Problem B. Alternating Subsequence

Time limit 1000 ms
Mem limit 262144 kB

Recall that the sequence b is a 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 ($1 \le t \le 10^4$) — the number of test cases. Then t test cases follow.

The first line of the test case contains one integer n ($1 \le n \le 2 \cdot 10^5$) — the number of elements in a. The second line of the test case contains n integers $a_1, a_2, \ldots, a_n$ ($-10^9 \le a_i \le 10^9, a_i \neq 0$), 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 $2 \cdot 10^5$ ($\sum n \le 2 \cdot 10^5$).

Output

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

Sample 1

Input	Output

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

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 $[\underline{1}, \underline{-1000000000}, \underline{1}, \underline{-1000000000}, \underline{1}, \underline{-1000000000}]$.