



Cut and Join

Barney has an array a consisting of n integers: $a[1], a[2], \dots, a[n]$, and an integer k .

In an operation, Barney chooses two integers l and r ($1 \leq l \leq r \leq n$) such that $a[l] + \dots + a[r]$ is a multiple of k . Then he deletes the sub-array $a[l], \dots, a[r]$ and joins the remaining pieces of the array together in their original order.

For example, suppose the array a is $[1, 3, 4, 5, 2]$, and in an operation Barney chooses $(l, r) = (2, 3)$. Then he will delete the sub-array $[3, 4]$ and join the remaining pieces, $[1]$ and $[5, 2]$, in their original order. So, after the operation the array will become $[1, 5, 2]$.

Your task is to help Barney calculate the minimum possible length of the array after performing **any** number of operations (possibly zero).

Input

Read the input from the standard input in the following format:

- line 1: $n \ k$
- line 2: $a[1] \ a[2] \ \dots \ a[n]$

Output

Write the output to the standard output in the following format:

- line 1: the minimum possible length of the array after any number of operations.

Constraints

- $1 \leq n, k \leq 100\,000$
- $1 \leq a[i] \leq 10^9$ (for all $1 \leq i \leq n$)

Subtasks

1. (10 points) $a[i] = a[j]$ (for all $1 \leq i \leq j \leq n$)
2. (20 points) $k = 2$
3. (40 points) $n \leq 1000$
4. (30 points) No further constraints.

Examples

Example 1

```
4 8
1 2 3 5
```

The correct output is:

```
2
```

Here, Barney can choose $(l, r) = (3, 4)$ in an operation. Then the length of the array becomes 2. Since there is no other way to perform an operation, length 2 is the minimum possible length.

Example 2

```
3 6
1 2 3
```

The correct output is:

```
0
```

Here, Barney can choose $(l, r) = (1, 3)$ and delete the whole array.

Example 3

```
3 11
1 2 3
```

The correct output is:

```
3
```

Here, Barney cannot do any operations. So, the length of the array cannot change.

Example 4

```
6 5
2 4 3 2 1 1
```

The correct output is:

2

Here, Barney first chooses $(l, r) = (3, 4)$ so that the array becomes $[2, 4, 1, 1]$. Then he chooses $(l, r) = (2, 3)$ so that the array becomes $[2, 1]$.