E. Artem and Array

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Artem has an array of n positive integers. Artem decided to play with it. The game consists of n moves. Each move goes like this. Artem chooses some element of the array and removes it. For that, he gets $min(a, b)$ points, where a and b are numbers that were adjacent with the removed number. If the number doesn't have an adjacent number to the left or right, Artem doesn't get any points.

After the element is removed, the two parts of the array glue together resulting in the new array that Artem continues playing with. Borya wondered what maximum total number of points Artem can get as he plays this game.

Input

The first line contains a single integer n ($1 \le n \le 5 \cdot 10^5$) — the number of elements in the array. The next line contains n integers a_i ($1 \le a_i \le 10^6$) — the values of the array elements.

Output

In a single line print a single integer — the maximum number of points Artem can get.

Examples

input
5 3 1 5 2 6
output
11

input
5 1 2 3 4 5
output
6

input
5 1 100 101 100 1
output
102

Codeforces Round #253 (Div. 2)

Finished

Practice

→ **Virtual participation**

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ **Practice**

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ **Submit?**

Language: GNU G++11 5.1.0

Choose file: Choose File No file chosen

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

Submit

→ **Problem tags**

No tags yet

No tag edit access

→ **Contest materials**

- Announcement
- Tutorial

Codeforces (c) Copyright 2010-2016 Mike Mirzayanov
The only programming contests Web 2.0 platform
Server time: Oct/06/2016 07:11:11^{UTC+6} (p1).
Desktop version, switch to mobile version.