

ASSIGNMENT-7.4

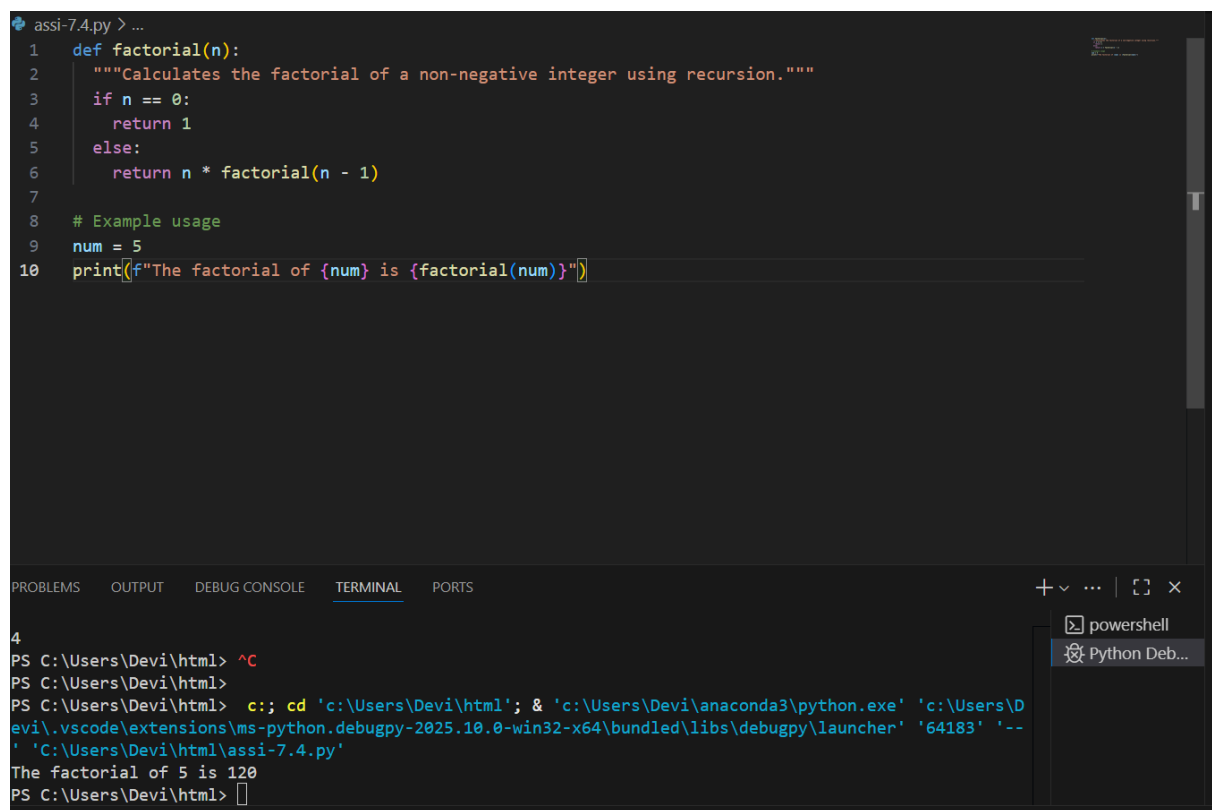
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BATCH-03

TASK-1:

Introduce a buggy Python function that calculates the factorial of a number using recursion. Use Copilot or Cursor AI to detect and fix the logical or syntax errors.



```
assi-7.4.py > ...
1 def factorial(n):
2     """Calculates the factorial of a non-negative integer using recursion."""
3     if n == 0:
4         return 1
5     else:
6         return n * factorial(n - 1)
7
8 # Example usage
9 num = 5
10 print(f"The factorial of {num} is {factorial(num)}")
```

4

```
PS C:\Users\Devi\html> ^C
PS C:\Users\Devi\html>
PS C:\Users\Devi\html> c:; cd 'c:\Users\Devi\html'; & 'c:\Users\Devi\anaconda3\python.exe' 'c:\Users\Devi\.vscode\extensions\ms-python.debugpy-2025.10.0-win32-x64\bundled\libs\debugpy\launcher' '64183' '--' 'C:\Users\Devi\html\assi-7.4.py'
The factorial of 5 is 120
PS C:\Users\Devi\html>
```

TASK-2:

Provide a list sorting function that fails due to a type error (e.g., sorting list with mixed integers and strings). Prompt AI to detect the issue and fix the code for consistent sorting

```
assi-7.4-2.py > sort_mixed_list
1 def sort_mixed_list(data_list):
2     """Sorts a list containing mixed data types by separating and sorting."""
3     integers = sorted([item for item in data_list if isinstance(item, int)])
4     strings = sorted([item for item in data_list if isinstance(item, str)])
5     return integers + strings
6
7 # Example usage with mixed data types
8 mixed_list = [3, 'apple', 1, 'banana']
9 print(f"Original list: {mixed_list}")
10 sorted_list = sort_mixed_list(mixed_list)
11 print(f"Sorted list: {sorted_list}")
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
evi\.vscode\extensions\ms-python.debugpy-2025.10.0-win32-x64\bundled\libs\debugpy\launcher '56530' '--
' 'C:\Users\Devi\html\assi-7.4-2.py'
Original list: [3, 'apple', 1, 'banana']
Sorted list: [1, 3, 'apple', 'banana']
PS C:\Users\Devi\html>
```

powershell
Python Deb...

TASK-3:

Write a Python snippet for file handling that opens a file but forgets to close it. Ask Copilot or Cursor AI to improve it using the best practice (e.g., with `open()` block)

```
❏ assi-7.4-3.py > ...
1  # Creating a dummy file for demonstration
2  with open("my_file.txt", "w") as f:
3      f.write("This is a line of text.\n")
4      f.write("This is another line.\n")
5
6  # Example of opening a file and forgetting to close it
7  file = open("my_file.txt", "r")
8  content = file.read()
9  print(content)
10 # The file is not explicitly closed here
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Devi\html> c:; cd 'c:\Users\Devi\html'; & 'c:\Users\Devi\anaconda3\python.exe' 'c:\Users\Devi\.vscode\extensions\ms-python.debugpy-2025.10.0-win32-x64\bundle\libs\debugpy\launcher' '54920' '--' 'C:\Users\Devi\html\assi-7.4-3.py'
This is a line of text.
This is another line.

PS C:\Users\Devi\html> 
```

TASK-4:

Provide a piece of code with a ZeroDivisionError inside a loop. Ask AI to add error handling using try-except and continue execution safely.

```
assi-7.4-4.py > ...
1 # Code that will cause a ZeroDivisionError inside a loop
2 for i in range(5):
3     try:
4         result = 10 / i
5         print(f"10 divided by {i} is {result}")
6     except ZeroDivisionError:
7         print(f"Cannot divide by zero when i is {i}")
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
' 'C:\Users\Devi\html\assi-7.4-4.py'
Cannot divide by zero when i is 0
10 divided by 1 is 10.0
10 divided by 2 is 5.0
10 divided by 3 is 3.3333333333333335
10 divided by 4 is 2.5
PS C:\Users\Devi\html>
```

TASK-5:

Include a buggy class definition with incorrect `__init__` parameters or attribute references.
Ask AI to analyze and correct the constructor and attribute usage.

```
assi-7.4-5.py > ...
1 class MyBuggyClass:
2     def __init__(self, name, age):
3         self.name = name
4         self.age = age # Corrected typo here
5
6     def greet(self):
7         print(f"Hello, my name is {self.name} and I am {self.age} years old.") # Corrected typo here
8
9 # Creating an instance of the corrected class
10 person = MyBuggyClass("Alice", 30)
11 person.greet()
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Devi\html> ^C
PS C:\Users\Devi\html>
PS C:\Users\Devi\html> c:: cd 'c:\Users\Devi\html'; & 'c:\Users\Devi\anaconda3\python.exe' 'c:\Users\Devi\vscode\extensions\ms-python.debugpy-2025.10.0-win32-x64\bundled\libs\debugpy\launcher' '55025' '--' ' 'C:\Users\Devi\html\assi-7.4-5.py'
Hello, my name is Alice and I am 30 years old.
PS C:\Users\Devi\html>
```