Problem D. HearthStone

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	512 mebibytes

Alice loves playing HearthStone! She loves the hero class of Warlock, who can cast the spell named Defile.

When cast, Defile deals 1 unit of damage to the health of all minions. If any minion dies, Defile will be cast again automatically. Importantly, if two or more minions die simultaneously, it still causes a single Defile cast. That, in turn, may kill other minions, causing Defile to be cast again, and so on.

The health of each minion is a nonnegative integer. A minion dies when their health becomes zero. If a minion dies, it will disappear. It will not die twice.

Now there are n minions. Before casting Defile, Alice can make zero or more steps. In each step, Alice changes a single minion's health by one. That is to say, if the health of a minion is x, Alice can change it to $x - 1$ or $x + 1$.

Alice wants to know the minimum number of steps such that, after these steps, she can cast a single Defile to kill all the minions.

Input

The first line contains a single integer n $(1 \le n \le 10^6)$.

The next line contains n integers $a_1, a_2, \ldots, a_n$ $(1 \le a_i \le 10^6)$, the health of the n minions.

Output

Print one integer: the minimum number of steps before Alice can cast a single Defile to kill all the minions.

Example

standard input	standard output
6 4 6 8 9 2 4	12