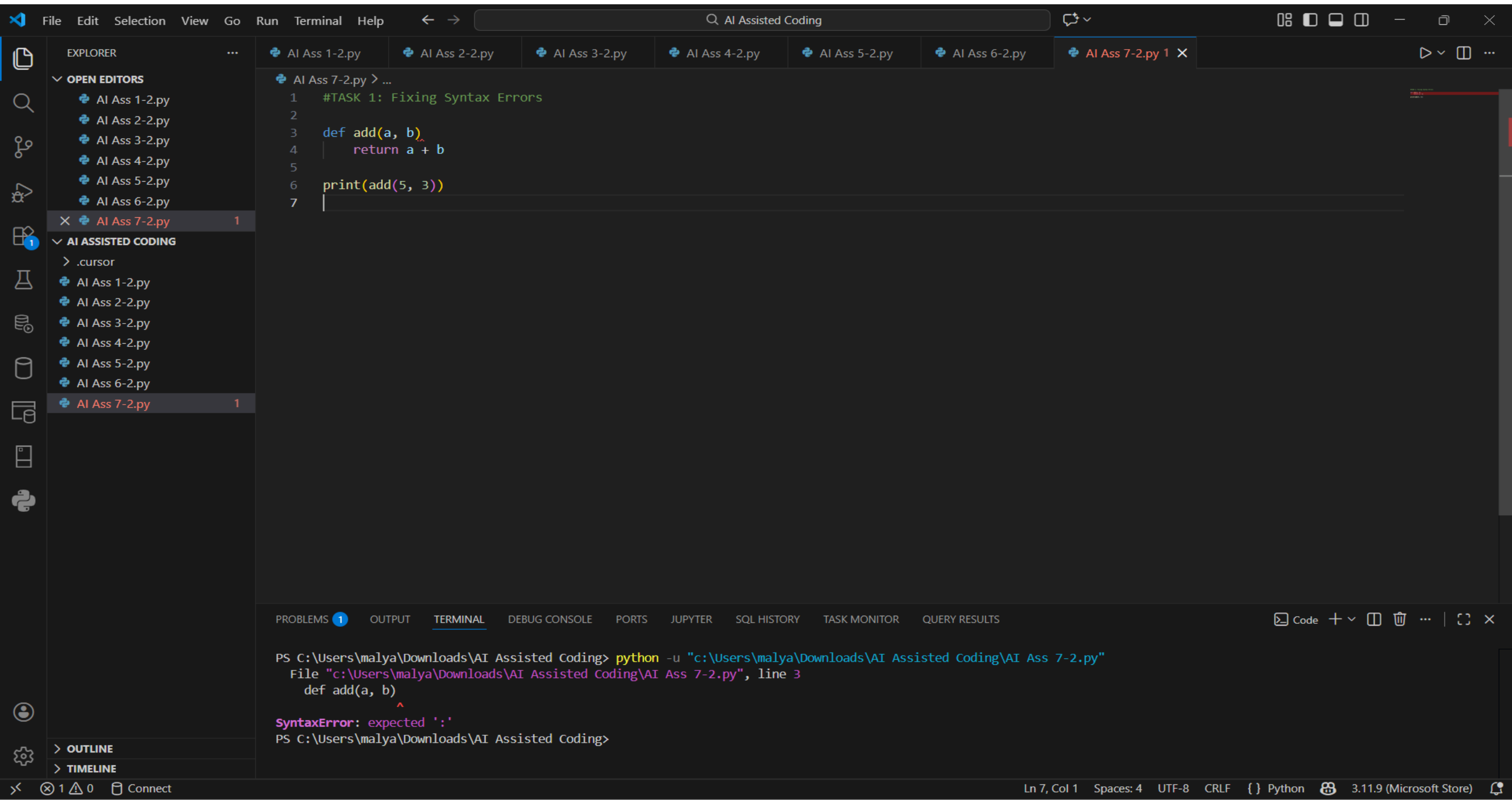
AI Assisted Coding ASSIGNMENT – 7

Roll.no : 2303a52443

M .Siddhartha
B-38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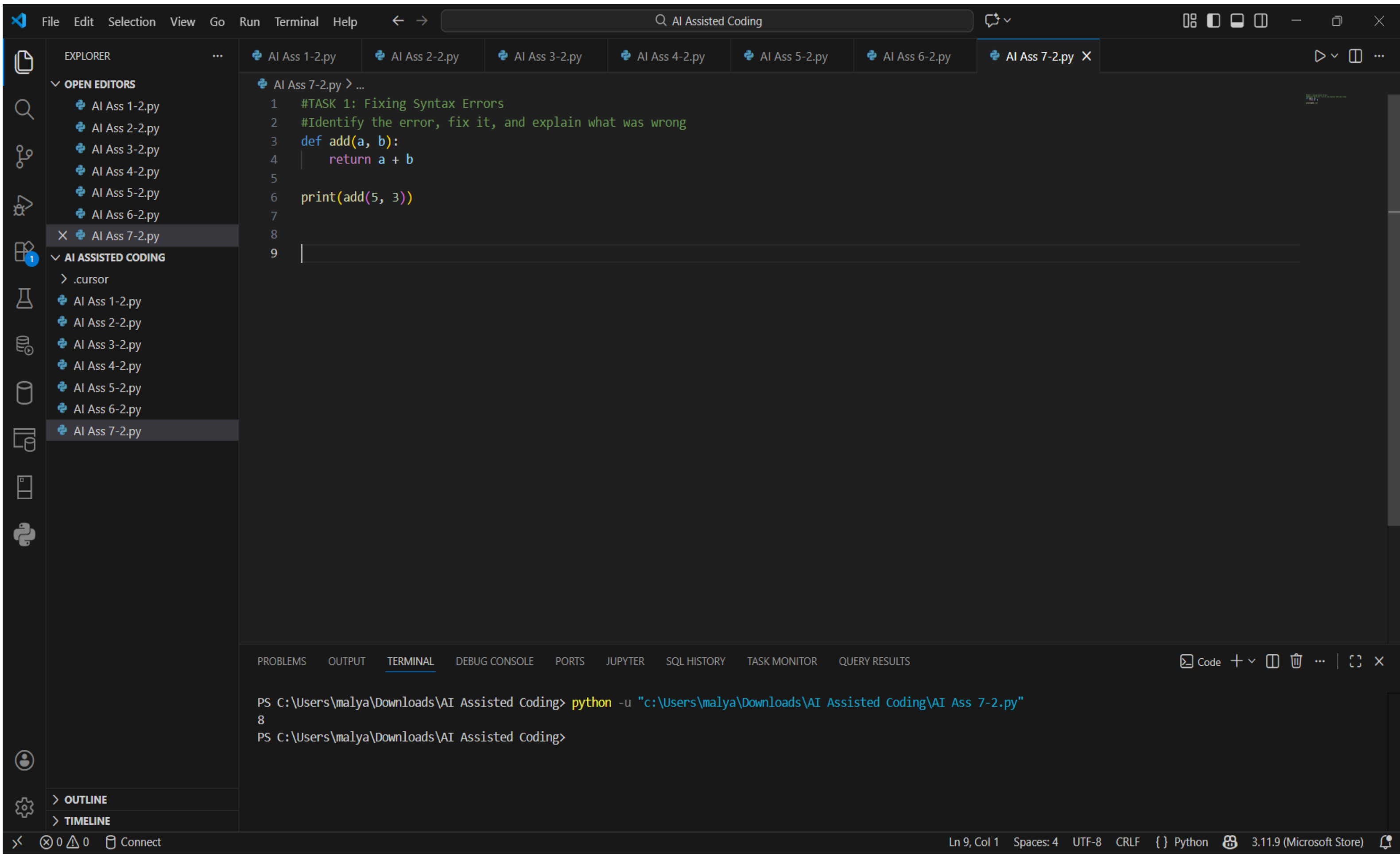
```python
#TASK 1: Fixing Syntax Errors

def add(a, b)
    return a + b

print(add(5, 3))
```

```
PS C:\Users\malya\Downloads\AI Assisted Coding> python -u "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py"
  File "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py", line 3
    def add(a, b)
                 ^
SyntaxError: expected ':'
PS C:\Users\malya\Downloads\AI Assisted Coding>
```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Ln 9, Col 1 Spaces: 4 UTF-8 CRLF { } Python 3.11.9 (Microsoft Store)

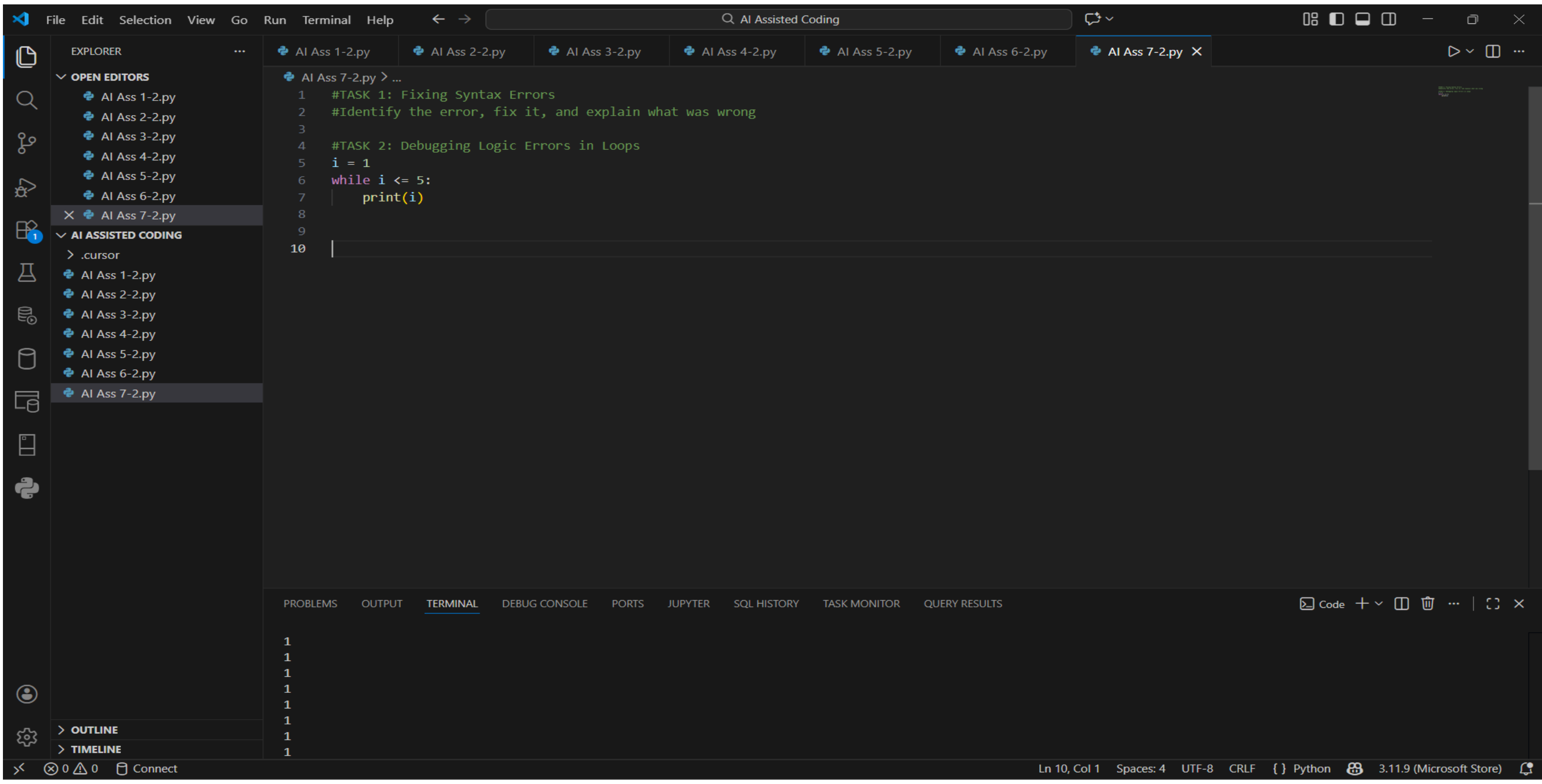
```python
#TASK 1: Fixing Syntax Errors
#Identify the error, fix it, and explain what was wrong
def add(a, b):
    return a + b

print(add(5, 3))
```

```
PS C:\Users\malya\Downloads\AI Assisted Coding> python -u "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py"
8
PS C:\Users\malya\Downloads\AI Assisted Coding>
```

Task 1: Fixing Syntax Errors

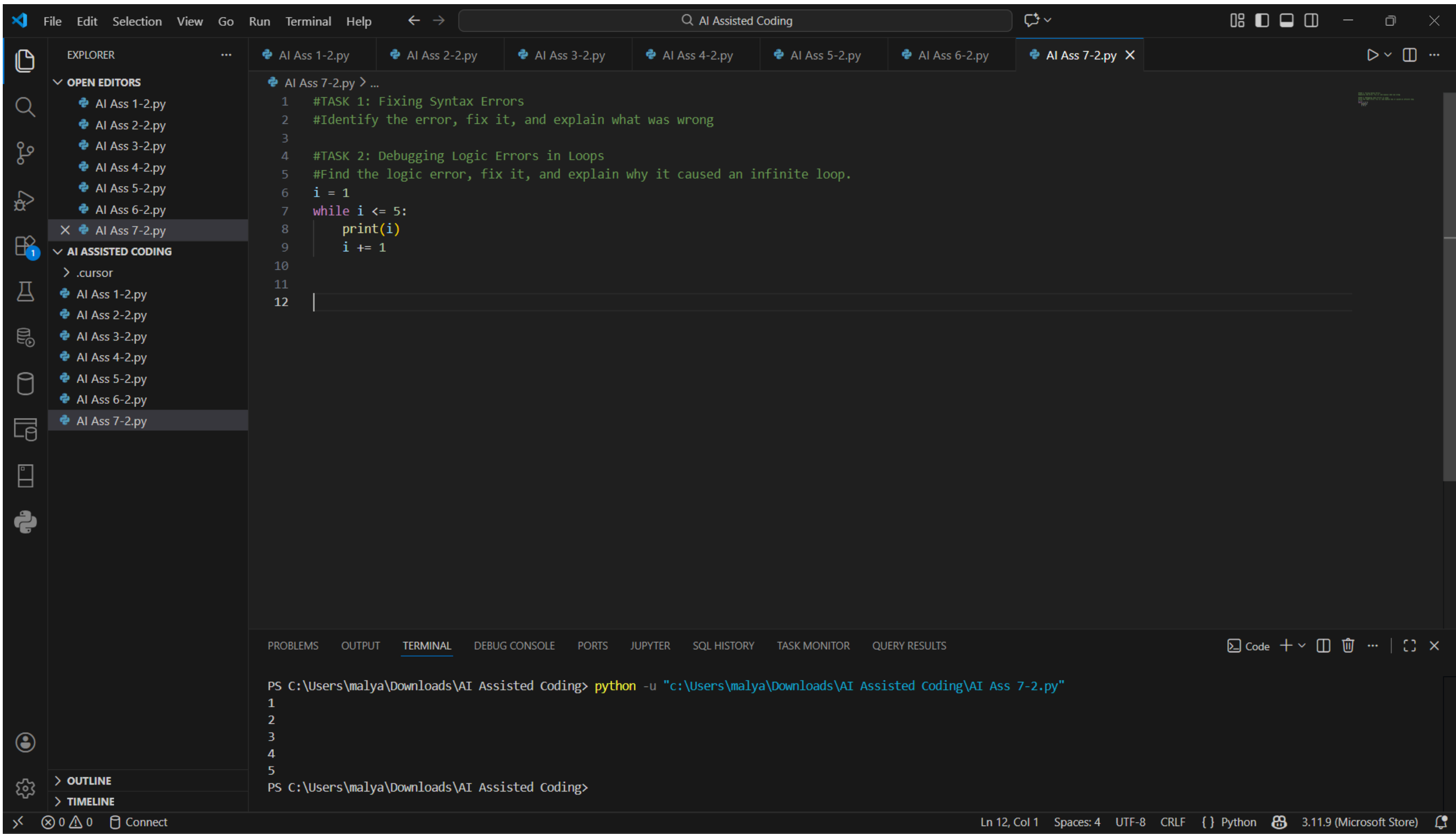
Explanation

The given program had a **syntax error** because the function definition was missing a **colon (:)** at the end of the `def` statement.
In Python, a colon is mandatory to indicate the start of a function block.
After adding the colon, the function executed correctly and returned the sum of two numbers.



```python
#TASK 1: Fixing Syntax Errors
#Identify the error, fix it, and explain what was wrong

#TASK 2: Debugging Logic Errors in Loops
i = 1
while i <= 5:
    print(i)


```

```
1
1
1
1
1
1
1
1
```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OUTLINE
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Code
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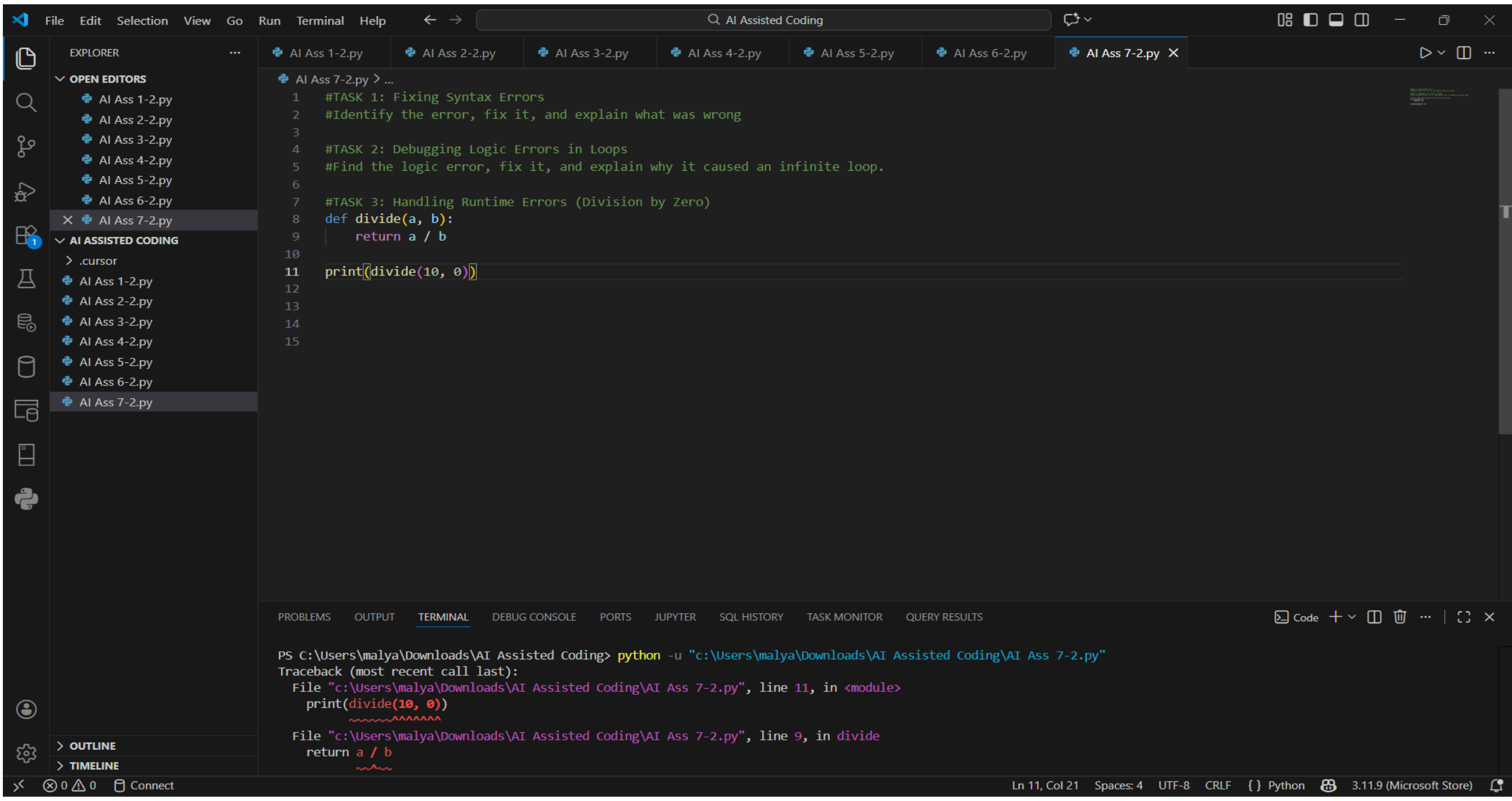
```python
#TASK 1: Fixing Syntax Errors
#Identify the error, fix it, and explain what was wrong

#TASK 2: Debugging Logic Errors in Loops
#Find the logic error, fix it, and explain why it caused an infinite loop.
i = 1
while i <= 5:
    print(i)
    i += 1
```

```
PS C:\Users\malya\Downloads\AI Assisted Coding> python -u "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py"
1
2
3
4
5
PS C:\Users\malya\Downloads\AI Assisted Coding>
```

Task 2: Debugging Logic Errors in Loops

Explanation

The loop ran infinitely because the loop control variable was **never updated**.
Since the value of `i` did not change, the condition `i <= 5` always remained true.
By adding an increment statement (`i += 1`), the loop progressed correctly and terminated after reaching the limit.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OUTLINE
TIMELINE
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE PORTS JUPYTER SQL HISTORY TASK MONITOR QUERY RESULTS
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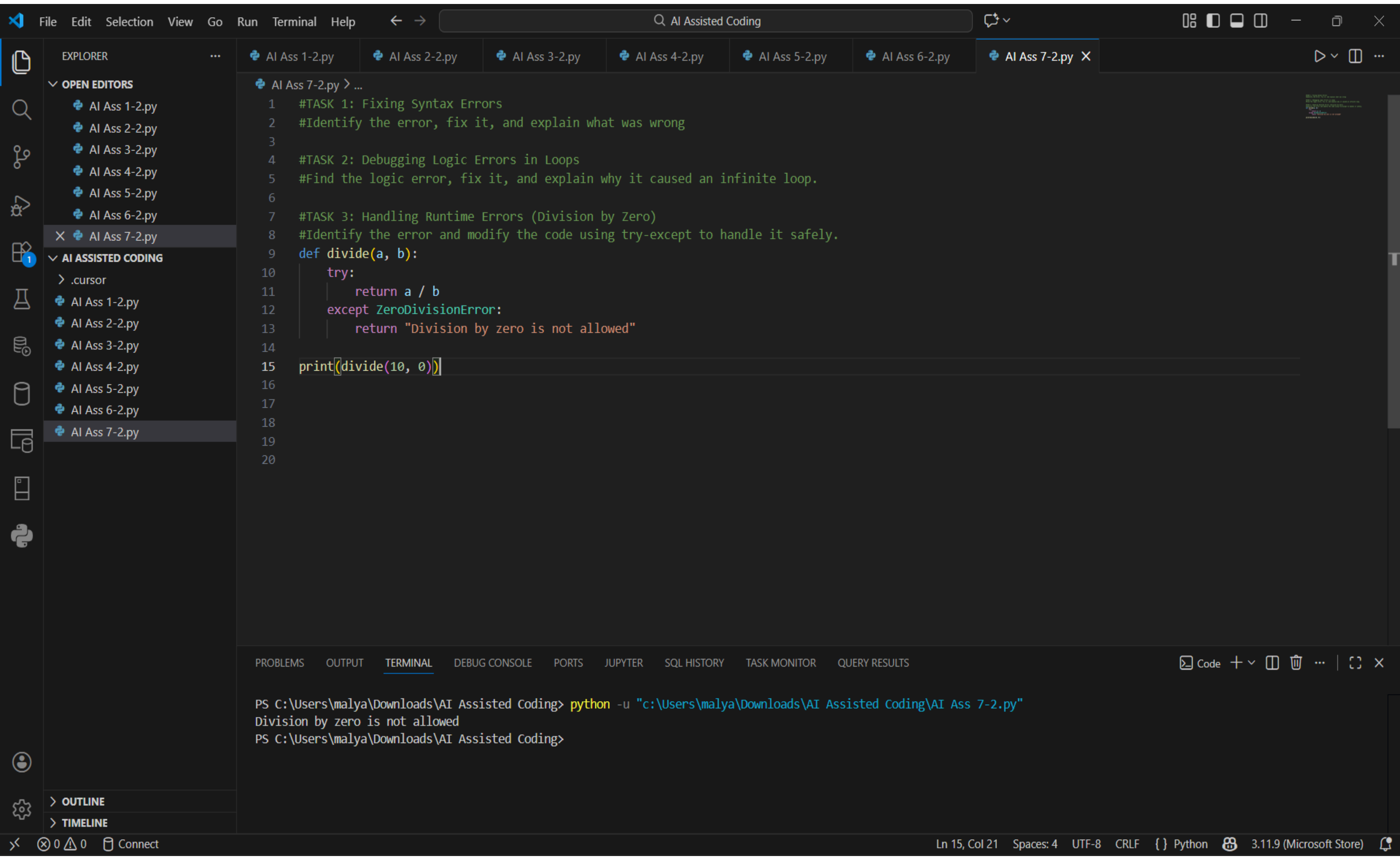
```python
#TASK 1: Fixing Syntax Errors
#Identify the error, fix it, and explain what was wrong

#TASK 2: Debugging Logic Errors in Loops
#Find the logic error, fix it, and explain why it caused an infinite loop.

#TASK 3: Handling Runtime Errors (Division by Zero)
def divide(a, b):
    return a / b

print(divide(10, 0))
```

```
PS C:\Users\malya\Downloads\AI Assisted Coding> python -u "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py"
Traceback (most recent call last):
  File "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py", line 11, in <module>
    print(divide(10, 0))
          ~~~~~~^^^^^^^

  File "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py", line 9, in divide
    return a / b
           ~~^~~
```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TIMELINE
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE PORTS JUPYTER SQL HISTORY TASK MONITOR QUERY RESULTS
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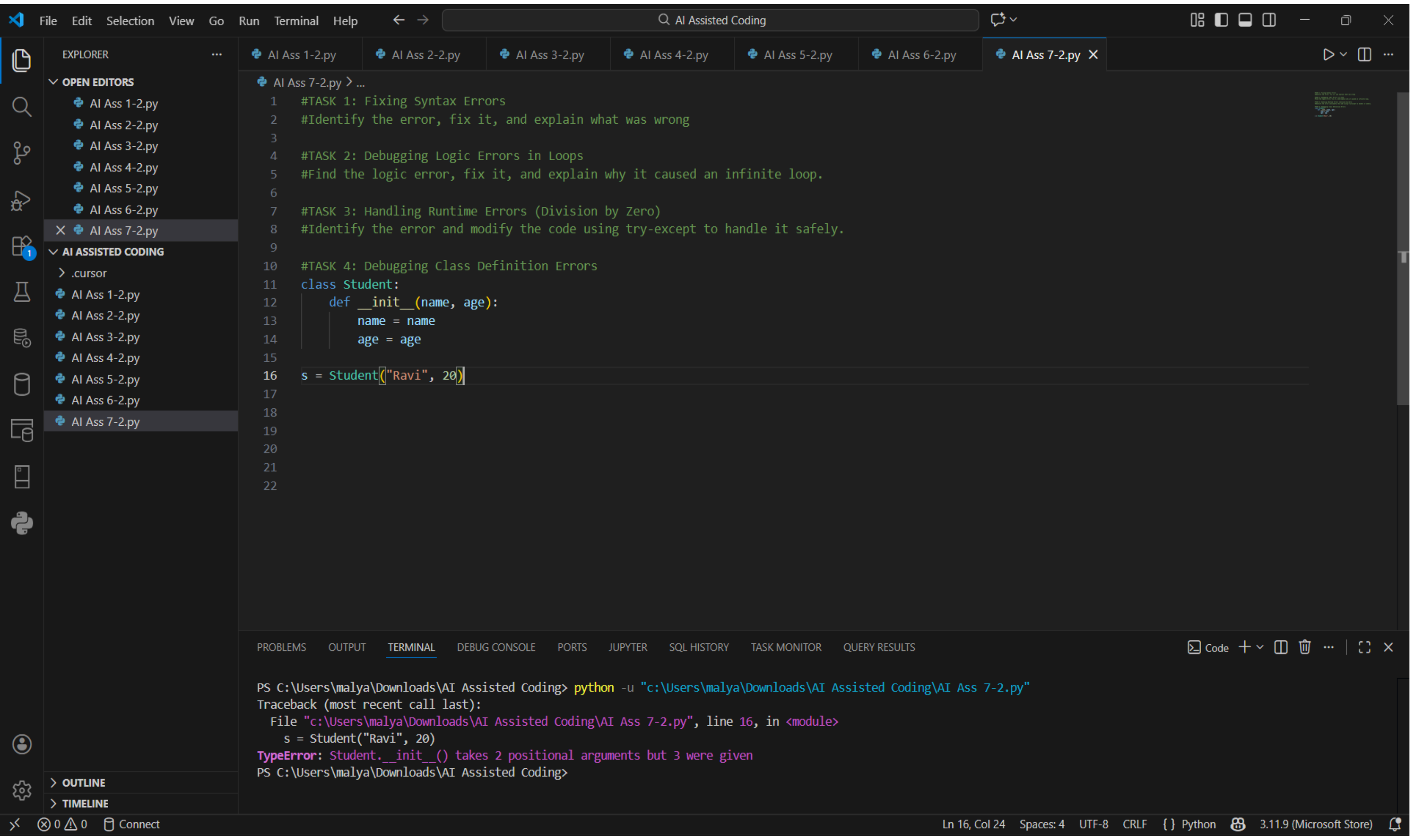
```python
#TASK 1: Fixing Syntax Errors
#Identify the error, fix it, and explain what was wrong

#TASK 2: Debugging Logic Errors in Loops
#Find the logic error, fix it, and explain why it caused an infinite loop.

#TASK 3: Handling Runtime Errors (Division by Zero)
#Identify the error and modify the code using try-except to handle it safely.
def divide(a, b):
    try:
        return a / b
    except ZeroDivisionError:
        return "Division by zero is not allowed"

print(divide(10, 0))
```

```
PS C:\Users\malya\Downloads\AI Assisted Coding> python -u "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py"
Division by zero is not allowed
PS C:\Users\malya\Downloads\AI Assisted Coding>
```

Task 3: Handling Runtime Errors (Division by Zero)

Explanation

The program caused a **runtime error** when division by zero occurred.
Python raises a `ZeroDivisionError` when a number is divided by zero.
To prevent the program from crashing, a `try-except` block was used to handle the error gracefully and display a meaningful message.



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Code
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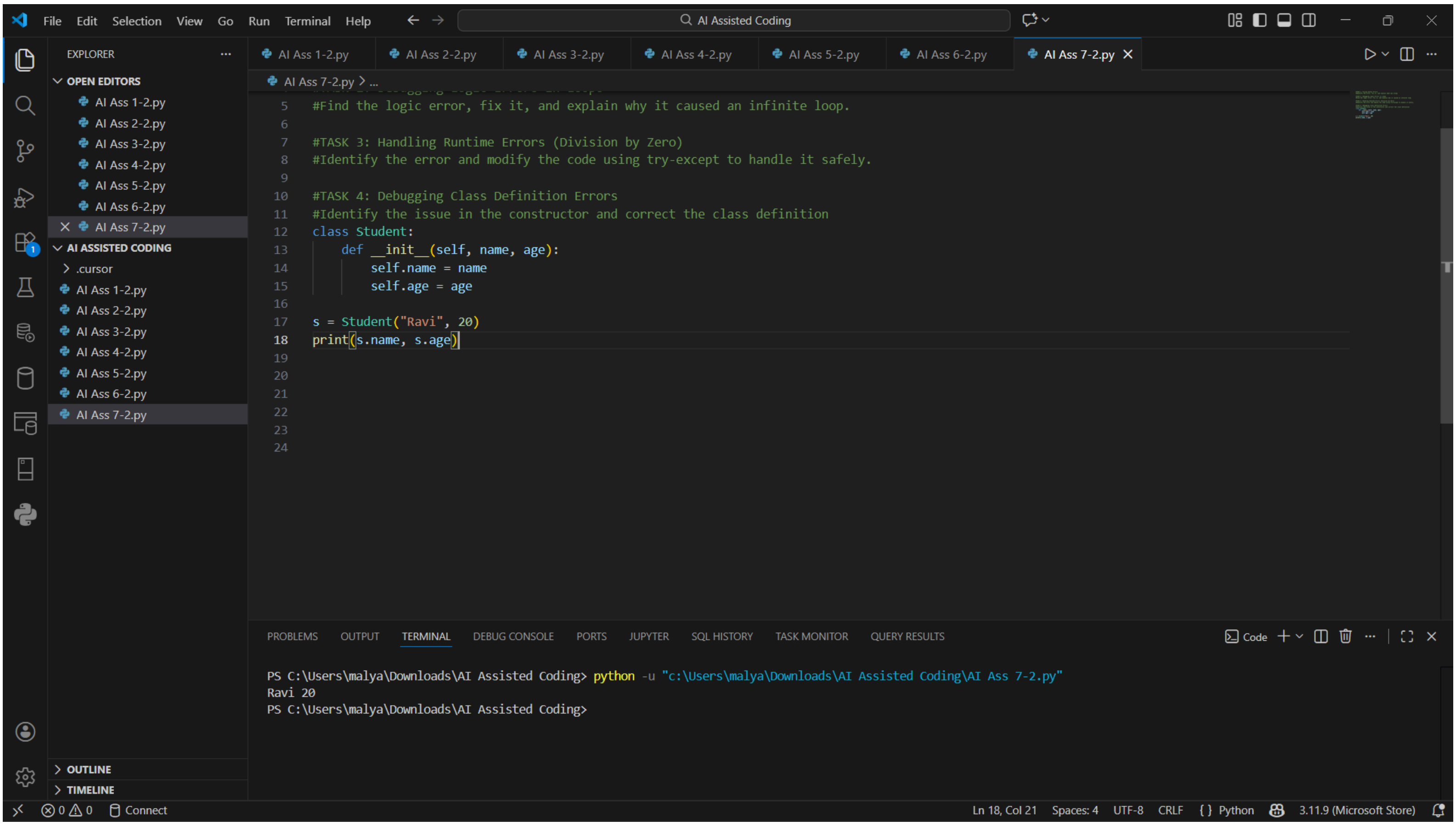
```python
#TASK 1: Fixing Syntax Errors
#Identify the error, fix it, and explain what was wrong

#TASK 2: Debugging Logic Errors in Loops
#Find the logic error, fix it, and explain why it caused an infinite loop.

#TASK 3: Handling Runtime Errors (Division by Zero)
#Identify the error and modify the code using try-except to handle it safely.

#TASK 4: Debugging Class Definition Errors
class Student:
    def __init__(name, age):
        name = name
        age = age

s = Student("Ravi", 20)
```

```
PS C:\Users\malya\Downloads\AI Assisted Coding> python -u "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py"
Traceback (most recent call last):
  File "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py", line 16, in <module>
    s = Student("Ravi", 20)
TypeError: Student.__init__() takes 2 positional arguments but 3 were given
PS C:\Users\malya\Downloads\AI Assisted Coding>
```



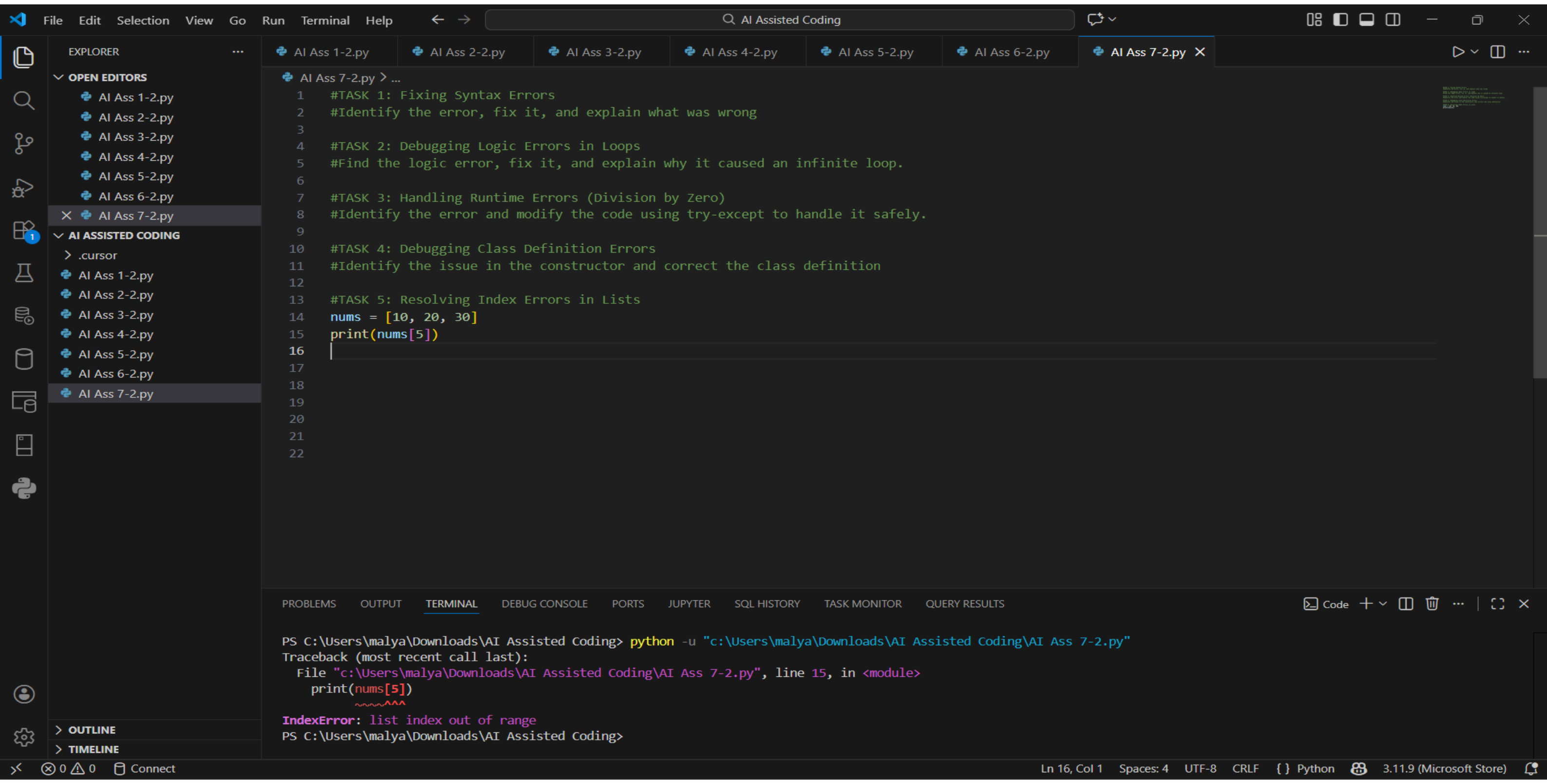
```python
#Find the logic error, fix it, and explain why it caused an infinite loop.

#TASK 3: Handling Runtime Errors (Division by Zero)
#Identify the error and modify the code using try-except to handle it safely.

#TASK 4: Debugging Class Definition Errors
#Identify the issue in the constructor and correct the class definition
class Student:
    def __init__(self, name, age):
        self.name = name
        self.age = age

s = Student("Ravi", 20)
print(s.name, s.age)
```

```
PS C:\Users\malya\Downloads\AI Assisted Coding> python -u "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py"
Ravi 20
PS C:\Users\malya\Downloads\AI Assisted Coding>
```

Task 4: Debugging Class Definition Errors

Explanation

The constructor method `__init__()` was defined without the `self` parameter.
In Python, `self` refers to the current object and is required to access instance variables.
Adding `self` and properly assigning values to instance variables corrected the class definition.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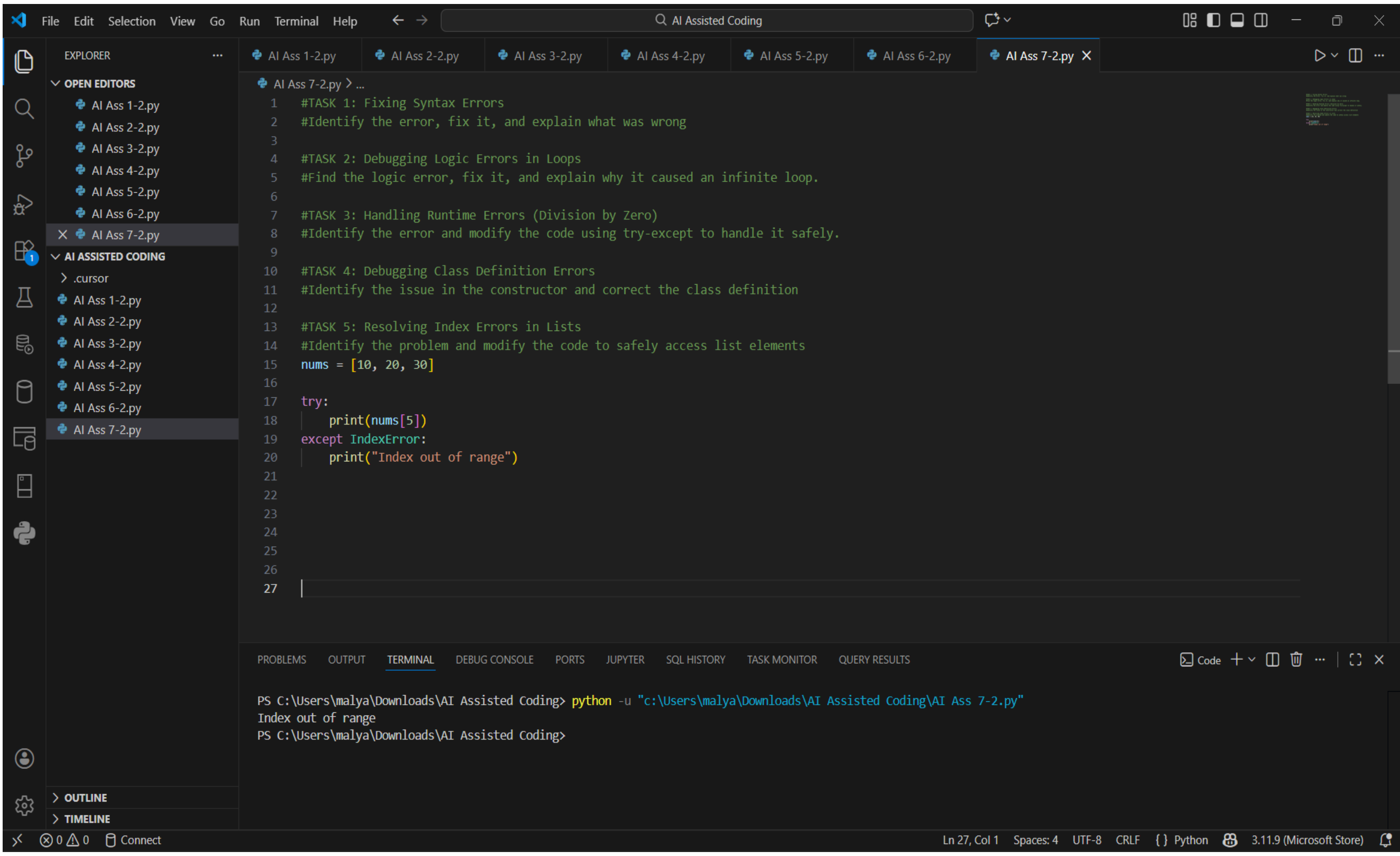
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE PORTS JUPYTER SQL HISTORY TASK MONITOR QUERY RESULTS
Ln 16, Col 1 Spaces: 4 UTF-8 CRLF { } Python 3.11.9 (Microsoft Store)

```python
#TASK 1: Fixing Syntax Errors
#Identify the error, fix it, and explain what was wrong

#TASK 2: Debugging Logic Errors in Loops
#Find the logic error, fix it, and explain why it caused an infinite loop.

#TASK 3: Handling Runtime Errors (Division by Zero)
#Identify the error and modify the code using try-except to handle it safely.

#TASK 4: Debugging Class Definition Errors
#Identify the issue in the constructor and correct the class definition

#TASK 5: Resolving Index Errors in Lists
nums = [10, 20, 30]
print(nums[5])
```

```
PS C:\Users\malya\Downloads\AI Assisted Coding> python -u "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py"
Traceback (most recent call last):
  File "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py", line 15, in <module>
    print(nums[5])
          ~~~~^^^
IndexError: list index out of range
PS C:\Users\malya\Downloads\AI Assisted Coding>
```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PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE PORTS JUPYTER SQL HISTORY TASK MONITOR QUERY RESULTS
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```python
#TASK 1: Fixing Syntax Errors
#Identify the error, fix it, and explain what was wrong

#TASK 2: Debugging Logic Errors in Loops
#Find the logic error, fix it, and explain why it caused an infinite loop.

#TASK 3: Handling Runtime Errors (Division by Zero)
#Identify the error and modify the code using try-except to handle it safely.

#TASK 4: Debugging Class Definition Errors
#Identify the issue in the constructor and correct the class definition

#TASK 5: Resolving Index Errors in Lists
#Identify the problem and modify the code to safely access list elements
nums = [10, 20, 30]

try:
    print(nums[5])
except IndexError:
    print("Index out of range")
```

```
PS C:\Users\malya\Downloads\AI Assisted Coding> python -u "c:\Users\malya\Downloads\AI Assisted Coding\AI Ass 7-2.py"
Index out of range
PS C:\Users\malya\Downloads\AI Assisted Coding>
```

Task 5: Resolving Index Errors in Lists

Explanation

The program attempted to access an index that does not exist in the list, causing an `IndexError`.
Lists in Python have fixed index ranges starting from 0.
Using exception handling ensured safe access and prevented the program from crashing when an invalid index was used.