

## Problem B. Alternating Subsequence

**Time limit** 1000 ms

**Mem limit** 262144 kB

Recall that the sequence  $b$  is a subsequence of the sequence  $a$  if  $b$  can be derived from  $a$  by removing zero or more elements without changing the order of the remaining elements. For example, if  $a = [1, 2, 1, 3, 1, 2, 1]$ , then possible subsequences are:  $[1, 1, 1, 1]$ ,  $[3]$  and  $[1, 2, 1, 3, 1, 2, 1]$ , but not  $[3, 2, 3]$  and  $[1, 1, 1, 1, 2]$ .

You are given a sequence  $a$  consisting of  $n$  positive and negative elements (there is no zeros in the sequence).

Your task is to choose **maximum by size** (length) *alternating* subsequence of the given sequence (i.e. the sign of each next element is the opposite from the sign of the current element, like positive-negative-positive and so on or negative-positive-negative and so on). Among all such subsequences, you have to choose one which has the **maximum sum** of elements.

In other words, if the maximum length of *alternating* subsequence is  $k$  then your task is to find the **maximum sum** of elements of some *alternating* subsequence of length  $k$ .

You have to answer  $t$  independent test cases.

### Input

The first line of the input contains one integer  $t$  ( $1 \leq t \leq 10^4$ ) — the number of test cases. Then  $t$  test cases follow.

The first line of the test case contains one integer  $n$  ( $1 \leq n \leq 2 \cdot 10^5$ ) — the number of elements in  $a$ . The second line of the test case contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $-10^9 \leq a_i \leq 10^9, a_i \neq 0$ ), where  $a_i$  is the  $i$ -th element of  $a$ .

It is guaranteed that the sum of  $n$  over all test cases does not exceed  $2 \cdot 10^5$  ( $\sum n \leq 2 \cdot 10^5$ ).

### Output

For each test case, print the answer — the **maximum sum** of the **maximum by size** (length)

*alternating* subsequence of  $a$ .

### Examples

Input	Output
4	2
5	-1
1 2 3 -1 -2	6
4	-2999999997
-1 -2 -1 -3	
10	
-2 8 3 8 -4 -15 5 -2 -3 1	
6	
1 -1000000000 1 -1000000000 1 -1000000000	

### Note

In the first test case of the example, one of the possible answers is  $[1, 2, \underline{3}, \underline{-1}, -2]$ .

In the second test case of the example, one of the possible answers is  $[-1, -2, \underline{-1}, -3]$ .

In the third test case of the example, one of the possible answers is  $[\underline{-2}, 8, 3, \underline{8}, \underline{-4}, -15, \underline{5}, \underline{-2}, -3, \underline{1}]$ .

In the fourth test case of the example, one of the possible answers is  $[\underline{1}, \underline{-1000000000}, \underline{1}, \underline{-1000000000}, \underline{1}, \underline{-1000000000}]$ .