G Naghsh Jahan Festival

Time limit: 1.5s
Memory limit: 256MB

Today there is a festival held at Naghsh Jahan Square. The square is sectioned into 10^9 sections. There are n events in this festival; the i-th of them is at section a_i.

We want to capture this amazing festival. We have p small cameras that can capture w consecutive sections, and q large cameras that can capture $2w$ consecutive sections; we can't move camera's after placement.The larger the parameter w is, the higher the cost to capture is. So we need to know what is the minimum amount of w so we can capture these events.

Input

The first line of input contains three integers n, p, q ($1 \leq n \leq 2 \times 10^3$), ($1 \leq p, q \leq 10^5$) — the number of the events, the number of small cameras, and the number of large cameras.

The i-th line ($1 \leq i \leq n$) of the following n lines contains an integer a_i — the section where the i-th event will be held.

Output

Print the minimum value of w so that the pictures of all the sections of the events can be taken.

Samples

Sample input 1	Sample output 1
4 2 1 2 20 26 30	3

Sample input 2	Sample output 2
10 2 2 916526569 503972985 998944188 975448395 504413758 653166758 600020646 874687154 634208146 844992066	35767252