Problem B. Exchanging Kubic 3

Little Cyan Fish is conducting a social experiment with Prof. Kubic. In the experiment, there is a row of n cells numbered from 1 to n. An integer array a of length n describes the distribution of soldiers in these cells. For each cell i:

- If $a_i = 0$, cell i is empty.
- If $a_i > 0$, cell i contains a_i *good* soldiers.
- If $a_i < 0$, cell i contains $-a_i$ *bad* soldiers.

Little Cyan Fish can apply several operations. In an operation, Little Cyan Fish may choose two indices i and j satisfying $1 \le i, j \le n$ such that $a_i > 0$ and j is adjacent to i (that is, $j \in \{i-1, i+1\}$). Then, the operation moves all soldiers from cell i to cell j by performing the following updates:

$$a_j \leftarrow a_j + a_i, \quad a_i \leftarrow 0.$$

Little Cyan Fish hates the bad soldiers, so he wants to eliminate them all. In other words, he needs to achieve

$$a_i \ge 0 \quad \text{for all } 1 \le i \le n.$$

Determine the minimum number of operations required to reach his goal, or report if it is impossible.

Input

There are multiple test cases. The first line of the input contains a single integer T ($T \ge 1$), indicating the number of the test cases. For each test case:

The first line of the input contains a single integer n ($1 \le n \le 5 \times 10^5$), the number of cells.

The next line of the input contains n integers $a_1, a_2, \ldots, a_n$ ($-10^9 \le a_i \le 10^9$), representing the soldier distribution in the cells.

It is guaranteed that the sum of n over all test cases does not exceed 5×10^5.

Output

For each test case:

If there is no way to reach Little Cyan Fish's goal, output a single line with a single word "`No`".

Otherwise, the first line of the output should contain the word "`Yes`".

The next line of the output should contain a single integer, indicating the minimum number of operations required to ensure that $a_i \ge 0$ for all $1 \le i \le n$.

Example

standard input	standard output
4 2 -2 1 3 1 0 -1 5 -1 4 -1 -1 -1 6 -1 2 -1 -1 3 -1	No Yes 2 Yes 5 Yes 5