Max Min

Problem

Submissions

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Topics

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

$$max(x_1, x_2, ..., x_k) - min(x_1, x_2, ..., x_k)$$

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

 $2 \le N \le 10^5$

 $2 \le K \le N$

 $0 \le integer in N \le 10^9$

Sample Input #00

7

3 10

100

300

200

1000

20 30

Sample Output #00

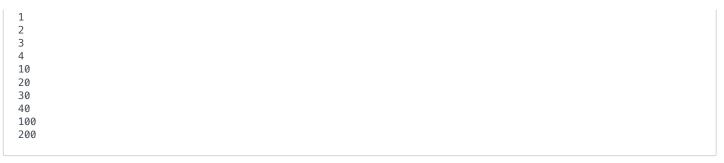
20

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



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
```

Related Topics
Two Pointer Technique
Greedy Technique
Sorting

Submissions: 28739

Max Score: 35

Difficulty: Moderate

More





```
import sys
   import itertools
3
4 N = input()
5 K = input()
6 lists = [input() for _ in range(0,N)]
7 lists.sort()
8 min_val = lists[-1]
10 for i in range(len(lists)):
        if i+K <= len(lists):</pre>
11 🔻
12
            temp_min = lists[i]
13
            temp_max = lists[i+K-1]
14
            temp_diff = temp_max - temp_min
15
            if temp_diff < min_val:</pre>
16
                min_val = temp_diff
17
18 print min_val
                                                                                              Line: 10 Col: 16
```

Run Code

Submit Code

Congrats, you solved this challenge!

- ✓ Test Case #0
- ✓ Test Case #3
- ✓ Test Case #6
- ✓ Test Case #9
- ✓ Test Case #12
- ✓ Test Case #15

- ✓ Test Case #1
- ✓ Test Case #4
- ✓ Test Case #7
- ✓ Test Case #10
- ✓ Test Case #13
- ✓ Test Case #16

- ✓ Test Case #2
- ✓ Test Case #5
- ✓ Test Case #8
- ✓ Test Case #11
- ✓ Test Case #14

Next Challenge

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