

$a_0 \quad a_1 \quad a_2 \quad \dots \quad a_{i-1} \quad a_i \quad a_{i+1} \quad \dots \quad a_N$

Count the number of subarrays in which  $a_i$  is present

- $A = \text{Range of start index } [0 \dots i] \Rightarrow X = i + 1$
- $B = \text{Range of end index } [i \dots N-1] \Rightarrow Y = N - i$

$X * Y$

3      -3      4      -1      2      6  
How many subarrays index 3 is present

S                      e

0                      3

1                      4

2                      5

3

[0, 3]

[0, 4]

[0, 5]                      = 3

[1, 3]

[1, 4]

[1, 5]                      = 3

[2, 3]

[2, 4]

[2, 5]                      = 3

[3, 3]

[3, 4]

[3, 5]                      = 3

Every element like  $a[i]$  is going to repeat  $(i+1 * N-i)$

Contribution of  $a[i]$  to total\_sum is  $= a[i] * (i+1 * N-i)$