



Flatland Space Stations

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Problem

Submissions

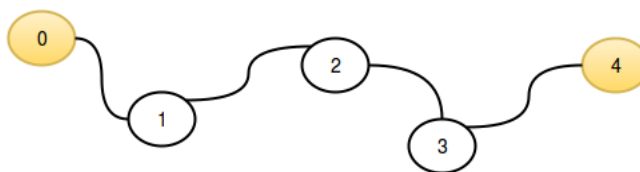
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Flatland is a country with n cities, m of which have space stations. Each city, c_i , is numbered with a distinct index from 0 to $n - 1$, and each city c_i is connected to city c_{i+1} by a bidirectional road that is 1 km in length.

For example, if $n = 5$ and cities c_0 and c_4 have space stations, then Flatland looks like this:



For each city, determine its distance to the *nearest* space station and *print the maximum* of these distances.

Input Format

The first line consists of two space-separated integers, n and m .

The second line contains m space-separated integers describing the respective indices of each city having a space-station. These values are *unordered* and unique.

Constraints

- $1 \leq n \leq 10^5$
- $1 \leq m \leq n$
- It is guaranteed that there will be at least 1 city with a space station, and no city has more than one.

Output Format

Print an integer denoting the maximum distance that an astronaut in a Flatland city would need to travel to reach the nearest space station.

Sample Input 0

```
5 2
0 4
```

Sample Output 0

```
2
```

Explanation 0

This sample corresponds to the example given in the problem statement above. The distance to the nearest space station for each city is listed below:

- c_0 has distance 0 km , as it contains a space station.
- c_1 has distance 1 km to the space station in c_0 .

- c_2 has distance **2 km** to the space stations in c_0 and c_4 .
- c_3 has distance **1 km** to the space station in c_4 .
- c_4 has distance **0 km**, as it contains a space station.

We then take $\max(0, 1, 2, 1, 0) = 2$, and print **2** as our answer.

Sample Input 1

```
6 6
0 1 2 4 3 5
```

Sample Output 1

```
0
```

Explanation 1

In this sample, $n = m$ so every city has space station and we print **0** as our answer.

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Submissions: [13467](#)

Max Score: 25

Difficulty: Easy

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Java 7   

```
1 import java.io.*;
2 import java.util.*;
3 import java.text.*;
4 import java.math.*;
5 import java.util.regex.*;
6
7 public class Solution {
8
9     public static void main(String[] args) {
10         Scanner in = new Scanner(System.in);
11         int n = in.nextInt();
12         int m = in.nextInt();
13         int c[] = new int[m];
14         for(int c_i=0; c_i < m; c_i++){
15             c[c_i] = in.nextInt();
16         }
17     }
18 }
19
```

Line: 1 Col: 1

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☐ Test against custom input

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