Day-20 Python DSA

Recusions- Basic

1.Print 1 to N without loop

https://www.geeksforgeeks.org/problems/print-1-to-n-without-using-loops-1587115620/1

```
class Solution:
    def printNos(self,n):
        if n==0:
            return
        self.printNos(n-1)
        print(n,end=" ")
```

TC – O(N)

SC- O(N)

2. Print GFG n times

https://www.geeksforgeeks.org/problems/print-gfg-n-times/1

```
class Solution:
    def printGfg(self, n):
        if n==0:
            return
        self.printGfg(n-1)
        print("GFG", end=" ")
```

TC-O(N)

SC-O(N)

3. Print N to 1 without loop

https://www.geeksforgeeks.org/problems/print-n-to-1-without-loop/1

```
class Solution:
    def printNos(self, n):
        if n==0:
            return
        print(n, end=" ")
        self.printNos(n-1)
```

TC – O(N)

SC- O(N)

4. Sum of First N terms

https://www.geeksforgeeks.org/problems/sum-of-first-n-terms5843/1

```
class Solution:
        def sumOfSeries(self,n):
                if n==0:
                        return 0
                return n**3 + self.sumOfSeries(n-1)
```

TC- O(N)

SC- O(N)

5. Factorial

https://www.geeksforgeeks.org/problems/factorial5739/1

```
class Solution:
    def factorial (self, n):
        if n==0 or n==1:
            return 1
        return n * self.factorial(n-1)
```

TC – O(N)

SC- O(N)

6. Reverse an Array

https://www.geeksforgeeks.org/problems/reverse-sub-array5620/1

```
class Solution:
    def swap(self, arr, left, right):
        if left >= right:
            return
        arr[left], arr[right] = arr[right], arr[left]
        self.swap(arr, left + 1, right - 1)

    def reverseSubArray(self, arr, l, r):
        # Convert to 0-based indexing
        l -= 1
        r -= 1
        self.swap(arr, l, r)
        return arr
```

TC- O(N)

SC- O(N)

7. Pallindrome String

https://www.geeksforgeeks.org/problems/palindrome-string0817/1

```
class Solution:
    def check(self,s, left, right):
        if left >= right:
            return True
        if s[left] != s[right]:
            return False
        return self.check(s, left+1, right-1)
    def isPalindrome(self, s):
        return self.check(s, 0, len(s)-1)
```

TC – O(N)

SC- O(N)

8. Leetcode 509 Fibonacci Number

https://leetcode.com/problems/fibonacci-number/

```python
class Solution:
    def fib(self, n: int) -> int:
        if n==1:
            return 1
        elif n==0:
            return 0
        return self.fib(n-1) + self.fib(n-2)
```

```
TC – O(2^N)
SC – O(N)
```