



Gizmo Guy

Pixel wants to use his newfangled computer, but it is locked inside a box secured with an ancient piece of technology: a combination lock! Gasp! How is Pixel going to use his computer now?

This combination lock has n digits. Each digit goes from 0 to $k - 1$.

In one second, Pixel can choose any consecutive segment of digits and scroll every digit in that segment either 1 unit upwards or 1 unit downwards—notice that these digits roll over, so scrolling 0 unit upwards on a digit that currently reads $k - 1$ would turn it back into a 0, and similarly scrolling 1 unit downwards on a digit that currently reads 0 would turn it into $k - 1$.

Initially, every digit is set to 0. Pixel's mom told him that the password to the lock is actually s_1, s_2, \dots, s_n .

Pixel does not want to fiddle with ancient technology and wants to open the lock as soon as possible so that he can go use his new computer. What's the minimum number of seconds he needs to do so?

Input format

The first line of input contains two integers n and k , the number of digits and the range of each digit.

The next line contains n integers s_1, s_2, \dots, s_k , the password.

Output format

Output a single integer on a line by itself, the minimum possible number of seconds needed to open to lock.

Subtasks

In all subtasks $1 \leq n, 2 \leq k$ and $0 \leq s_i < k$.

Subtask	Points	n	k
1	7	$n \leq 10^6$	$k \leq 2$
2	13	$n \leq 10^6$	$k \leq 3$
3	15	$n \leq 100$	$k \leq 10$
4	22	$n \leq 1\,000$	$k \leq 10$
5	43	$n \leq 10^6$	$k \leq 10^9$

Example

Consider the following input:

```
7 2
1 1 0 0 1 0 1
```

The correct output is:

```
3
```

Now consider the following input:

```
2 7
3 5
```

The correct output is:

```
4
```