Flatland Space Stations

Flatland is a country with a number of cities, some of which have space stations. Cities are numbered consecutively and each has a road of $1km$ length connecting it to the next city. It is not a circular route, so the first city doesn't connect with the last city. Determine the maximum distance from any city to its nearest space station.

Example

$n = 3$
$c = [1]$

There are $n = 3$ cities and city 1 has a space station. They occur consecutively along a route. City 0 is $1 - 0 = 1$ unit away and city 2 is $2 - 1 = 1$ units away. City 1 is 0 units from its nearest space station as one is located there. The maximum distance is 1.

Function Description

Complete the *flatlandSpaceStations* function in the editor below.

flatlandSpaceStations has the following parameter(s):

- *int n:* the number of cities

- *int c[m]:* the indices of cities with a space station

Returns
- *int:* the maximum distance any city is from a space station

Input Format

The first line consists of two space-separated integers, n and m.
The second line contains m space-separated integers, the indices of each city that has a space-station. These values are *unordered* and distinct.

Constraints

- $1 \le n \le 10^5$

- $1 \le m \le n$

- There will be at least 1 city with a space station.

- No city has more than one space station.

Output Format

Sample Input 0

```
STDIN    Function
-----    --------
```
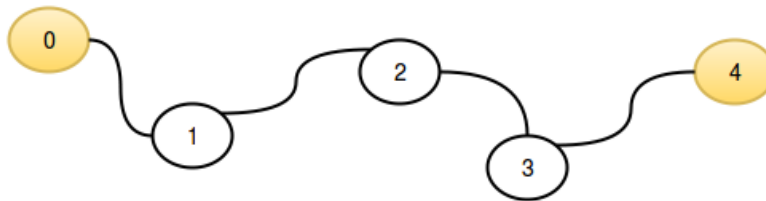
```
5 2       n = 5, c[] size m = 2
0 4       c = [0, 4]
```

Sample Output 0

```
2
```

Explanation 0

This sample corresponds to following graphic:

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 $max(0, 1, 2, 1, 0) = 2$.

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.