

DATE: 06/06/2024

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

AIM: To find 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)
```

```
# Test the algorithms
```

```
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:

Non-Recursive Algorithm Result for n=5: 15

Recursive Algorithm Result for n=5: 15

=== Code Execution Successful ===