



Swimming competition

Task. Every pupil can participate in an open swimming competition in Bitlandia. Since registration in advance is not mandatory, organisers never know how many pupils will participate.



This year, the number of pupils attending is smaller than the number of swimlanes in Bitlandia, which is 500 000. The organisers decided to split the participants into smaller groups with at least A and at most B participants each.

Also, the organisers want to make the competition as fun as possible by making the speed of the swimmers in each group as similar as possible.

Write a program that divides the swimmers into groups so that the maximum, over all groups, of the absolute time difference between the slowest and the fastest swimmers is the smallest possible.

Input. There are three numbers given in the first line: the number of participants who came to competition (N) and the minimum (A) and maximum (B) possible number of swimmers in each group.

The following N lines contain the times t_i that the swimmers take to complete the distance.

The input always leads to an existing solution.

Output. The output should be a single number – the smallest possible maximum, over all groups, of the difference between the times of the slowest and the fastest swimmers.

Examples.

Input	Output	Comments
5 2 4 1 3 3 1 4	1	First swim: 1 1. Both swimmers took the same time (difference – 0). Second swim: 3 3 4. Difference between fastest and slowest – 1. If the distribution is changed to 1 1 3 3 4, then the difference between the first and third swimmers in the first group is 2.



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Input	Output	Comments
8 3 5 1 5 8 8 1 1 8 10	4	Optimal distribution: 1 1 1 5 8 8 8 10

Constraints. In all tests $2 \leq N \leq 1\,000\,000$, $2 \leq A \leq B \leq 500\,000$, and $1 \leq t_i \leq 1\,000\,000$ for all i .

Nr.	Points	Additional constraints
1	10	$A = B$
2	20	$N \leq 40$
3	30	$B \leq 300$
4	40	No additional constraints