

ASSIGNMENT-7.2

HT.NO:2303A510H6

Batch.No:30

Task 1: Runtime Error Due to Invalid Input Type

Prompt:

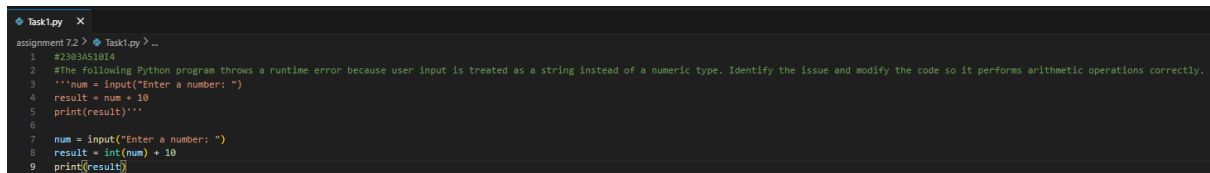
The following Python program throws a runtime error because user input is treated as a string instead of a numeric type. Identify the issue and modify the code so it performs arithmetic operations correctly.

```
num = input("Enter a number: ")
```

```
result = num + 10
```

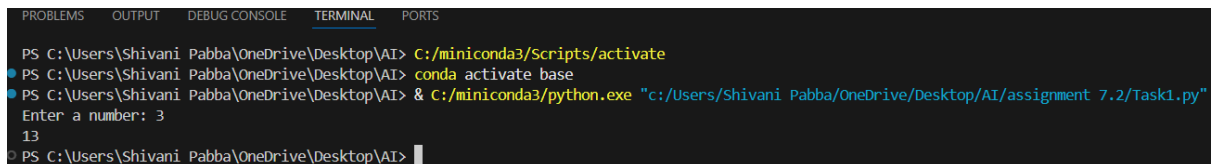
```
print(result)
```

Code:



```
Task1.py X
assignment 7.2 > Task1.py > ...
1 #2303A510H6
2 #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.
3 '''num = input("Enter a number: ")
4 result = num + 10
5 print(result)'''
6
7 num = input("Enter a number: ")
8 result = int(num) + 10
9 print(result)
```

Output:



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
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/Task1.py"
Enter a number: 3
13
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI> |
```

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

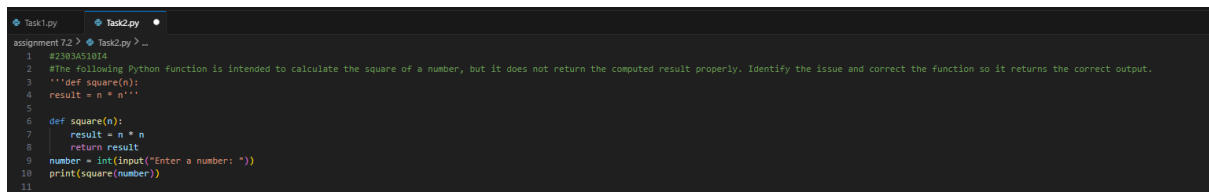
Prompt:

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):
```

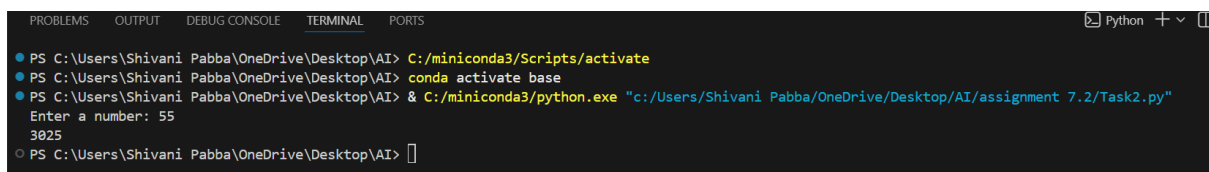
```
result = n * n'''
```

Code:



```
1 #2583451014
2 #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.
3 '''def square(n):
4     result = n * n'''
5
6 def square(n):
7     result = n * n
8     return result
9 number = int(input("Enter a number: "))
10 print(square(number))
11
```

Output:



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
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/Task2.py"
Enter a number: 55
3025
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI>
```

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:

```
assignment 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 + v
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:

```
assignment 7.2 > Task4.py > ...
1  #2303A510I4
2  #The following program uses a variable before assigning it a value. Identify the issue and correct the code.
3  '''if True:
4      pass
5      print(total)'''
6
7  total = 0
8  if True:
9      total = 100
10     print(total)
```

Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
Python + v
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/Task4.py"
100
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI>
```

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 > ...
1  #2303A510I4
2  #The grading program assigns incorrect grades due to improper conditional logic. Analyze and correct the grading system.
3  '''marks = 85
4  if marks >= 90:
5      grade = "A"
6  elif marks >= 80:
7      grade = "C"
8  else:
9      grade = "B"
10 print(grade)'''
11
12 marks = 85
13 if marks >= 90:
14     grade = "A"
15 elif marks >= 80:
16     grade = "B"
17 else:
18     grade = "C"
19 print(grade)
20
```

Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
Python + v [ ] [ ]
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.