Suffix Sum

Suffix Sum is the reverse operation of Prefix Sum. Instead of summing elements from the start of the array to a given index, it involves summing elements from the end of the array to a given index.

**Use Case:**

1. Suffix Sum is often used in problems where you need cumulative sums from the end of an array.
2. It is useful in range query problems and optimizations, especially where decisions depend on values towards the end of the array.

```
#include <iostream>
#include <vector>
using namespace std;


// Function to calculate Suffix Sum
vector<int> solve(const vector<int>& arr) {
   int n = arr.size();
   vector<int> suffixSum(n);
   suffixSum[n - 1] = arr[n - 1];
   for (int i = n - 2; i >= 0; --i) {
      suffixSum[i] = arr[i] + suffixSum[i + 1];
   }
   return suffixSum;
}

int main() {
   int n;
   cin >> n;
   vector<int> arr(n);
   for (int i = 0; i < n; ++i) {
      cin >> arr[i];
   }

   vector<int> suffixSum = solve(arr);

   for (int sum : suffixSum) {
      cout << sum << " ";
   }
   cout << endl;

   return 0;
}
```

Java

```
import java.util.Scanner;

public class SuffixSum {
   // Function to calculate Suffix Sum
   public static int[] calculateSuffixSum(int[] arr) {
      int n = arr.length;
      int[] suffixSum = new int[n];
      suffixSum[n - 1] = arr[n - 1];
      for (int i = n - 2; i >= 0; i--) {
         suffixSum[i] = arr[i] + suffixSum[i + 1];
      }
      return suffixSum;
```

```
    }

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the size of the array: ");
        int n = scanner.nextInt();
        int[] arr = new int[n];

        System.out.println("Enter the elements of the array: ");
        for (int i = 0; i < n; i++) {
            arr[i] = scanner.nextInt();
        }

        int[] suffixSum = calculateSuffixSum(arr);

        System.out.println("Suffix Sum Array: ");
        for (int sum : suffixSum) {
            System.out.print(sum + " ");
        }
        System.out.println();

        scanner.close();
    }
}
```