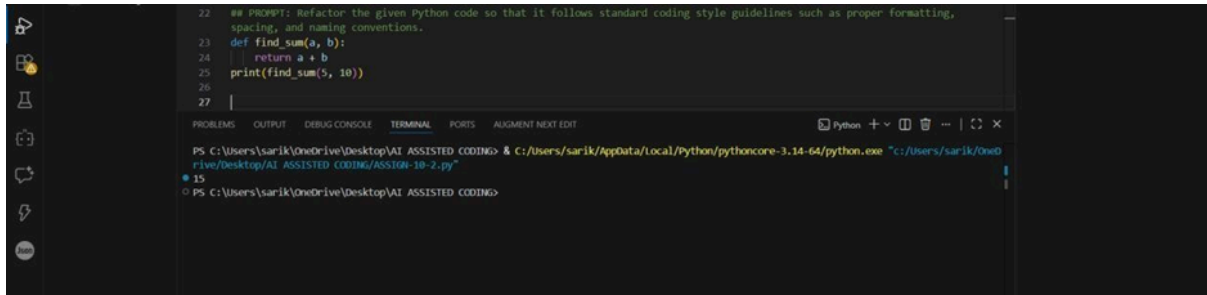
Corrected Input Code:

```

18 """## TASK-2:
19 def findSum(a,b):return a+b
20 print(findSum(5,10))"""
21
22 ## PROMPT: Refactor the given Python code so that it follows standard coding style guidelines such as proper formatting,
23 spacing, and naming conventions.
24 def find_sum(a, b):
25     return a + b
26 print(find_sum(5, 10))
27

```

Output:



```

22  ## PROMPT: Refactor the given Python code so that it follows standard coding style guidelines such as proper formatting,
23  spacing, and naming conventions.
24  def find_sum(a, b):
25  |   return a + b
26  print(find_sum(5, 10))
27

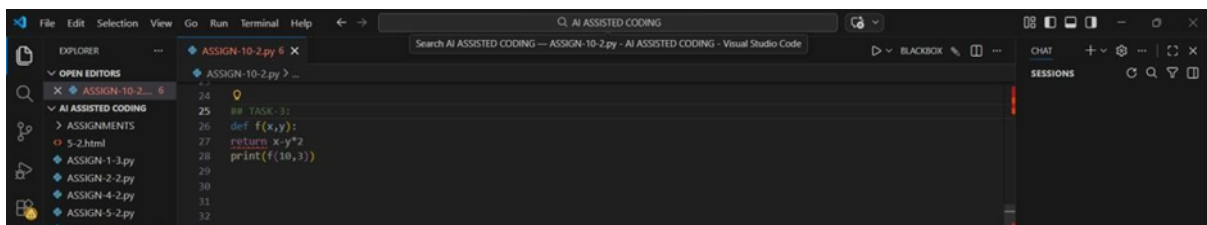
```

PS C:\Users\sarik\OneDrive\Desktop\AI ASSISTED CODING> & C:/Users/sarik/AppData/Local/Python/pythoncore-3.14-64/python.exe "C:/Users/sarik/OneDrive/Desktop/AI ASSISTED CODING/ASSIGN-10-2.py"

Explanation: The code was reformatted to follow Python’s PEP 8 style guidelines by improving spacing, naming conventions, and structure. These changes enhance readability and make the code easier to maintain without altering its functionality.

TASK-3: Code Clarity Improvement Sample

Input Code:



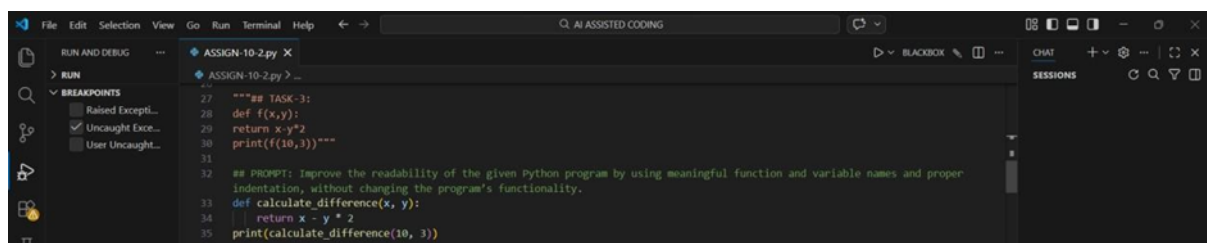
```

24  ## TASK-3:
25  def f(x,y):
26  |   return x-y*2
27  print(f(10,3))
28
29
30
31
32

```

Prompt: Improve the readability of the given Python program by using meaningful function and variable names and proper indentation, without changing the program’s functionality.

Corrected Input Code:



```

27  """## TASK-3:
28  def f(x,y):
29  |   return x-y*2
30  print(f(10,3))"""
31
32  ## PROMPT: Improve the readability of the given Python program by using meaningful function and variable names and proper
33  indentation, without changing the program's functionality.
34  def calculate_difference(x, y):
35  |   return x - y * 2
36  print(calculate_difference(10, 3))
37

```

Output:

```

29 return x-y*2
30 print(f(10,3))"""
31
32 ## PROMPT: Improve the readability of the given Python program by using meaningful function and variable names and proper
33 indentation, without changing the program's functionality.
34 def calculate_difference(x, y):
35     return x - y * 2
36 print(calculate_difference(10, 3))

```

```

PS C:\Users\sarik\OneDrive\Desktop\AI ASSISTED CODING> & C:/Users/sarik/AppData/Local/Python/pythoncore-3.14-64/python.exe "C:/Users/sarik/OneD
rive/Desktop/AI ASSISTED CODING/ASSIGN-10-2.py"
4
PS C:\Users\sarik\OneDrive\Desktop\AI ASSISTED CODING>

```

Explanation: The function and variable names were updated to clearly describe their purpose, making the code easier to understand. Proper indentation and clearer expressions were also applied while preserving the original logic.

TASK-4:Structural Refactoring Sample Input

Code:

```

41 ## TASK-4:
42 print("Hello Ram")
43 print("Hello Sita")
44 print("Hello Ravi")
45
46
47
48

```

Prompt: Modify the given Python code by eliminating repetitive statements and rewriting it using reusable functions to improve structure and maintainability.

Corrected Input Code:

```

37 """## TASK-4:
38 print("Hello Ram")
39 print("Hello Sita")
40 print("Hello Ravi")"""
41
42 ## PROMPT: : Modify the given Python code by eliminating repetitive statements and rewriting it using reusable functions to
43 improve structure and maintainability.
44 def greet(name):
45     print(f"Hello {name}")
46     greet("Ram")
47     greet("Sita")
48     greet("Ravi")
49

```

Output:

```

37 print("Hello Ravi")
38 print("Hello Ravi")"""
39
40 ## PROMPT: : Modify the given Python code by eliminating repetitive statements and rewriting it using reusable functions to
41 improve structure and maintainability.
42 def greet(name):
43     print(f"Hello {name}")
44     greet("Ram")
45     greet("Sita")
46     greet("Ravi")
47

```

```

PS C:\Users\sarik\OneDrive\Desktop\AI ASSISTED CODING> & C:/Users/sarik/AppData/Local/Python/pythoncore-3.14-64/python.exe "C:/Users/sarik/OneD
rive/Desktop/AI ASSISTED CODING/ASSIGN-10-2.py"
Hello Ram
Hello Sita
Hello Ravi

```

were replaced with a reusable function that accepts a name as input. This approach reduces redundancy and makes the code more scalable and easier to modify.

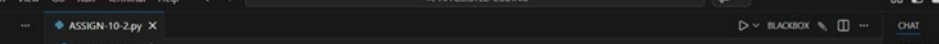
TASK-5: Efficiency Enhancement Sample Input

Code:

[illegible]

Prompt: Optimize the given Python program to improve its performance while ensuring that the output remains the same as the original code.

Corrected Input Code:



The screenshot shows a code editor with a Python file named 'ASSIGN-10-2.py'. The code defines a list 'numbers' and appends the square of each number from 1 to 500,000. A comment asks to optimize the program. The execution output shows the length of the list is 500,000.

```
49 """## TASK-5:
50 numbers = [ ]
51 for i in range(1, 500000):
52     numbers.append(i * i)
53     print(len(numbers))"""
54
55 ## PROMPT : Optimize the given Python program to improve its performance while ensuring that the output remains the same as
56             the original code.
57 numbers = [i * i for i in range(1, 500000)]
58 print(len(numbers))
59
```

Execution output:

```
500000
```

Output:

The screenshot shows a Visual Studio Code editor window with two panes. The top pane displays a Python script:

```
52 numbers.append(i * i)
53 print(len(numbers))"""
54 
55 # PROMPT : Optimize the given Python program to improve its performance while ensuring that the output remains the same as
the original code.
56 numbers = [i * i for i in range(1, 500000)]
57 print(len(numbers))
58
```

The bottom pane shows the terminal output after running the optimized code:

```
PS C:\Users\sarik\OneDrive\Desktop\AI ASSISTED CODING> & C:/Users/sarik/AppData/Local/Python/pythoncore-3.14-64/python.exe "c:/users/sarik/OneD
rive/Desktop/AI ASSISTED CODING/ASSIGN-10-2.py"
• 499999
○ PS C:\Users\sarik\OneDrive\Desktop\AI ASSISTED CODING>
```

A red circle highlights the number 499999 in the terminal output.

Explanation: The loop-based implementation was optimized using a list comprehension, which is faster and more concise in Python. This improves performance while producing the same output as the original code.