**Sliding Window Technique**

Problem

You are given an array a[] with n elements. Your task is to calculate the minimum sum of k consecutive elements.

Example



K = 3

Sums possible of 3 consecutive elements: 9, 14, 6, **4**, 5, 8.

Minimum of them = 4 (answer).

Brute force approach

1. Iterate from *i=0* to *i=n-k-1* in the outer loop.
2. Starting from *j=i*, compute the sum of k elements and maintain the minimum.

Time complexity: O(n\*k)

Optimal Approach (Sliding Window Technique)

1. Compute sum of first k elements by iterating from *i=0* to *i=k-1* and store it in the variable *sum.*
2. While increasing *i*, subtract a[i-1] and add a[i+k-1] in the previous sum, which will become the current sum. This step is known as moving window forward.
3. Keep a variable *mn*, which stores the minimum of the sum. Operation used is

*mn = min(mn, sum)*

Time Complexity: O(n)

Code

