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# PL-2020-C-Sherlock and Array

locked

Problem

Submissions

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Discussions

Watson gives Sherlock an array of integers. His challenge is to find an element of the array such that the sum of all elements to the left is equal to the sum of all elements to the right. For instance, given the array `arr = [5, 6, 8, 11]`, 8 is between two subarrays that sum to 11. If your starting array is `[1]`, that element satisfies the rule as left and right sum to 0.

You will be given arrays of integers and must determine whether there is an element that meets the criterion.

Complete the code in the editor below. It should return a string, either YES if there is an element meeting the criterion or NO otherwise.

It has the following: • `arr`: an array of integers

## Input Format

The first line contains  $T$ , the number of test cases. The next  $T$  pairs of lines each represent a test case. - The first line contains  $n$ , the number of elements in the array `arr`. - The second line contains  $n$  space-separated integers `arr[i]` where  $0 \leq i < n$ .

## Constraints

$1 \leq T \leq 10$  •  $1 \leq n \leq 10^5$  •  $1 \leq arr[i] \leq 2 \times 10^4$  •  $0 \leq i \leq n$

## Output Format

For each test case print YES if there exists an element in the array, such that the sum of the elements on its left is equal to the sum of the elements on its right; otherwise print NO.

## Sample Input 0

```
3
5
1 1 4 1 1
4
2 0 0 0
4
0 0 2 0
```

## Sample Output 0

```
YES
YES
YES
```

## Sample Input 1

```
2
3
1 2 3
4
1 2 3 3
```

## Sample Output 1

NO  
YES

### Explanation 1

For the first test case, no such index exists. For the second test case,  $\text{arr}[0] + \text{arr}[1] = \text{arr}[3]$ , therefore index 2 satisfies the given conditions.

### Sample Input 2

```
3
5
1 1 4 1 1
4
2 0 0 0
4
0 0 2 0
```

### Sample Output 2

YES  
YES  
YES

### Explanation 2

In the first test case,  $\text{arr}[2] = 4$  is between two subarrays summing to 2. In the second case,  $\text{arr}[0] = 2$  is between two subarrays summing to 0. In the third case,  $\text{arr}[2] = 2$  is between two subarrays summing to 0.

[f](#) [t](#) [in](#)

Submissions: 648

Max Score: 100

Difficulty: Medium

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C



```
1 #include <stdio.h>
2 #include <string.h>
3 #include <math.h>
4 #include <stdlib.h>
5
6 int main() {
7
8     /* Enter your code here. Read input from STDIN. Print output to STDOUT */
9     int i,j;
10    int sum, left, right;
11    unsigned int T, N;
12    unsigned int A[100000];
13    scanf("%d", &T);
14    for (i=0; i<T; i++) {
15        scanf("%d", &N);
16        for (j=0; j<N; j++){
17            scanf("%d", &A[j]);
18        }
19        if (N==1) {
20            printf("YES\n");
21            continue;
22        }
23        else {
24            left = 0;
25            right = N - 1;
```

```
26     sum = 0;
27     while (left != right) {
28         if (sum < 0) {
29             sum += A[right];
30             right--;
31         }
32         else if (sum > 0) {
33             sum -= A[left];
34             left++;
35         }
36         else if (sum == 0) {
37             if (A[left] > A[right]) {
38                 sum = A[right];
39                 right--;
40             }
41             else {
42                 sum = 0 - A[left];
43                 left++;
44             }
45         }
46     }
47     if (sum == 0)
48         printf("YES\n");
49     else
50         printf("NO\n");
51 }
52 }
53 return 0;
54 }
55 }
```

Line: 1 Col: 1

[Upload Code as File](#) ☐ Test against custom input

Run Code

Submit Code