

# Max Min



You will be given a list of integers, *arr*, and a single integer *k*. You must create an array of length *k* from elements of *arr* such that its *unfairness* is minimized. Call that array *subarr*. Unfairness of an array is calculated as

$$\max(\text{subarr}) - \min(\text{subarr})$$

Where:

- *max* denotes the largest integer in *subarr*.
- *min* denotes the smallest integer in *subarr*.

As an example, consider the array *arr* = [1, 4, 7, 2] with a *k* of 2. Pick any two elements, test *subarr* = [4, 7].

$$\text{unfairness} = \max(4, 7) - \min(4, 7) = 7 - 4 = 3$$

Testing for all pairs, the solution [1, 2] provides the minimum unfairness of 1.

**Note:** Integers in *arr* may not be unique.

## Function Description

Complete the function *maxMin* in the editor below. It must return the integer representing the minimum possible unfairness.

*maxMin* has the following parameter(s):

- *k*: an integer, the length of the subarrays
- *arr*: an array of integers

## Input Format

The first line contains an integer *n*, the number of elements in array *arr*.

The second line contains an integer *k*.

Each of the next *n* lines contains an integer *arr[i]* where  $0 \leq i < n$ .

## Constraints

$$2 \leq n \leq 10^5$$

$$2 \leq k \leq n$$

$$0 \leq \text{arr}[i] \leq 10^9$$

## Output Format

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

## Sample Input 0

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

## Sample Output 0

```
20
```

### Explanation 0

Here  $k = 3$ ; selecting the 3 integers 10, 20, 30, unfairness equals

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

### Sample Input 1

```
10
4
1
2
3
4
10
20
30
40
100
200
```

### Sample Output 1

```
3
```

### Explanation 1

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 2

```
5
2
1
2
1
2
1
```

### Sample Output 2

```
0
```

### Explanation 2

Here  $k = 2$ .  $subarr = [2, 2]$  or  $subarr = [1, 1]$  give the minimum unfairness of 0.