ASSIGNMENT-1.5

HT.NO: 2303A510I4

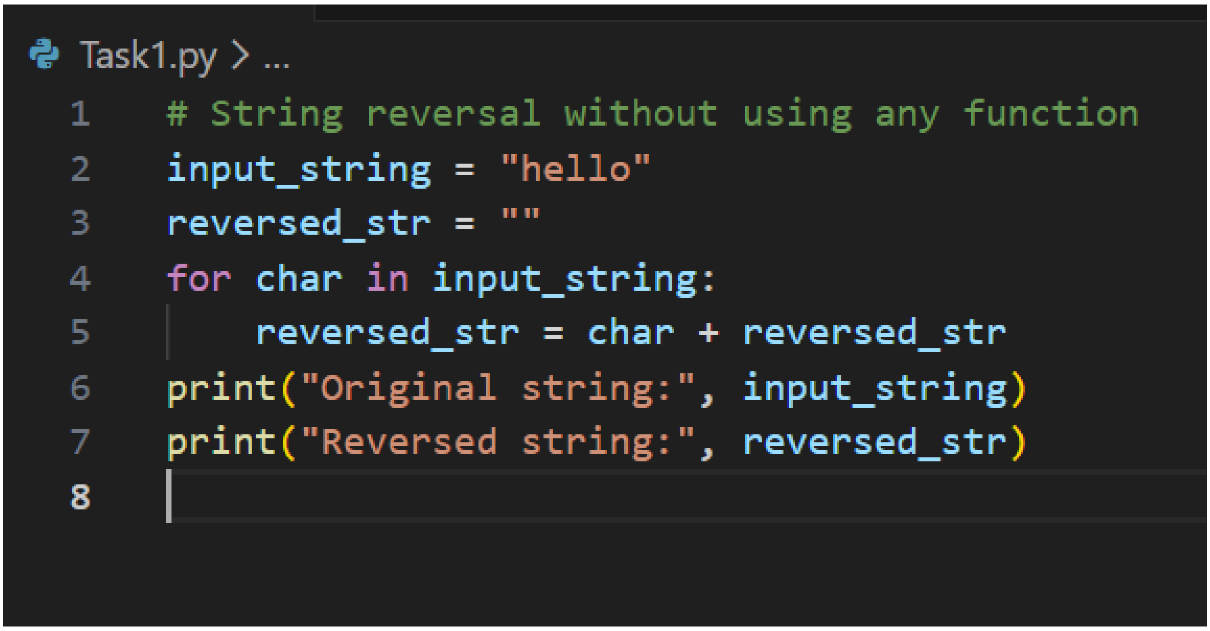
BATCH: 30

Task 1 :

PROMPT:

Write a Python program that takes a string as input and reverses it without using any user-defined functions.

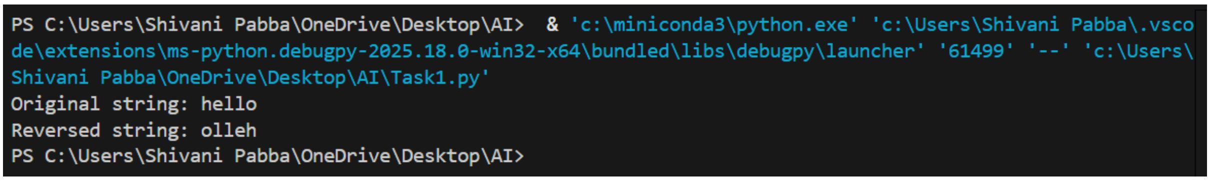
CODE:



```python
# String reversal without using any function
input_string = "hello"
reversed_str = ""
for char in input_string:
    reversed_str = char + reversed_str
print("Original string:", input_string)
print("Reversed string:", reversed_str)

```

OUTPUT:



```
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI>  & 'c:\miniconda3\python.exe' 'c:\Users\Shivani Pabba\.vsco
de\extensions\ms-python.debugpy-2025.18.0-win32-x64\bundled\libs\debugpy\launcher' '61499' '--' 'c:\Users\
Shivani Pabba\OneDrive\Desktop\AI\Task1.py'
Original string: hello
Reversed string: olleh
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI>
```

OBSERVATION:

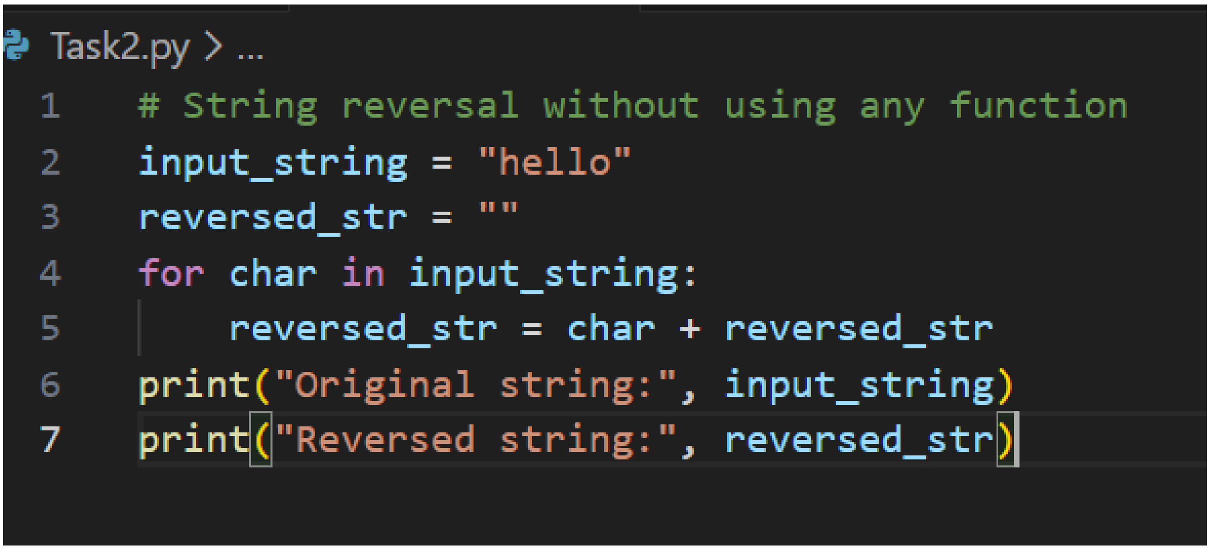
GitHub Copilot created a simple program to reverse a string. The code works correctly and takes user input. The logic is easy to understand but is written in one place without using functions.

Task 2 :

PROMPT:

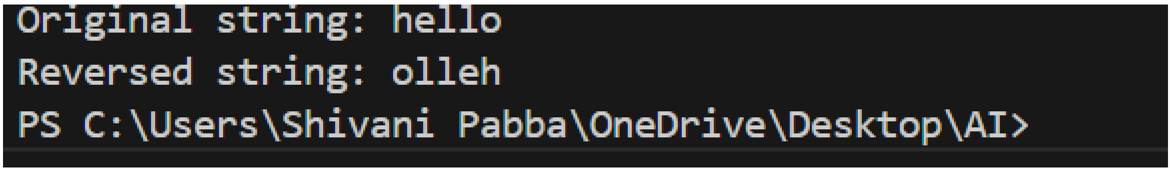
Simplify this string reversal code and improve readability.

CODE:



```python
# String reversal without using any function
input_string = "hello"
reversed_str = ""
for char in input_string:
    reversed_str = char + reversed_str
print("Original string:", input_string)
print("Reversed string:", reversed_str)
```

OUTPUT:



```
Original string: hello
Reversed string: olleh
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI>
```

OBSERVATION:

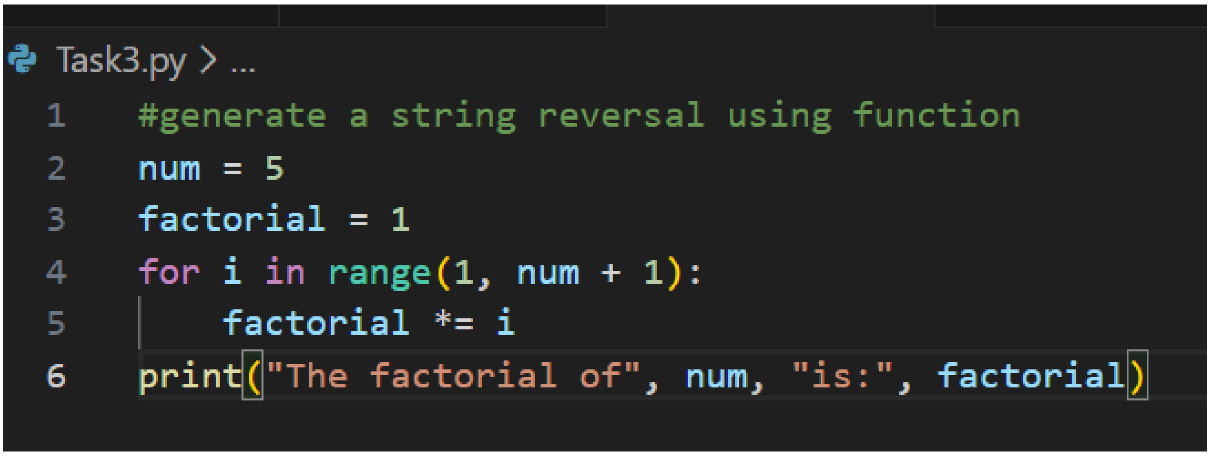
Copilot improved the code by making it shorter and cleaner. Unnecessary variables were removed and slicing was used to reverse the string. This made the program faster and easier to read.

Task 3:

PROMPT:

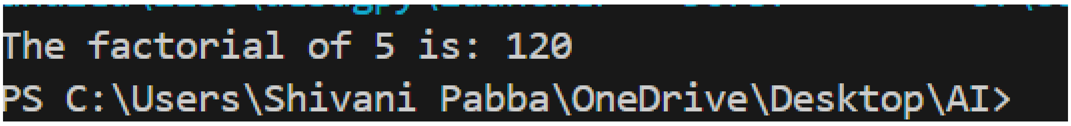
Write a Python function that takes a string and returns the reversed string with comments.

CODE:



```python
#generate a string reversal using function
num = 5
factorial = 1
for i in range(1, num + 1):
    factorial *= i
print("The factorial of", num, "is:", factorial)
```

OUTPUT:



```
The factorial of 5 is: 120
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI>
```

OBSERVATION:

Copilot generated a function to reverse a string. Using a function makes the code more organized and reusable. The program becomes easier to understand and maintain.

Task 4:

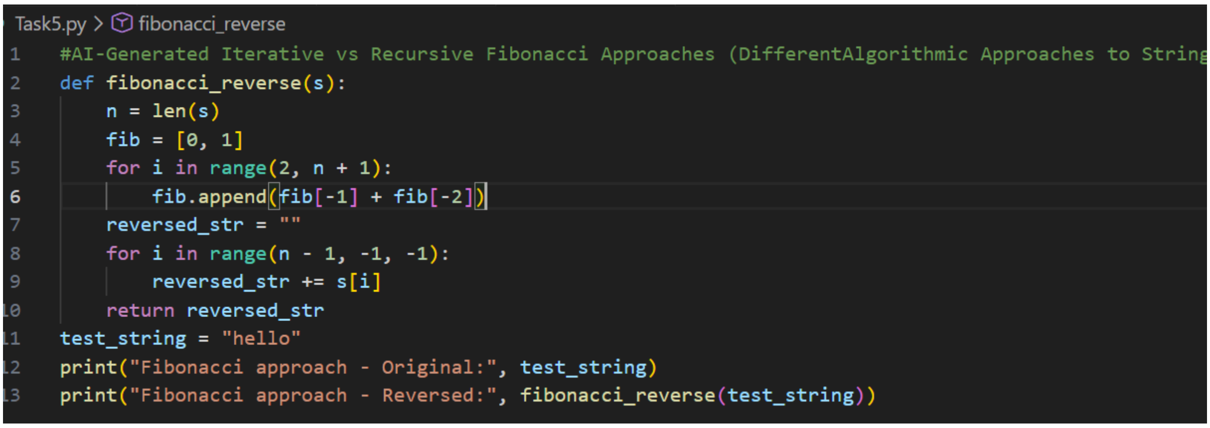
Aspect	**Without Functions**	**With Functions**
Code Clarity	Code is written in one place and can look messy	Code is neat and easy to understand
Reusability	Same code must be written again	Same function can be used many times
Debugging	Hard to find and fix errors	Easy to fix errors in one place
Use in Big Programs	Not good for large programs	Very good for large programs
Maintenance	Takes more time to update	Easy to update and manage

Task 5:

PROMPT:

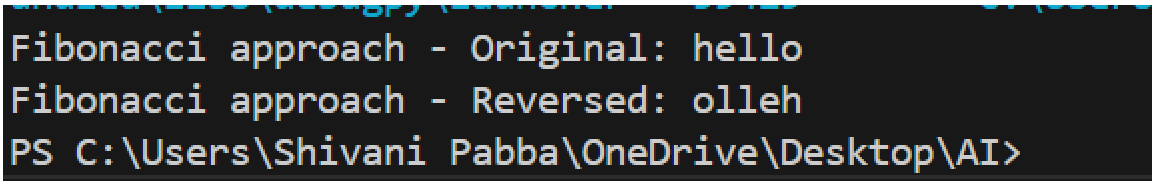
Generate two string reversal implementations: loop-based and slicing-based.

CODE:



```python
#AI-Generated Iterative vs Recursive Fibonacci Approaches (DifferentAlgorithmic Approaches to String
def fibonacci_reverse(s):
    n = len(s)
    fib = [0, 1]
    for i in range(2, n + 1):
        fib.append(fib[-1] + fib[-2])
    reversed_str = ""
    for i in range(n - 1, -1, -1):
        reversed_str += s[i]
    return reversed_str
test_string = "hello"
print("Fibonacci approach - Original:", test_string)
print("Fibonacci approach - Reversed:", fibonacci_reverse(test_string))
```

OUTPUT:



```
Fibonacci approach - Original: hello
Fibonacci approach - Reversed: olleh
PS C:\Users\Shivani Pabba\OneDrive\Desktop\AI>
```

OBSERVATION:

Copilot provided two ways to reverse a string. The loop method shows the step-by-step process but is slower. The slicing method is faster and simpler, so it is better for real applications.