ASSIGNMENT-7.2

HT.NO:2303A510I4

Batch.No:30

Task 1: Runtime Error Due to Invalid Input Type

Prompt:

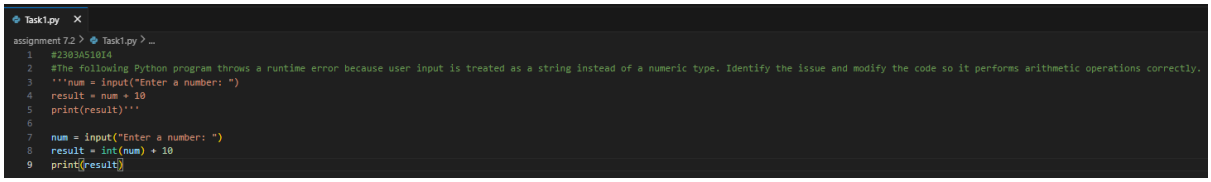
The following Python program throws a runtime error because user input is treated as a string instead of a numeric type. Identify the issue and modify the code so it performs arithmetic operations correctly.

num = input("Enter a number: ")

result = num + 10

print(result)

Code:



Output:

Observation:

The runtime error occurs because input() returns a string, and Python cannot add a string to an integer. Converting the input to a numeric type like int() fixes the issue and allows the program to execute arithmetic operations correctly.

Task 2: Incorrect Function Return Value

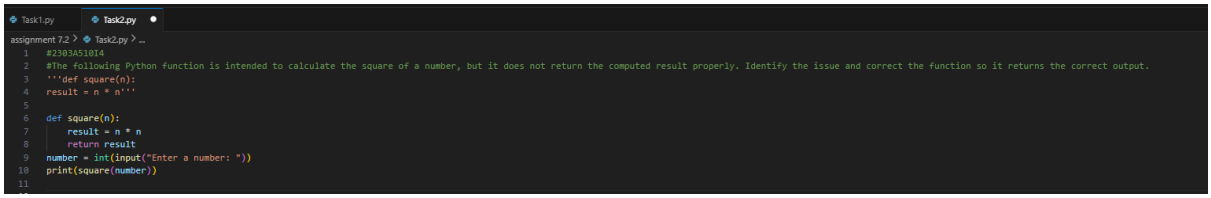
Prompt:

The following Python function is intended to calculate the square of a number, but it does not return the computed result properly. Identify the issue and correct the function so it returns the correct output.

'''def square(n):

result = n * n'''

Code:



Output:

Observation:

The original function calculated the square but did not return the result because the return statement was missing. Adding return result ensures the function outputs the computed value correctly.

Task 3: IndexError in List Traversal

Prompt:

The following Python code causes an IndexError due to incorrect loop boundaries. Identify the issue and correct the iteration logic.

numbers = [10, 20, 30]

for i in range(0, len(numbers)+1):

print(numbers[i])

Code:

```
ssignment 7.2 > Task3.py > ...
1   #2303A510I4
2   #The following Python code causes an IndexError due to incorrect loop boundaries. Identify the issue and correct the iteration logic.
3   '''numbers = [10, 20, 30]
4   for i in range(0, len(numbers)+1):
5   print(numbers[i])'''
6
7   numbers = [10, 20, 30]
8   for i in range(0, len(numbers)):
9       print(numbers[i])
10
```

Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS                                                    Python
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI> C:/miniconda3/Scripts/activate
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI> conda activate base
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI> & C:/miniconda3/python.exe "c:/Users/Shivani Pabba/OneDrive/Desktop/AI/assignment 7.2/Task3.py"
10
20
30
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI>
```

Observation:

The error occurred because range(len(numbers)+1) exceeds the valid index range. Removing +1 prevents accessing an out-of-range index and eliminates the IndexError.

Task 4: Uninitialized Variable Usage

Prompt:

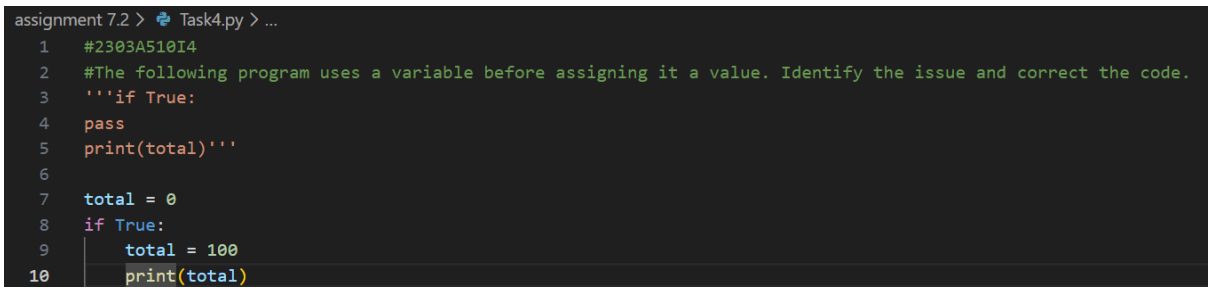
The following program uses a variable before assigning it a value. Identify the issue and correct the code.

if True:

pass

print(total)

Code:



Output:

Observation:

The variable total was used before being initialized, causing a NameError. Initializing the variable before usage fixes the issue.

Task 5: Logical Error in Student Grading System

Prompt:

The grading program assigns incorrect grades due to improper conditional logic. Analyze and correct the grading system.

marks = 85

if marks >= 90:

grade = "A"

elif marks >= 80:

grade = "C"

else:

grade = "B"

print(grade)

Code:

assignment 7.2 > Task5.py > ...

```python
#2303A510I4
#The grading program assigns incorrect grades due to improper conditional logic. Analyze and correct the grading system.
'''marks = 85
if marks >= 90:
grade = "A"
elif marks >= 80:
grade = "C"
else:
grade = "B"
print(grade)'''

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

Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS                                                    Python

PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI> C:/miniconda3/Scripts/activate
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI> conda activate base
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI> & C:/miniconda3/python.exe "c:/Users/Shivani Pabba/OneDrive/Desktop/AI/assignment 7.2/Task5.py"
B
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI>
```

Observation:

The original logic assigned grade "C" for marks ≥ 80, which is incorrect. The corrected conditional flow ensures grades are assigned properly based on mark ranges.