

DATE: 06/06/2024

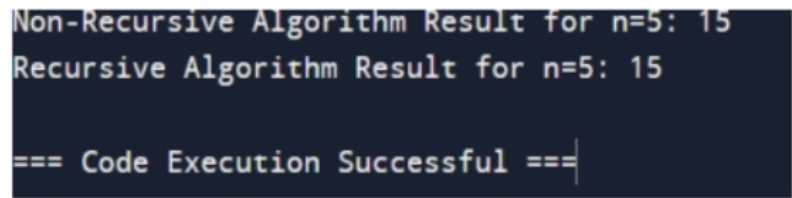
14. Write a program that demonstrates the mathematical analysis of non recursive and recursive algorithms.

AIM: To find and demonstrate the mathematical analysis of non recursive and recursive algorithms.

CODE:

```
def non_recursive_algorithm(n):  
    result = 0  
    for i in range(1, n+1):  
        result += i  
    return result  
  
def recursive_algorithm(n):  
    if n == 0:  
        return 0  
    return n + recursive_algorithm(n-1)  
  
n = 5  
non_recursive_result = non_recursive_algorithm(n)  
recursive_result = recursive_algorithm(n)  
print(f"Non-Recursive Algorithm Result for n={n}: {non_recursive_result}")  
print(f"Recursive Algorithm Result for n={n}: {recursive_result}")
```

OUTPUT:

A screenshot of a terminal window with a dark background and light-colored text. It shows the output of the program for n=5. The first line is "Non-Recursive Algorithm Result for n=5: 15" and the second line is "Recursive Algorithm Result for n=5: 15".

```
Non-Recursive Algorithm Result for n=5: 15  
Recursive Algorithm Result for n=5: 15
```

```
=== Code Execution Successful ===
```

Time complexity: $O(n)$