Mines

Filename: `mines`

The Problem:

Acme Mining Co. has been in the mining business for a long time now, and they are one of the biggest in the world. However they are getting worried with all these new companies starting to use computer simulations to determine how much underground volume a blast will clear, they don't want them to gain an unfair competitive advantage, and that is where you come in! Help Acme Mining Co. write a computer simulation of the volume a blast will clear given information about the surrounding structures and spaces.

The simulation will work as follows. The spaces in the mine will be represented as 1's and 0's. A 1 represents solid rock and a 0 represents empty space. When a blast is detonated it will blast away solid rock, but will not do anything in empty space. In this sense, once a blast is detonated it will continue to spread throughout the solid rock of the mine until it hits a pocket(s) of empty space. The blast can only move up, down, left, right, forward, and backward (no diagonals). If a blast is detonated in empty space it does not clear any volume. Each space represents one cubic foot of volume.

The Input:

The first number, *n*, in the input file will be a non-negative integer denoting the dimension of a cubic underground space. Following this will be a single line containing all the info for which three-dimensional coordinates (*x, y, z*) are rock and which are empty space. Valid coordinates for the structure will range from 0 to *n-1* for all three dimensions. The coordinates are ordered in lexicographical order. For example, for a 3 x 3 x 3 space: (0, 0, 0) is the first value, (0, 0, 1) is the next value, (0, 0, 2) is next, (0, 1, 0) is next, ... and the last coordinate would be (2, 2, 2).

Following this is another non-negative integer *t*, which is the number of simulations that will follow. On each of the following *t* lines will be 3 non-negative integers representing the coordinates (*x, y, z*) at which the blast is detonated.

The Output File:

For each simulation, print out a line with the following format:

```
Simulation #k, volume cleared is C cubic feet.
```

where k is the number of the simulation, starting with 1 and C is the number of cubic feet cleared by the blast. Follow the output for each simulation with a blank line.

Sample Input:

```
3
1 1 1 1 1 1 1 1 1 0 0 0 1 1 1 1 1 1 0 0 0 0 0 0 0 1 0
2
1 1 0
2 2 2
```

Sample Output:

```
Simulation #1, volume cleared is 16 cubic feet.

Simulation #2, volume cleared is 0 cubic feet.
```