C. Alternating Subsequence

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

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 $a_1, a_2, \ldots, a_n$ ($-10^9 \le a_i \le 10^9, a_i \ne 0$), 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.

Example

input
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

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