C. Sequence

time limit per test: 1 second
memory limit per test: 64 megabytes
input: standard input
output: standard output

Little Petya likes to play very much. And most of all he likes to play the following game:

He is given a sequence of N integer numbers. At each step it is allowed to increase the value of any number by 1 or to decrease it by 1. The goal of the game is to make the sequence non-decreasing with the smallest number of steps. Petya is not good at math, so he asks for your help.

The sequence a is called non-decreasing if $a_1 \leq a_2 \leq ... \leq a_N$ holds, where N is the length of the sequence.

Input

The first line of the input contains single integer N ($1 \leq N \leq 5000$) — the length of the initial sequence. The following N lines contain one integer each — elements of the sequence. These numbers do not exceed 10^9 by absolute value.

Output

Output one integer — minimum number of steps required to achieve the goal.

Examples

input
5 3 2 -1 2 11
output
4

input
5 2 1 1 1 1
output
1