Task 2: Array Manipulation

Given an array arr[], find the prefix sum of the array. A prefix sum array is another array prefix Sum[] of the same size, such that prefix sum[i] arr[0] + arr[1] + arr[2] ... arr[i].

Sample input -1:5

10 20 10 5 15

Sample output -1:

10 30 40 45 60

explanation: for each index i, add all the elements from 0 to i.

Aim:- To design and implement a java program that takes an array of integers as input and Computes its Prefix Sum Array where:

$$\text{Prefix sum}[i] = \sum_{j=0}^{i} arr[j]$$

Algorithm:-

1) Start
2) Input the size of the array n.
3) Create an array arr of size n and taken integers as input
4) Create a new array prefix sum of the same size
5) Set the first element : prefix sum[0] = arr[0]
6) loop through the array from index i=1 to n-1:
7) calculate prefixsum[i] = prefix sum[i-1] + arr[i]
7) Print the element of the prefix sum Array
8) End

Input:

Output:

Algorithm:-

$$\text{Prefix sum}[i] = \sum_{j=0}^{i} \text{arr}[j]$$

1) Start

2) Input the size of the array n.

3) Create an array arr of size n and

integer an input

n) Create a new array prefix sum of the

2) Set the first element : prefix sum[0]

5) Loop through the array then index

4) Calculate prefix sum[i] : prefix sum[i-1]

3) Print the element of the prefix

Program:-

```
import java.util.scanner;
  class prefix sum{
     Public static void main (String [] args)
{
  Scanner sc = new
  scanner ( system .in );
     int n = sc. next int ()
     int [] arr = new int (n);
        for [int i=0 ; i<n ; i++)
          arr[i] = sc . next int ().
        Prefix (0) = arr [0];
      for [int i=1; i<n ; i++)
       Prefix [i] = Prefix [i-1]) + arr [i]
       for [int i=0 ; i<n ; i++)
   System -out. print ln (Prefix (i) + " ");
}
}
```

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Result: Thus, the prefix sum array is completed successfully.