Task 2

The Longest Sequence

Task

There are n cards with the integers from 1 to n written on them. No integers are written on more than one card. There is also one blank card. You are given k out of these $n + 1$ cards, where $1 \le k \le n$. You may write an integer between 1 and n, inclusive, on the blank card. You are to construct the longest sequence of consecutive integers only by using the given cards.

Write a program which, when the cards given to you are specified as input, reports the maximum length of a sequence of consecutive integers which can be made from the given cards.

Examples

Example 1

Let $n = 7$, $k = 5$. If you are given the cards 6, 2, 4, 7, 1, the longest sequence of consecutive integers which can be constructed from these cards is 1, 2, and its length is 2.

Example 2

Let $n = 7$, $k = 5$. If you are given the cards 6, 2, 4, 7 and a blank card, the longest sequence of consecutive integers which can be constructed is 4, 5, 6, 7 made by writing 5 on the blank card, and its length is 4.

Input

The input file is named `input.txt`.

The first line contains two space-separated integers n ($1 \le n \le 100000$) and k ($1 \le k \le n$) in this order. The following k lines contain the integers written on the k cards given to you, one per line. The blank card is represented by 0.

Among the data used for evaluation, 40% of the mark is given for test cases satisfying $1 \le n \le 1000$, $1 \le k \le 500$, and 60% of the mark is given for test cases satisfying $1 \le n \le 60000$, $1 \le k \le 50000$.

Output

The output file is named `output.txt`.

The file should consist of one line, and the line should contain only the integer to report.

Sample inputs and outputs

Sample input and output 1

The following input and output correspond to the example 1.

`input.txt`

```
7 5
6
2
4
7
1
```

`output.txt`

```
2
```

Sample input and output 2

The following input and output correspond to the example 2.

`input.txt`

```
7 5
6
2
0
4
7
```

`output.txt`

```
4
```