

AI Assisted Coding

Assignment 9.3

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Batch no: 19

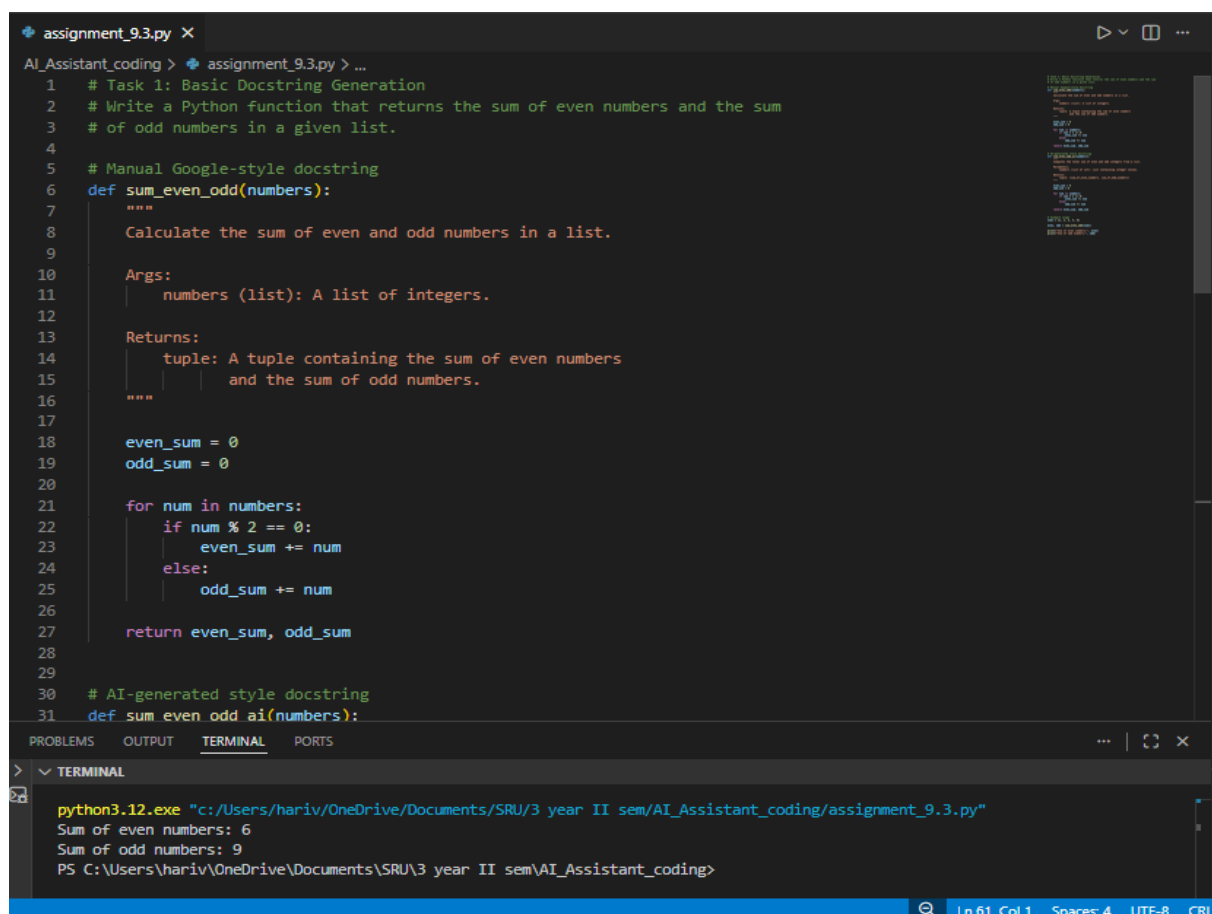
Task 1: Basic Docstring Generation

Prompt:

Write a Python function that returns the sum of even numbers and the sum of odd numbers in a given list.

Add a Google Style docstring manually and then generate a docstring using AI assistance for the same function.

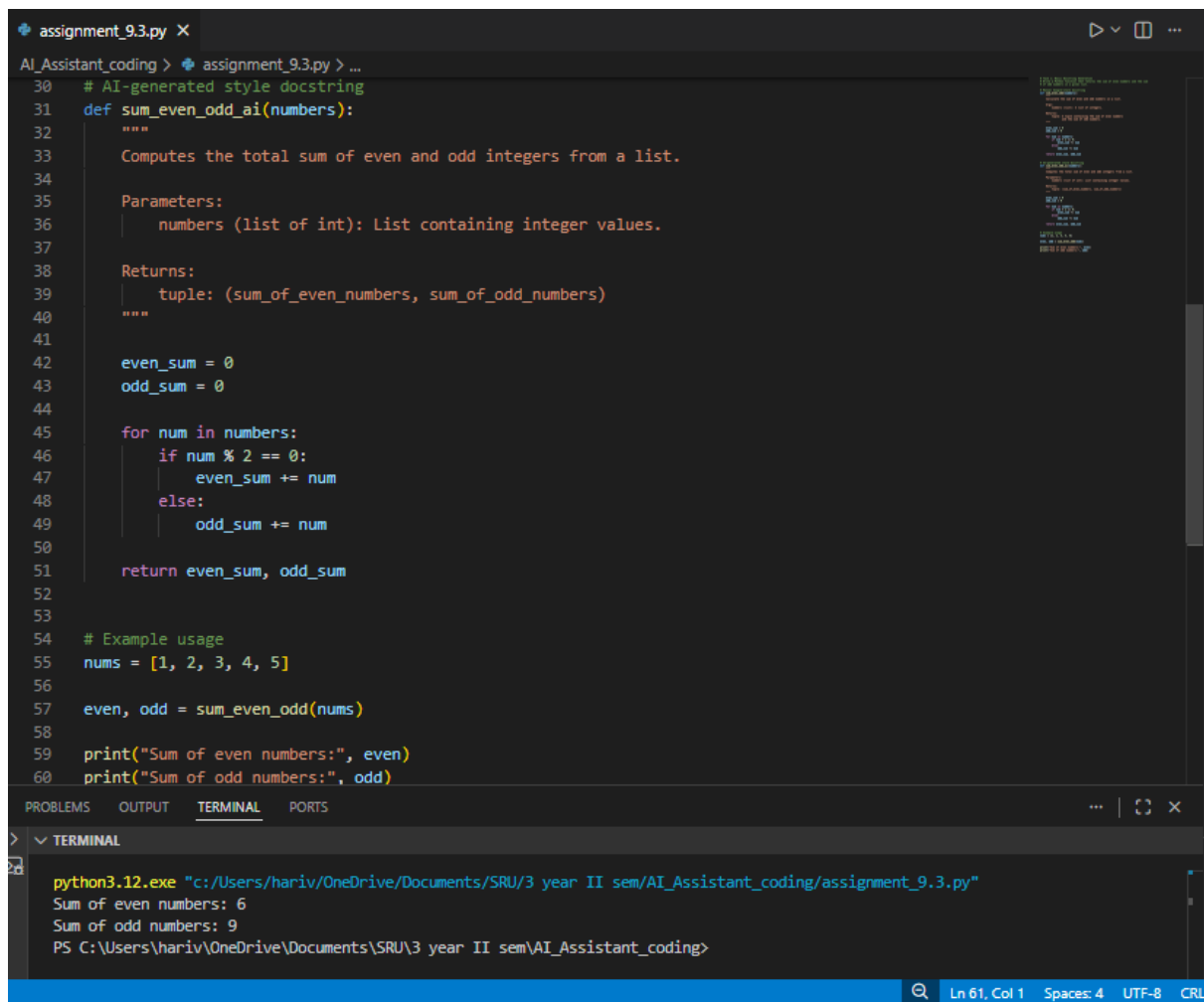
Code & Output:



```
assignment_9.3.py X
AI_Assistant_coding > assignment_9.3.py > ...
1 # Task 1: Basic Docstring Generation
2 # Write a Python function that returns the sum of even numbers and the sum
3 # of odd numbers in a given list.
4
5 # Manual Google-style docstring
6 def sum_even_odd(numbers):
7     """
8     Calculate the sum of even and odd numbers in a list.
9
10    Args:
11        numbers (list): A list of integers.
12
13    Returns:
14        tuple: A tuple containing the sum of even numbers
15              and the sum of odd numbers.
16    """
17
18    even_sum = 0
19    odd_sum = 0
20
21    for num in numbers:
22        if num % 2 == 0:
23            even_sum += num
24        else:
25            odd_sum += num
26
27    return even_sum, odd_sum
28
29
30 # AI-generated style docstring
31 def sum_even_odd_ai(numbers):
```

```
> TERMINAL
python3.12.exe "c:/Users/hariv/OneDrive/Documents/SRU/3 year II sem/AI_Assistant_coding/assignment_9.3.py"
Sum of even numbers: 6
Sum of odd numbers: 9
PS C:\Users\hariv\OneDrive\Documents\SRU\3 year II sem\AI_Assistant_coding>
```

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```
AI_Assistant_coding > assignment_9.3.py > ...
30 # AI-generated style docstring
31 def sum_even_odd_ai(numbers):
32     """
33     Computes the total sum of even and odd integers from a list.
34
35     Parameters:
36     | numbers (list of int): List containing integer values.
37
38     Returns:
39     | tuple: (sum_of_even_numbers, sum_of_odd_numbers)
40     """
41
42     even_sum = 0
43     odd_sum = 0
44
45     for num in numbers:
46         if num % 2 == 0:
47             even_sum += num
48         else:
49             odd_sum += num
50
51     return even_sum, odd_sum
52
53 # Example usage
54 nums = [1, 2, 3, 4, 5]
55
56 even, odd = sum_even_odd(nums)
57
58 print("Sum of even numbers:", even)
59 print("Sum of odd numbers:", odd)
60
```

PROBLEMS OUTPUT TERMINAL PORTS

python3.12.exe "c:/Users/hariv/OneDrive/Documents/SRU/3 year II sem/AI_Assistant_coding/assignment_9.3.py"
Sum of even numbers: 6
Sum of odd numbers: 9
PS C:\Users\hariv\OneDrive\Documents\SRU\3 year II sem\AI_Assistant_coding>

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Explanation:

The manual docstring gives a clear and detailed explanation of the function's purpose and return value. The AI-generated version is shorter and accurate but less descriptive. This comparison shows that AI can create correct documentation, yet human refinement is needed to make it more complete and clear.

Task 2: Automatic Inline Comments

Prompt:

Generate a Python class named `sru_student` with attributes `name`, `roll_no`, and `hostel_status`, and methods `fee_update()` and `display_details()`. Add inline comments automatically.

Code & Output:

```
assignment_9.3.py X
AI_Assistant_coding > assignment_9.3.py > ...
1  # Task 2: Automatic Inline Comments
2  # Generate a Python class named sru_student with attributes
3  # name, roll_no, and hostel_status, and methods fee_update()
4  # and display_details(). Add inline comments automatically.
5
6  class sru_student:
7
8      def __init__(self, name, roll_no, hostel_status):
9          # Initialize the student's basic details
10         self.name = name          # Store student's name
11         self.roll_no = roll_no    # Store student's roll number
12         self.hostel_status = hostel_status # Store hostel status (Active/Inactive)
13         self.fee = 0              # Initialize fee to 0
14
15     def fee_update(self, new_fee):
16         # Update the student's fee amount
17         self.fee = new_fee
18
19     def display_details(self):
20         # Display all student details
21         print(f"Name: {self.name}")
22         print(f"Roll No: {self.roll_no}")
23         print(f"Hostel Status: {self.hostel_status}")
24         print(f"Fee: {self.fee}")
25
26
27 # Example usage
28 student1 = sru_student("Alice", "SRU123", "Active")
29 student1.fee_update(5000)
30 student1.display_details()
```

```
> TERMINAL Python + v [ ] [ ] ...
• PS C:\Users\hariv\OneDrive\Documents\SRU\3 year II sem\AI_Assistant_coding> & C:/Users/hariv/AppData/Local/Microsoft/WindowsApps/python3.12.exe "c:/Users/hariv/OneDrive/Documents/SRU/3 year II sem/AI_Assistant_coding/assignment_9.3.py"
Name: Alice
Roll No: SRU123
Hostel Status: Active
Fee: 5000
• PS C:\Users\hariv\OneDrive\Documents\SRU\3 year II sem\AI_Assistant_coding>
```

Explanation:

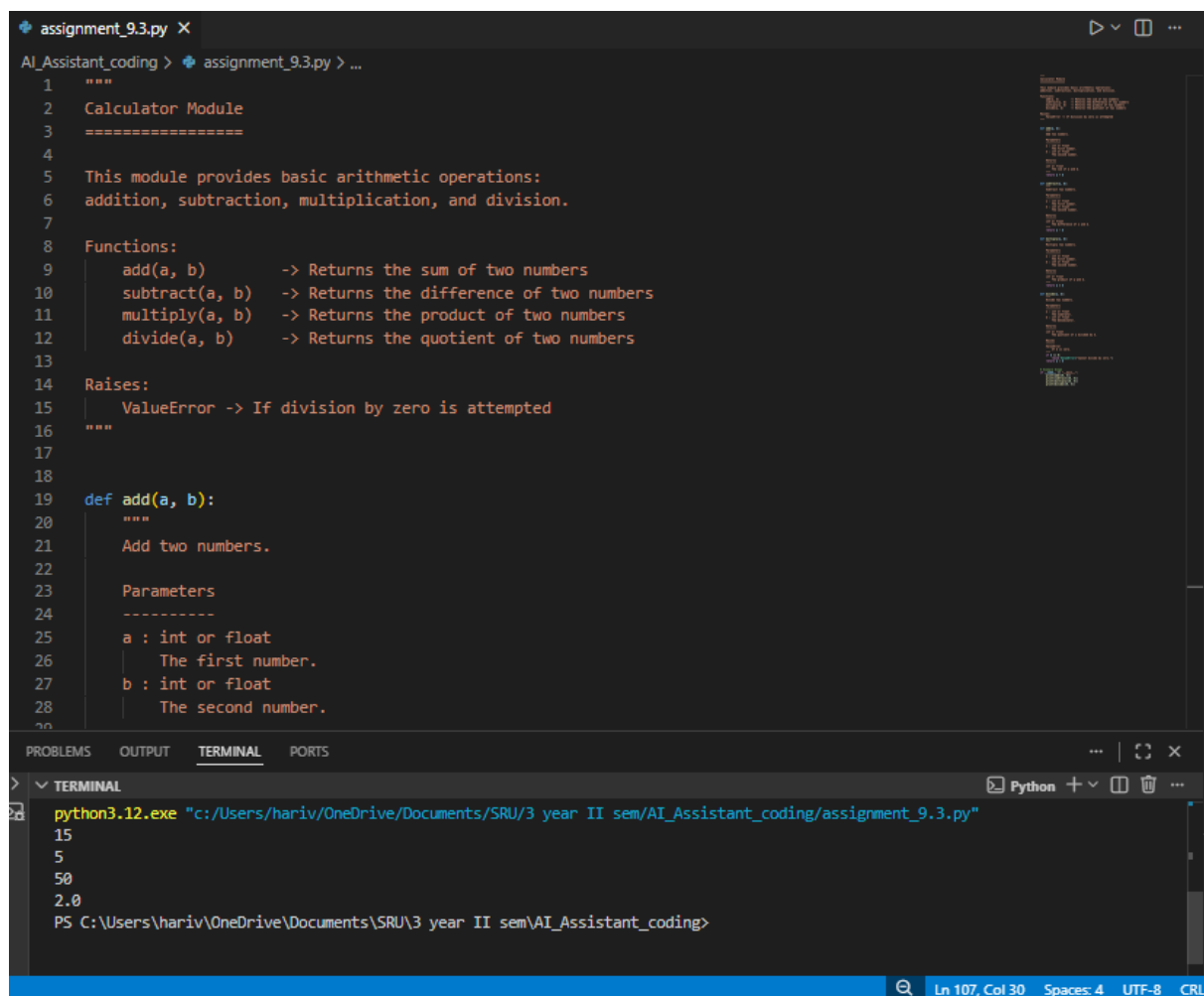
Manual comments are clear, specific, and reflect the developer's intent. AI-generated comments are accurate but tend to be more general and sometimes explain obvious code lines. This shows that while AI can speed up documentation, human review is important to ensure the comments are meaningful and not repetitive.

Task 3: Module-Level and Function-Level Documentation

Prompt:

Generate a Python calculator module with functions add, subtract, multiply, and divide. Add NumPy-style docstrings manually and then generate module-level and function-level documentation using AI assistance.

Code & Output:



```
assignment_9.3.py X
AI_Assistant_coding > assignment_9.3.py > ...
1  """
2  Calculator Module
3  =====
4
5  This module provides basic arithmetic operations:
6  addition, subtraction, multiplication, and division.
7
8  Functions:
9      add(a, b)      -> Returns the sum of two numbers
10     subtract(a, b)  -> Returns the difference of two numbers
11     multiply(a, b)   -> Returns the product of two numbers
12     divide(a, b)     -> Returns the quotient of two numbers
13
14  Raises:
15      ValueError -> If division by zero is attempted
16  """
17
18
19  def add(a, b):
20      """
21      Add two numbers.
22
23      Parameters
24      -----
25      a : int or float
26          The first number.
27      b : int or float
28          The second number.
29  """
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assignment_9.3.py X
AI_Assistant_coding > assignment_9.3.py > ...
19 def add(a, b):
20     Returns
21     -----
22     int or float
23     | The sum of a and b.
24     """
25     return a + b
26
27
28 def subtract(a, b):
29     """
30     Subtract two numbers.
31
32     Parameters
33     -----
34     a : int or float
35     | The first number.
36     b : int or float
37     | The second number.
38
39     Returns
40     -----
41     int or float
42     | The difference of a and b.
43     """
44     return a - b
45
46
47 def multiply(a, b):
48     """
49     Multiply two numbers.
50
51     Parameters
52     -----
53     a : int or float
54     | The first number.
55     b : int or float
56     | The second number.
57
58     Returns
59     -----
60     int or float
61     | The product of a and b.
62     """
63     return a * b
64
65
66
67
```

```
assignment_9.3.py X
AI_Assistant_coding > assignment_9.3.py > ...
57 def multiply(a, b):
58     Returns
59     -----
60     int or float
61     | The product of a and b.
62     """
63     return a * b
64
65
66 def divide(a, b):
67     """
68     Divide two numbers.
69
70     Parameters
71     -----
72     a : int or float
73     | The numerator.
74     b : int or float
75     | The denominator.
76
77     Returns
78     -----
79     int or float
80     | The quotient of a divided by b.
81
82     Raises
83     -----
84     ValueError
85     | If b is zero.
86     """
87     if b == 0:
88         raise ValueError("Cannot divide by zero.")
89     return a / b
90
91
92 # Example Usage
93 if __name__ == "__main__":
94     print(add(10, 5))
95     print(subtract(10, 5))
96     print(multiply(10, 5))
97     print(divide(10, 5))
98
99
100
101
102
103
104
105
106
107
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```

Explanation:

Manual NumPy-style docstrings follow a well-structured scientific format with clear sections for parameters and return values. The AI-generated version is concise and useful for general overviews but does not provide detailed parameter-level explanations. While AI is strong at summarizing, manual documentation offers better technical depth and clarity.