

Arrays Challenge-Sum of all Subarrays

Question

Given an array $a[]$ of size n . Output sum of each subarray of the given array.

Example:

1	2	2
(0)	(1)	(2)

Subarrays:

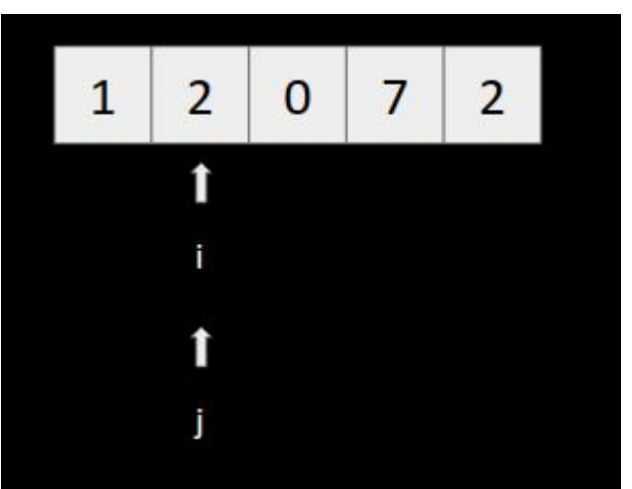
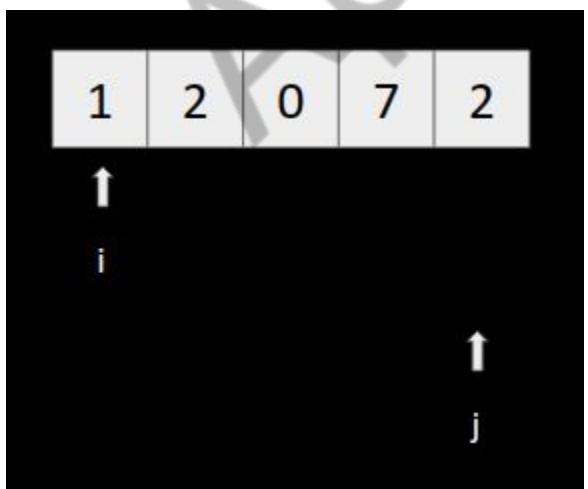
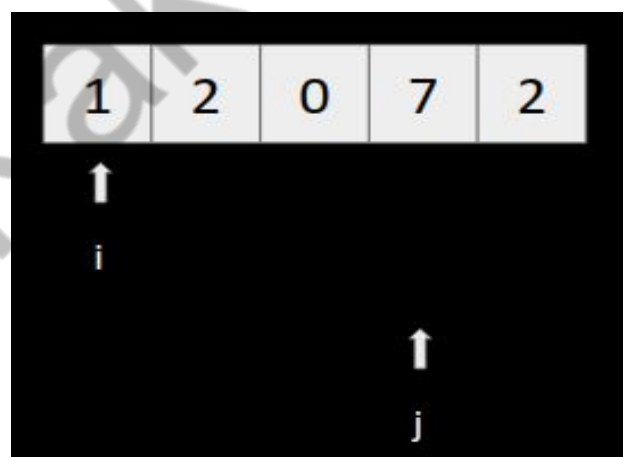
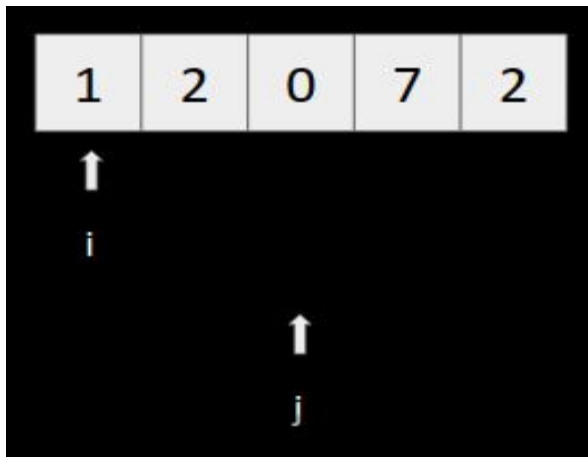
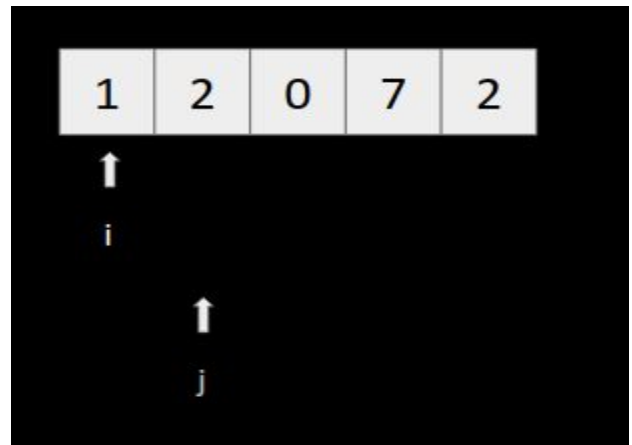
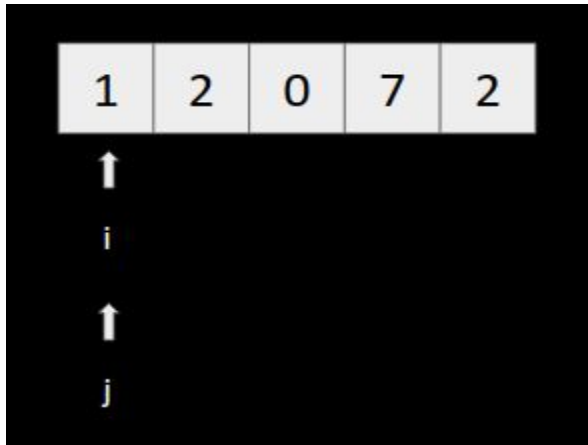
	1	1 2	1 2 2	2	2 2	2
Sum:	1	3	5	2	4	2

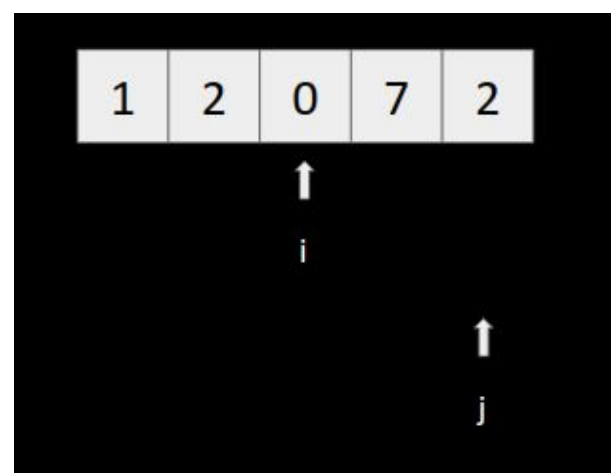
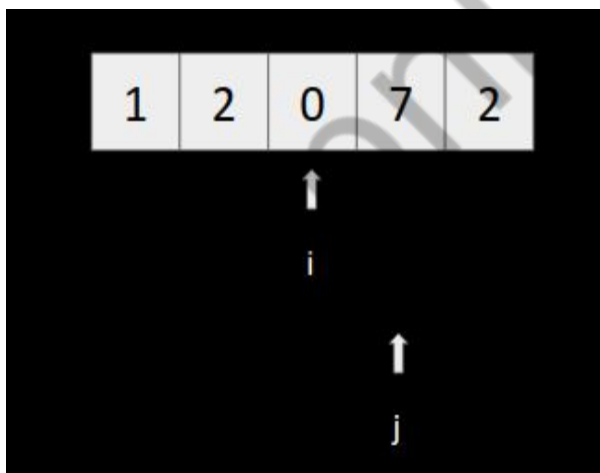
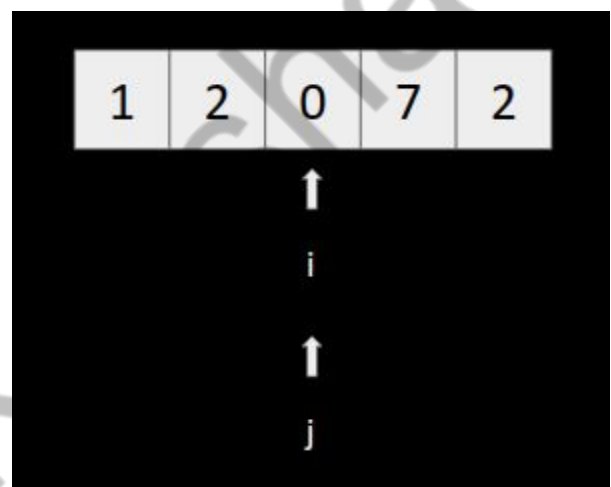
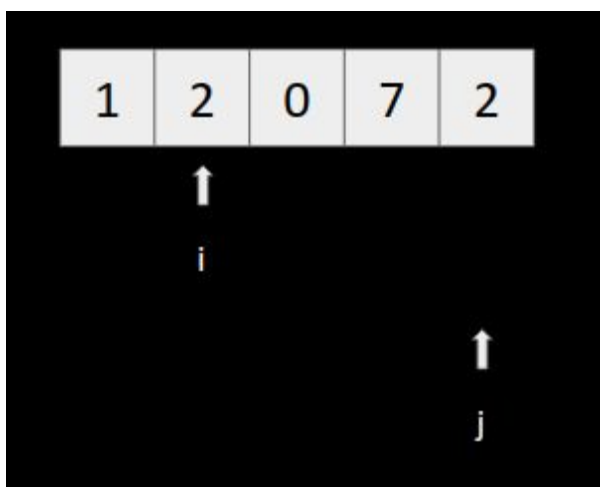
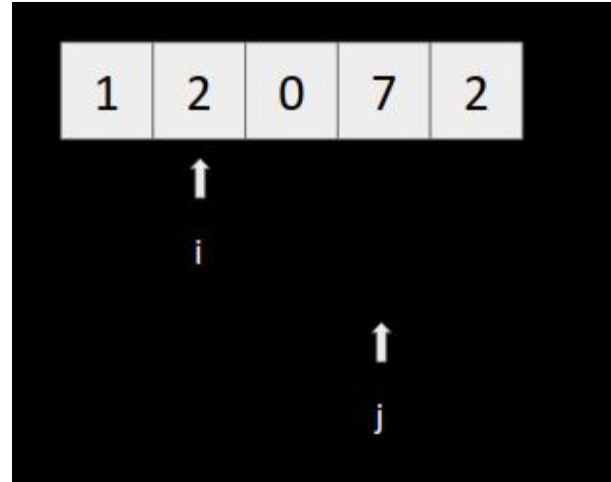
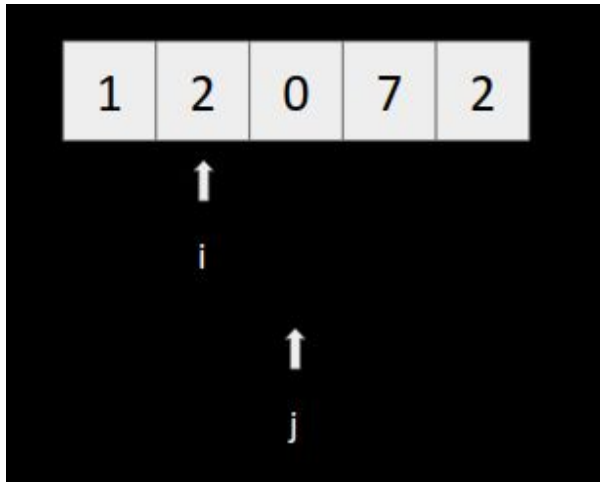
Idea: Iterate over all subarrays and output the sum after each iteration.

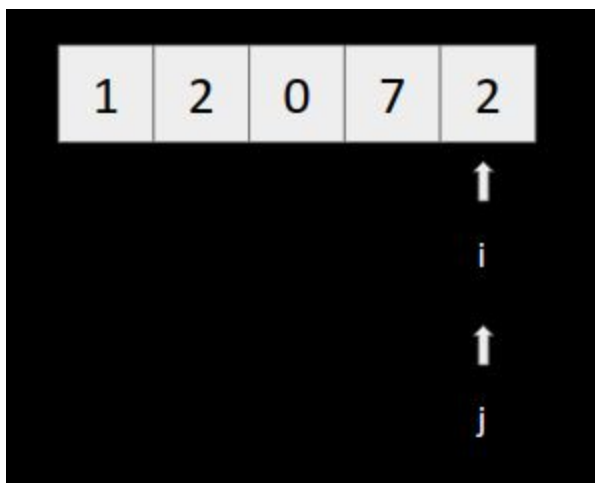
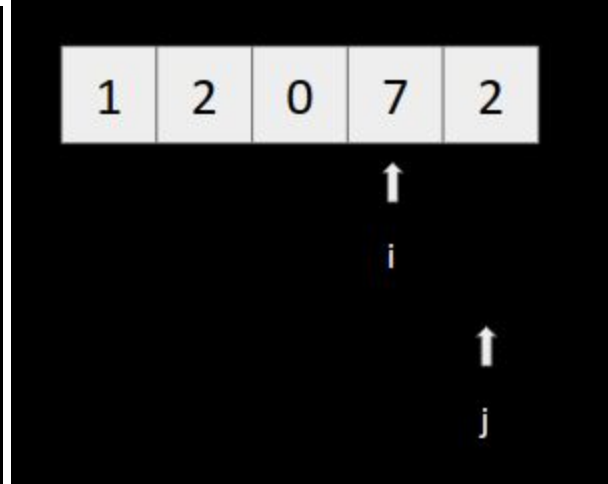
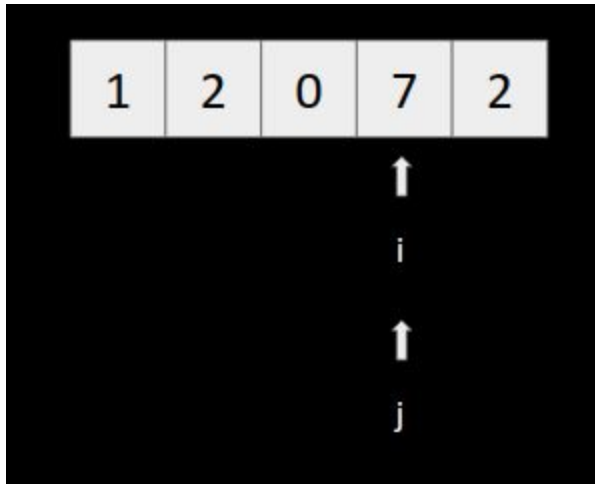
Approach

1. Write a nested loop, where outer loop runs from $i=0$ to $i=n-1$ and inner loop runs from $j=i$ to $j=n-1$.
2. Keep a curr variable which stores the sum from i to j .
3. Output curr after each iteration of inner loop. After inner loop ends, update $\text{curr} = 0$.

Dry Run







This question tells us how to iterate over all the subarrays. This idea is very useful in many questions which deals with operations on subarrays.

Code

```
void sumOfAllSubarrays()
{
    int n;
    cin >> n;

    int a[n];

    for(int i=0; i<n; i++)
        cin >> a[i];

    int curr=0;
    for(int i=0; i<n; i++){
        curr = 0;
        for(int j=i; j<n; j++){
            curr += a[j];
            cout << curr << endl;
        }
    }
}
```

Apni Kaksha