

House of the Living Impaired

Filename: zombies

Crystel loves to play a video game where she goes around and shoots zombies. In this video game Crystel is given unlimited ammo for her shotgun so she can righteously vanquish as many zombies as possible. Crystel wants to write a program that will tell her the amount of zombies she can destroy if she follows a certain path. Crystel's path can be broken down into multiple steps, each in one of four directions: North, South, East, or West. In addition, when she is in the same location as a zombie she will always destroy it (they really scare her). She had asked one of her friends to solve this problem for her, but he thought that it would be more up your alley. He did mention, though, that for Crystel to destroy a zombie she must be at the same position as the zombie due to the shotgun's short range.

The Problem:

Given the positions of the zombies and Crystel's path, determine how many zombies she destroys.

The Input:

The first line will contain a single positive integer, n , where n represents the number of game levels that will be run.

Each run will begin with a line containing two integers, w and h ($1 \leq w, h \leq 25$), where w and h represent the width and height of the playing area, respectively. The next line in the case will contain a non-negative integer, z , where z represents the number of zombies in the playing area (which will be no more than the area of the playing field since two zombies cannot stand in the same spot). This will be followed by z lines each containing two integers representing the x and y coordinates of each zombie. Each zombie is guaranteed to be within the playing area. Finally, there will be a non-negative integer, s , representing the number of steps Crystel will take. This will be followed by s lines that describe Crystel's path. The lines will have a single character depicting which direction Crystel is going to go, either: 'N', 'S', 'W', or 'E'.

Crystel will always start at the position (1, 1), which is the bottom-left (south-west) corner of the playing area. From the starting position, (1, 2) would be a step North; (2, 1) would be a step East. Crystel will also never leave the field, but she might retrace her steps.

The Output:

For each game level print a single line of the form:

Level i : Crystel vanquished v zombies.

where i is the game level, and v is how many zombies were destroyed.

Sample Input:

```
2
5 5
1
3 3
3
N
E
W
6 6
2
2 2
3 3
5
N
N
E
E
S
```

Sample Output:

```
Level 1: Crystel vanquished 0 zombies.
Level 2: Crystel vanquished 1 zombies.
```