

Max Min



Given a list of N integers, your task is to select K integers from the list such that its *unfairness* is minimized.

if $(x_1, x_2, x_3, \dots, x_k)$ are K numbers selected from the list N , the unfairness is defined as

$$\max(x_1, x_2, \dots, x_k) - \min(x_1, x_2, \dots, x_k)$$

where \max denotes the largest integer among the elements of K , and \min denotes the smallest integer among the elements of K .

Input Format

The first line contains an integer N .

The second line contains an integer K .

N lines follow. Each line contains an integer that belongs to the list N .

Note: Integers in the list N may not be unique.

Output Format

An integer that denotes the minimum possible value of *unfairness*.

Constraints

$$2 \leq N \leq 10^5$$

$$2 \leq K \leq N$$

$$0 \leq \text{integer in } N \leq 10^9$$

Sample Input #00

```
7
3
10
100
300
200
1000
20
30
```

Sample Output #00

```
20
```

Explanation #00

Here $K = 3$; selecting the 3 integers such that $K = 10, 20, 30$, unfairness equals

$$\max(10, 20, 30) - \min(10, 20, 30) = 30 - 10 = 20$$

Sample Input #01

```
10
4
1
2
3
4
```

10
20
30
40
100
200

Sample Output #01

3

Explanation #01

Here $K = 4$; selecting the 4 integers **1, 2, 3, 4**, unfairness equals

$$\max(1, 2, 3, 4) - \min(1, 2, 3, 4) = 4 - 1 = 3$$

Sample Input #02

6
3
10
20
30
100
101
102

Sample Output #02

2

Explanation #02

Here $K = 3$; the 3 integers so that the difference between the maximum and the minimum is the smallest are **100, 101, 102**, which means unfairness equals

$$\max(100, 101, 102) - \min(100, 101, 102) = 102 - 100 = 2$$