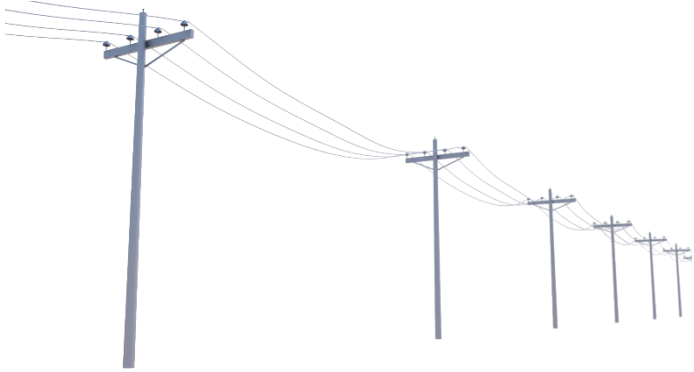
Fall 2020
Problem Solving through Computational Thinking ECE30017

Week 6

- C4. Electricity Poles
  Deadline: 11:59 PM, 9 October (Fri)

C4. Electricity Poles



There are n electricity poles standing on a horizontal line transmitting electricity through an electric wire. Each pole is located at a unique point between 0 and 1,000,000,000, inclusively, on the horizontal line. The intervals between two adjacent points are the same.

The office of Energy want to select k poles among the total of n poles to install electricity amplifiers for reliable energy transmission. Considering threats of electromagnetic wave interference, the k poles must be selected such that the minimum distance between two selected poles must be as large as possible.

Write a program that finds the minimum distance between two poles of the k electricity poles that will be selected by the office of Energy.

Requirements

Input

- The first line from the standard input has two numbers n and k. The first number, n stands for the number of electricity poles where $2 \leq n \leq 100{,}000$. The other number, k represents the number of poles to install amplifiers for $2 \leq k \leq n \leq 100{,}000$.
- Thereafter, n lines follow, each of which contains one number that represents x_i, the location of an electricity pole for $1 \leq x_i \leq 1{,}000{,}000{,}000$. Note that these numbers are not sorted in any order.

Output

- Print out one number to the standard output within 0.5 second.

Test case examples

Input1

```
5  3
1
10
5
7
9
```

Output1

```
4
```

Input2

```
5  4
1
10
5
7
9
```

Output2

```
2
```

Team for C4

401	정예은	김석진	
402	윤지영	정원식	
403	지성민	김준서	
404	한찬솔	박수현	
405	임예찬	한정섭	
406	정진혁	홍원표	
407	신희주	정현섭	
408	윤다은	최우석	
409	황소정	김기훈	
410	김유진	송진범	
411	강하영	홍석현	
412	이예준	전해주	
413	정희석	송수근	
414	김윤정	김승우	
415	김지원	박민준	최재혁