

AI ASSISTED CODING

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B-34

LAB-7:

Task 1 – Runtime Error Due to Invalid Input Type

- A Python program accepts user input and performs arithmetic operations. However, the program throws a runtime error because the input is treated as a string instead of a numeric type.

Example (Buggy Code):

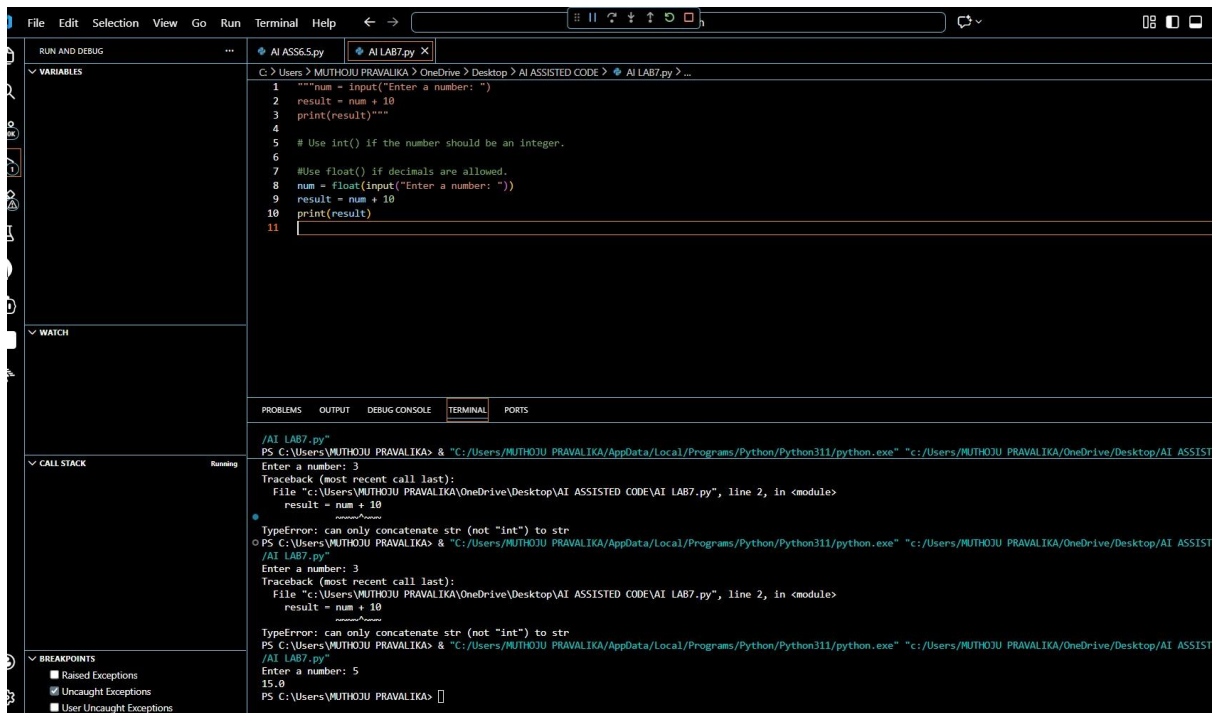
```
num = input("Enter a  
number: ") result = num  
+ 10 print(result)
```

• Task:

Use AI tools to identify the cause of the runtime error and modify the program so it executes correctly.

Expected Output -1:

- AI converts the input to the appropriate numeric type and eliminates the runtime error.



Task Description

Task 2 – Incorrect Function Return Value

A function is designed to calculate the square of a number, but it does not return the computed result properly.

Example (Buggy Code):

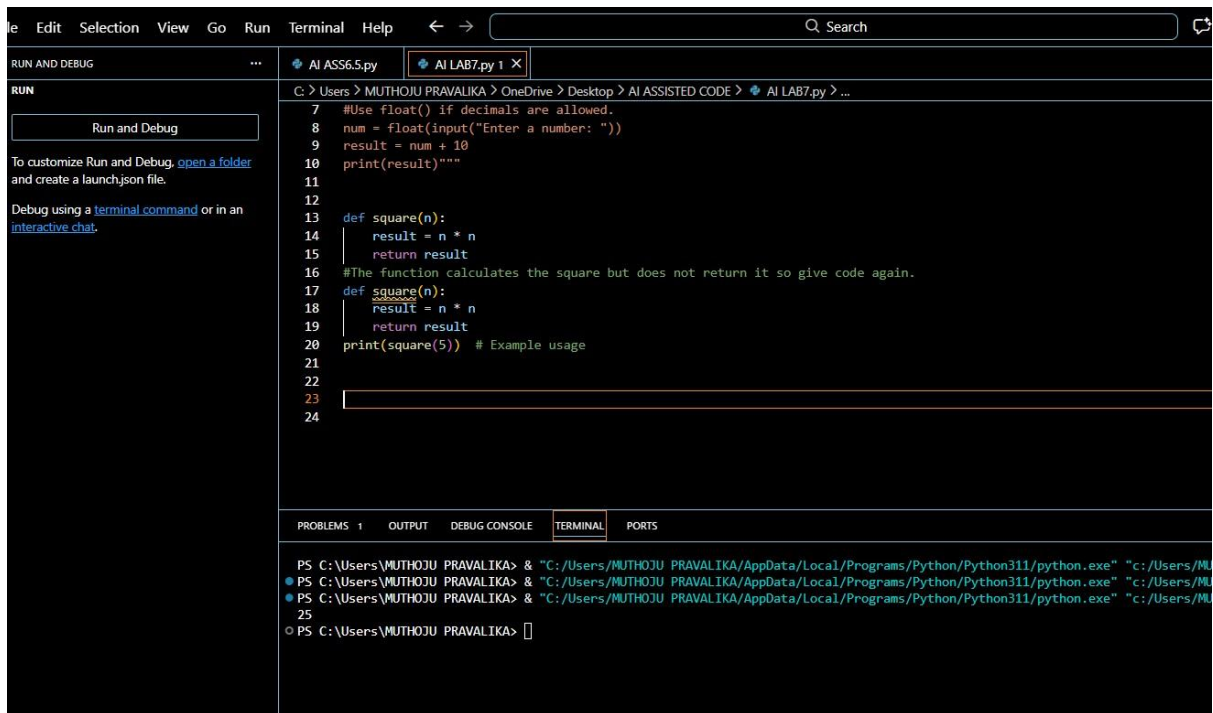
```
def square(n): result =
n * n
```

Task:

Use AI assistance to analyze the function and ensure the correct value is returned.

Expected Output -2:

AI fixes the missing return statement and the function returns the correct output.



Task Description

Task 3 – IndexError in List Traversal

A Python program iterates over a list using incorrect index limits, causing an IndexError. Example (Buggy Code):

```

numbers = [10, 20, 30]
for i in range(0, len(numbers)+1):
    print(numbers[i])

```

Task:

Use AI to identify the incorrect loop boundary and correct the iteration logic.

Expected Output -3:

AI fixes the loop condition and prevents out-of-range list access.

The screenshot shows a VS Code editor with a Python file named `AI LAB7.py`. The code contains a function `square` and a list `numbers`. The `square` function is defined as follows:

```

20 print(square(5)) # Example usage
21
22
23 numbers = [10, 20, 30]
24 for i in range(0, len(numbers)+1):
25     print(numbers[i])
26
27
28
29
30 numbers = [10, 20, 30]
31
32 for i in range(len(numbers)): # stops at len-1
33     print(numbers[i])
34

```

The terminal output shows the execution of the script, which results in an `IndexError: list index out of range` at line 25. The error message is as follows:

```

PS C:\Users\MUTHOJU PRAVALIKA> "C:/Users/MUTHOJU PRAVALIKA/AppData/Local/Programs/Python/Python311/python.exe"
PS C:\Users\MUTHOJU PRAVALIKA> "C:/Users/MUTHOJU PRAVALIKA/AppData/Local/Programs/Python/Python311/python.exe"
25
PS C:\Users\MUTHOJU PRAVALIKA> "C:/Users/MUTHOJU PRAVALIKA/AppData/Local/Programs/Python/Python311/python.exe"
10
20
30
Traceback (most recent call last):
  File "c:\Users\MUTHOJU PRAVALIKA\OneDrive\Desktop\AI ASSISTED CODE\AI LAB7.py", line 25, in <module>
    print(numbers[i])
          ~~~~~^
IndexError: list index out of range
PS C:\Users\MUTHOJU PRAVALIKA> "C:/Users/MUTHOJU PRAVALIKA/AppData/Local/Programs/Python/Python311/python.exe"
File "c:\Users\MUTHOJU PRAVALIKA\OneDrive\Desktop\AI ASSISTED CODE\AI LAB7.py", line 25
    print(numbers[i])
          ^
SyntaxError: unterminated triple-quoted string literal (detected at line 33)
PS C:\Users\MUTHOJU PRAVALIKA> "C:/Users/MUTHOJU PRAVALIKA/AppData/Local/Programs/Python/Python311/python.exe"
10
20
30
PS C:\Users\MUTHOJU PRAVALIKA>

```

The left sidebar shows the 'Run and Debug' tab, and the bottom status bar indicates 'Indexing completed'.

Task 4 – Uninitialized Variable Usage

A program uses a variable in a calculation before assigning it any value.

Example (Buggy Code):

if True:

pass

print(total)

Task:

Use AI tools to detect the uninitialized variable and correct the program.

Expected Output -4:

AI initializes the variable correctly before it is used

The screenshot shows a Python IDE with a file named 'AI LAB7.py'. The code in the editor is as follows:

```
31
32 for i in range(len(numbers)): # stops at len-1
33     print(numbers[i])
34
35
36 """if True:
37     pass
38 print(total)"""
39
40
41
42 # Task 4 - Uninitialized Variable Fix
43 total = 0 # Initialize the variable before use
44
45 # Example operation
46 if True:
47     total += 5
48
49 print("Total:", total)
50
```

The terminal output shows a NameError:

```
PS C:\Users\MUTHOJU PRAVALIKA> & "C:/Users/MUTHOJU PRAVALIKA/AppData/Local/Programs/Python/Python39-64/Python.exe" -i
Traceback (most recent call last):
  File "c:\Users\MUTHOJU PRAVALIKA\OneDrive\Desktop\AI ASSISTED CODE\AI LAB7.py", line 38, in <module>
    print(total)
    ^^^^^
NameError: name 'total' is not defined
PS C:\Users\MUTHOJU PRAVALIKA> & "C:/Users/MUTHOJU PRAVALIKA/AppData/Local/Programs/Python/Python39-64/Python.exe" -i
Total: 5
PS C:\Users\MUTHOJU PRAVALIKA>
```

Task Description

Task 5 – Logical Error in Student Grading System

A grading program assigns incorrect grades due to improper conditional logic.

Example (Buggy Code):

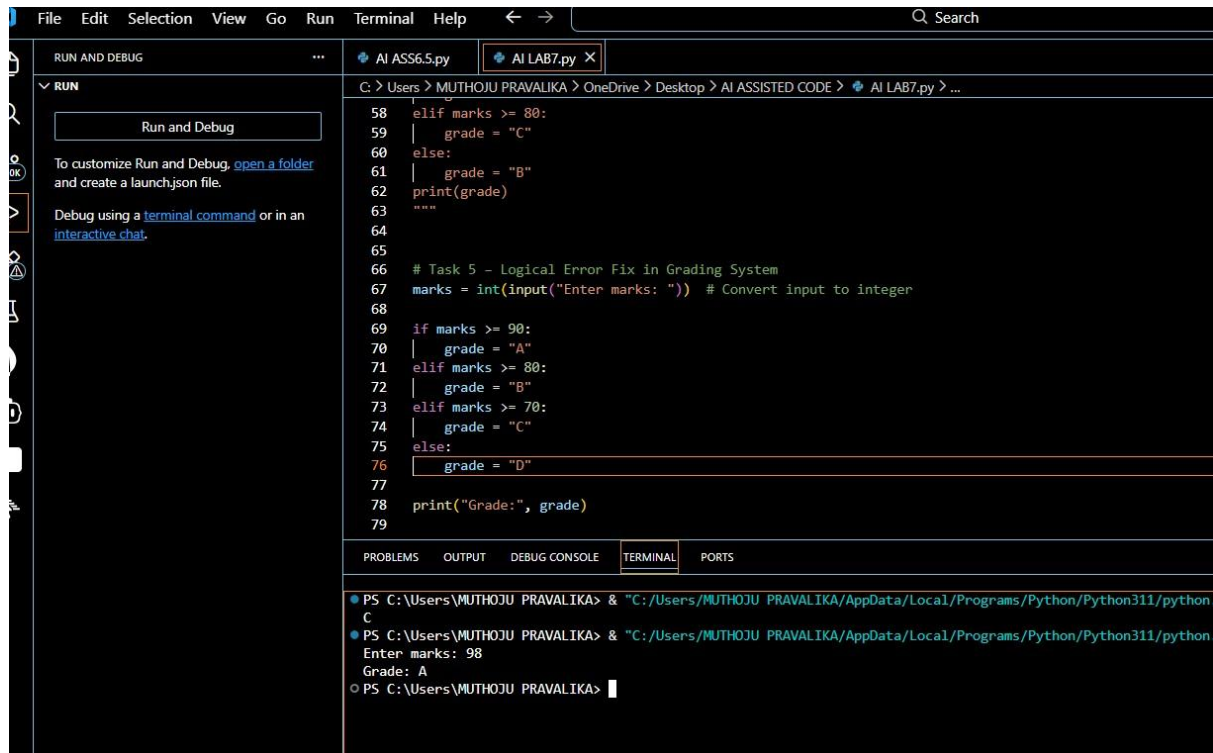
```
marks = 85 if
marks >= 90:
grade = "A" elif
marks >= 80:
grade = "C" else:
grade = "B" print(grade)
```

Task:

Use AI to analyze the grading conditions and correct the logical flow.

Expected Output -5:

AI corrects the conditional logic so grades are assigned accurately.



The screenshot displays the Visual Studio Code interface with a Python file named `AI LAB7.py` open. The editor shows a Python script for a grading system. The script includes a comment indicating it's a task to fix a logical error. The conditional logic has been corrected to accurately assign grades based on marks. The terminal output shows the script being executed, with input '98' resulting in 'Grade: A'.

```
C:\Users\MUTHOJU PRAVALIKA> OneDrive\Desktop> AI ASSISTED CODE> AI LAB7.py > ...  
58 | elif marks >= 80:  
59 |     grade = "C"  
60 | else:  
61 |     grade = "B"  
62 | print(grade)  
63 | ""  
64 |  
65 |  
66 | # Task 5 - Logical Error Fix in Grading System  
67 | marks = int(input("Enter marks: ")) # Convert input to integer  
68 |  
69 | if marks >= 90:  
70 |     grade = "A"  
71 | elif marks >= 80:  
72 |     grade = "B"  
73 | elif marks >= 70:  
74 |     grade = "C"  
75 | else:  
76 |     grade = "D"  
77 |  
78 | print("Grade:", grade)  
79 |
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\MUTHOJU PRAVALIKA> "C:/Users/MUTHOJU PRAVALIKA/AppData/Local/Programs/Python/Python311/python.  
C  
PS C:\Users\MUTHOJU PRAVALIKA> "C:/Users/MUTHOJU PRAVALIKA/AppData/Local/Programs/Python/Python311/python.  
Enter marks: 98  
Grade: A  
PS C:\Users\MUTHOJU PRAVALIKA> |
```