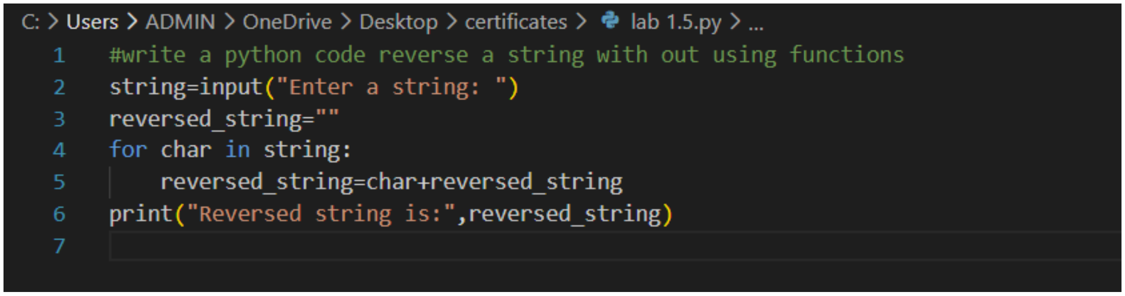
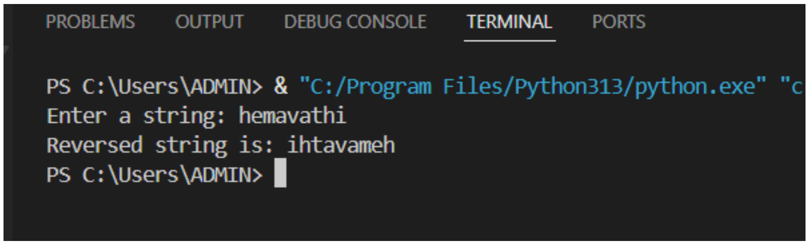
LAB ASSIGNMENT 1.5

HEMAVATHI N
2303A51965
Batch 24
AIAC

Task 1:
Prompt 1 : Write a python code to reverse a string without using functions.

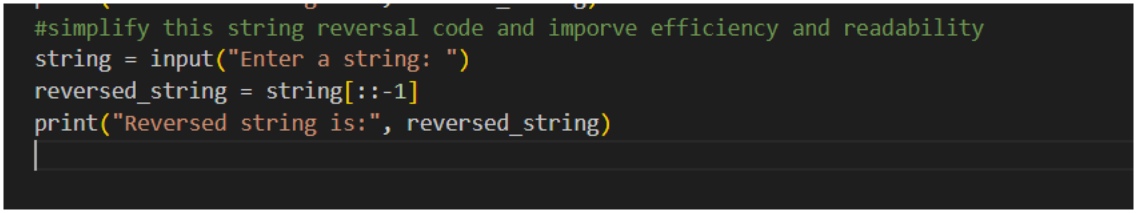

C: > Users > ADMIN > OneDrive > Desktop > certificates > lab 1.5.py > ...

```python
#write a python code reverse a string with out using functions
string=input("Enter a string: ")
reversed_string=""
for char in string:
    reversed_string=char+reversed_string
print("Reversed string is:",reversed_string)

```

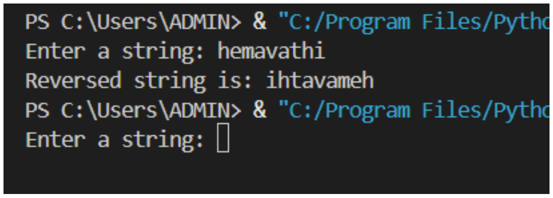


```
PS C:\Users\ADMIN> & "C:/Program Files/Python313/python.exe" "c
Enter a string: hemavathi
Reversed string is: ihtavameh
PS C:\Users\ADMIN> 
```

TASK 2:
Prompt 2 : Simplify this string reversal code and improve efficiency and readability.

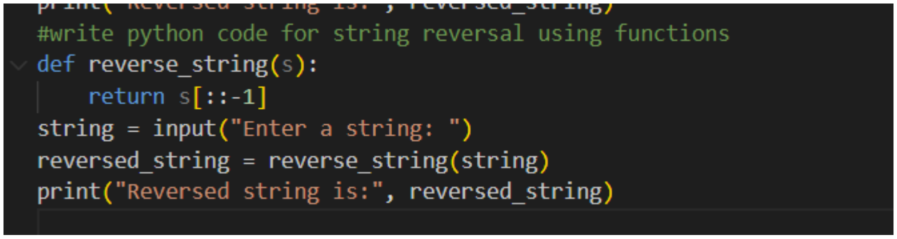


```python
#simplify this string reversal code and imporve efficiency and readability
string = input("Enter a string: ")
reversed_string = string[::-1]
print("Reversed string is:", reversed_string)

```

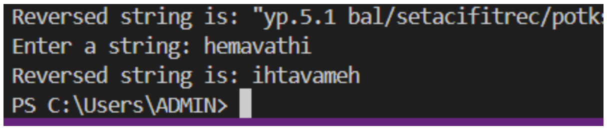


```
PS C:\Users\ADMIN> & "C:/Program Files/Pytho
Enter a string: hemavathi
Reversed string is: ihtavameh
PS C:\Users\ADMIN> & "C:/Program Files/Pytho
Enter a string: 
```

TASK 3:
Prompt 3 : Write a string reversal code in python with using functions.



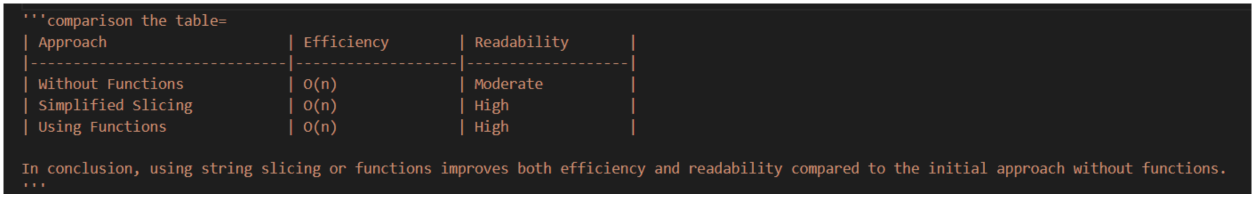
```python
#write python code for string reversal using functions
def reverse_string(s):
    return s[::-1]
string = input("Enter a string: ")
reversed_string = reverse_string(string)
print("Reversed string is:", reversed_string)
```



```
Reversed string is: "yp.5.1 bal/setacifitrec/potk
Enter a string: hemavathi
Reversed string is: ihtavameh
PS C:\Users\ADMIN> 
```

TASK 4:

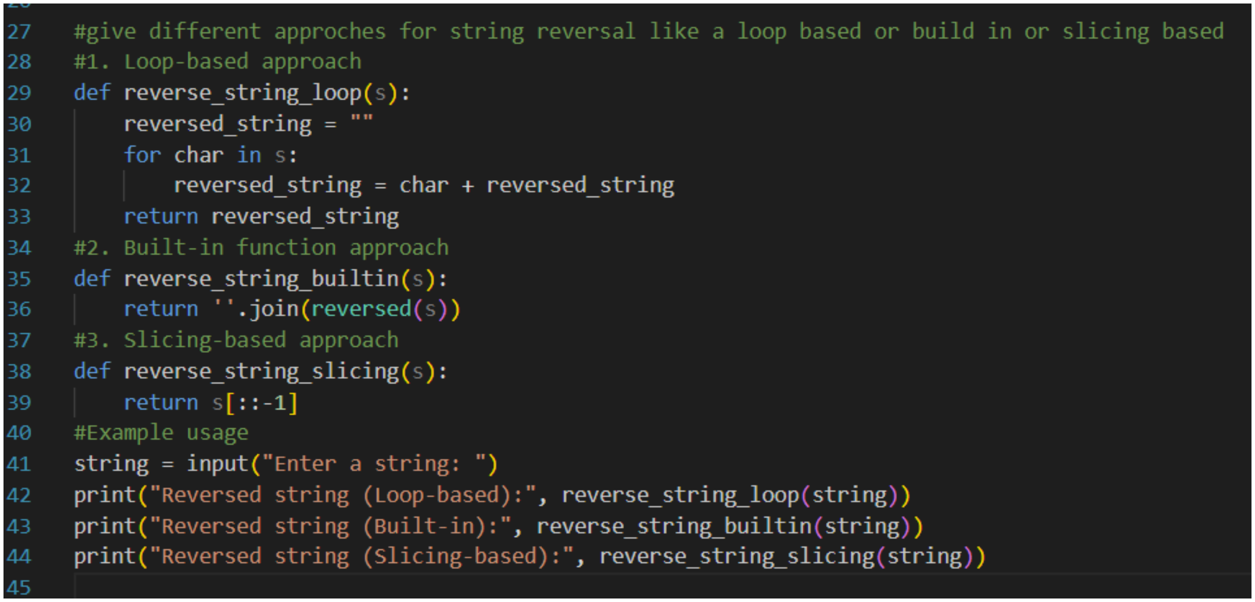
Prompt 4 : Analyse the code with function and without function and give a comparsion table.



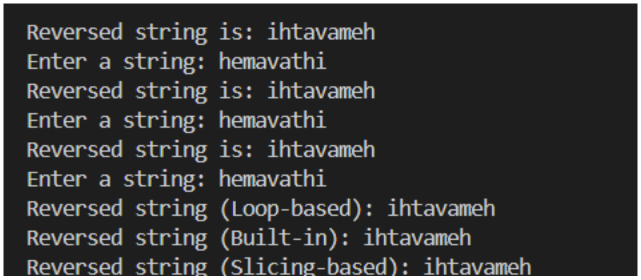
```
'''comparison the table=
| Approach                      | Efficiency        | Readability       |
|-------------------------------|-------------------|-------------------|
| Without Functions             | O(n)              | Moderate          |
| Simplified Slicing            | O(n)              | High              |
| Using Functions               | O(n)              | High              |

In conclusion, using string slicing or functions improves both efficiency and readability compared to the initial approach without functions.
'''
```

TASK 5:

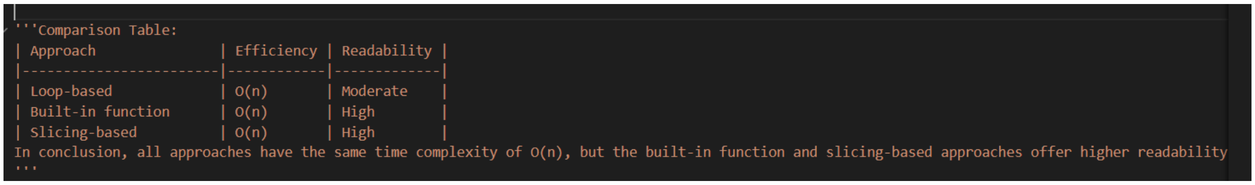
Prompt 5 : Give different approaches to reverse a string like a loop based and built in or slicing based.



```python
#give different approches for string reversal like a loop based or build in or slicing based
#1. Loop-based approach
def reverse_string_loop(s):
    reversed_string = ""
    for char in s:
        reversed_string = char + reversed_string
    return reversed_string
#2. Built-in function approach
def reverse_string_builtin(s):
    return ''.join(reversed(s))
#3. Slicing-based approach
def reverse_string_slicing(s):
    return s[::-1]
#Example usage
string = input("Enter a string: ")
print("Reversed string (Loop-based):", reverse_string_loop(string))
print("Reversed string (Built-in):", reverse_string_builtin(string))
print("Reversed string (Slicing-based):", reverse_string_slicing(string))
```



```
Reversed string is: ihtavameh
Enter a string: hemavathi
Reversed string is: ihtavameh
Enter a string: hemavathi
Reversed string is: ihtavameh
Enter a string: hemavathi
Reversed string (Loop-based): ihtavameh
Reversed string (Built-in): ihtavameh
Reversed string (Slicing-based): ihtavameh
```



```
'''Comparison Table:
| Approach               | Efficiency | Readability |
|------------------------|------------|-------------|
| Loop-based             | O(n)       | Moderate    |
| Built-in function      | O(n)       | High        |
| Slicing-based          | O(n)       | High        |
In conclusion, all approaches have the same time complexity of O(n), but the built-in function and slicing-based approaches offer higher readability
'''
```