Focus Days

Antonio loves programming, especially to solve algorithmic problems. However, he likes to focus on the problem at hand for a good amount of time without being bothered by other activities. So, if a problem requires, say, two days of work, Antonio prefers to work on that problem during a single period of two days such that the number of other activities scheduled during any one of those two days is minimal. If there are more options with the same (minimal) number of interfering activities, then Antonio prefers to schedule the programming at the earliest time.

You must help Antonio in scheduling his programming activity. You are given the duration of the programming activity and Antonio's schedule in a given period. Your program must tell Antonio when to work on his programming task in the given period.

Input

The input consists of two lines. The first line contains two integer numbers, D and N, with $0 < D \leq 10000$ and $0 < N \leq 100000$. D is the number of days needed to complete the programming task. N is the length of the given schedule. The second line contains N non-negative integers, $A_1, A_2, \ldots, A_N$, where A_i indicates the number of other activities scheduled on day i.

Output

If the task can be scheduled in the given period, then output a single number d, with $1 \leq d \leq N$, indicating the day in which Antonio should start programming. Otherwise, if the task can not be scheduled in the given period, then output the message "`impossible`".

Examples

Sample input 1

```
2 10
4 3 7 1 12 2 3 5 8 4
```

Sample output 1

```
6
```

Sample input 2

```
4 3
10 2 1
```

Sample output 2

```
impossible
```

Sample input 3

```
3 15
9 1 3 2 5 10 8 2 3 3 1 3 4 0 0
```

Sample output 3

```
2
```

Limits

Time limit is 2 seconds.

Memory limit is 1024 megabytes.