

The Goal

Casablanca's hippodrome is organizing a new type of horse racing: duals. During a dual, only two horses will participate in the race. In order for the race to be interesting, it is necessary to try to select two horses with similar strength.

Write a program which, using a given number of strengths, identifies the two closest strengths and shows their difference with an integer (≥ 0).

Game Input

Input

Line 1: Number N of horses

The N following lines: the strength P_i of each horse. P_i is an integer.

Output

The difference D between the two closest strengths. D is an integer greater than or equal to 0.

Constraints

$$1 < N < 100000$$
$$0 < P_i \leq 10000000$$

Example

Input

3
5
8
9

Output

1