Problem Statement for FilipTheFrog

Problem Statement

Filip the Frog lives on a number line. There are islands at some points on the number line. You are given the positions of these islands in the int[] **positions**.

Filip starts on the island located at **positions**[0]. His maximal jump length is **L**, which means that he can jump to any island that is within a distance of **L** (inclusive) from his current location. Filip can't jump to a point on the number line that doesn't contain an island. He can make an unlimited number of jumps.

An island is *reachable* if Filip can get to it through some sequence of jumps. Please find and return the number of reachable islands.

Definition

```
Class:           FilipTheFrog
Method:          countReachableIslands
Parameters:      int[], int
Returns:         int
Method signature:int countReachableIslands(int[] positions, int L)
(be sure your method is public)
```

Notes

- If two islands are located at points A and B on the number line, then the distance between them is |A - B|.

Constraints

- **positions** will contain between 1 and 50 elements, inclusive.
- Each element of **positions** will be between 0 and 1000, inclusive.
- The elements of **positions** will be distinct.
- **L** will be between 1 and 1000, inclusive.

Examples

0)
```
{4, 7, 1, 3, 5}
1
Returns: 3
```
Filip starts at position 4 and his maximal jump length is 1. He can reach the islands at positions 3, 4, and 5.

1)
```
{100, 101, 103, 105, 107}
2
Returns: 5
```
Here he can reach all 5 islands.

2)
```
{17, 10, 22, 14, 6, 1, 2, 3}
4
Returns: 7
```

3)
```
{0}
1000
Returns: 1
```

This problem was used for:

Single Round Match 659 Round 1 - Division II, Level One