Max Min ☆

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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

$$max(subarr) - min(subarr)$$

Where:

- max denotes the largest integer in $subarr$.

- min denotes the smallest integer in $subarr$.

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

$$unfairness = max(4, 7) - min(4, 7) = 7 - 4 = 3$$

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

Note: Integers in arr may not be unique.

Function Description

Complete the maxMin function in the editor below. It must return an integer that denotes the minimum possible value of unfairness.

maxMin has the following parameter(s):

- k: an integer, the number of elements in the array to create

- 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 $0 \le i < n$.

Constraints

$2 \le n \le 10^5$

$2 \le k \le n$

$0 \le arr[i] \le 10^9$

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.

Change Theme   C++

```cpp
1    #include <bits/stdc++.h>
2
3    using namespace std;
4    // self
5    // Complete the maxMin function below.
6    int maxMin(int k, vector<int> arr) {
7        int n = arr.size();
8        sort(arr.begin(), arr.end());   //sorting to avoid using max and min func, this
     allows us to keep k element in subarray always in order. Moreover, With sorting we are
     sure that any other element cannot replace 0th and kth pos for best result in that subarr
9        int result = arr[k-1]-arr[0]; // first difference
10       for(int i=1; i<n-k+1;i++){
11           int temp = arr[i+k-1]-arr[i];
12           if(temp<result) result=temp;
13       }
14       return result;
15   }
16
17   int main()
18   {
19       ofstream fout(getenv("OUTPUT_PATH"));
20
```

Line: 9 Col: 55

⬆ Upload Code as File   ☐ Test against custom input

Run Code   Submit Code

Congratulations

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⊘ **Test case 0**	Compiler Message
⊘ **Test case 1**	Success
⊘ **Test case 2** 🔒	
⊘ **Test case 3** 🔒	Input (stdin) Download
⊘ **Test case 4** 🔒	
⊘ **Test case 5** 🔒	
⊘ **Test case 6** 🔒	

Input (stdin):

```
1    7
2    3
3    10
4    100
5    300
6    200
7    1000
8    20
9    30
```

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