

Two Smallests In Every Subarray

🕒 solved by	Senan
🌐 Platform	GeeksForGeeks
🔧 difficulty	Easy
🏷️ tags	Array Maths
🗣️ language	C++
📅 solved on	@12/10/2024
🔗 link	https://www.geeksforgeeks.org/problems/maximum-sum-of-smallest-and-second-smallest-in-an-array/1
✅ Completion	✔️

Intuition

The task is to find the maximum sum of the smallest and second smallest elements among all subarrays of size greater than one. Since every subarray of size two has exactly two elements, we can simplify the problem by only considering adjacent elements. For each adjacent pair, the two elements are the smallest and second smallest by default, so we compute their sum and track the maximum sum.

Approach

We iterate through the array, computing the sum of each adjacent pair. We keep track of the maximum sum encountered. If the array has fewer than two elements, we return `-1` since no valid subarrays exist.

Complexity

Time Complexity:

- **$O(n)$** : We iterate through the array once, where `n` is the number of elements in the array.

Space Complexity:

- **$O(1)$** : We only use a few variables, so the space complexity is constant.

Code

```
class Solution {
public:
    int pairWithMaxSum(vector<int>& arr) {
        if(arr.size() < 2) return -1;

        int maxi = INT_MIN;

        for(int i = 1; i < arr.size(); i++){
            maxi = max(maxi, arr[i] + arr[i-1]);
        }
    }
};
```

```
        return maxi;
    }
};
```