Find Parking

Filename: `parking`

Today Sally gave Ryan a ride to class. When they arrived at UCF, they could not decide where to park, so Ryan suggested that they just park at the closest parking garage. Parking garages at UCF are represented as rectangles with vertical and horizontal sides on the coordinate plane. The distance from Sally and Ryan to a parking garage is the shortest distance from their position to any point along the boundary of the parking garage.

The Problem:

Determine which parking garage is the closest to Sally and Ryan. It is guaranteed that one parking garage is closer than all the others.

The Input:

The first line of the input file begins with a single, positive integer, t, representing the number of days. For each day, multiple lines follow. The first line contains two integers, x and y, representing Sally and Ryan's current position. The second line contains a single integer, $1 \leq n \leq 26$, representing the number of parking garages at UCF. Then, n lines follow, each containing two pairs of integers, (x_1,y_1) and (x_2,y_2), such that $x_1 < x_2$ and $y_1 < y_2$, representing the bottom left and top right coordinates of the parking garage, respectively. No integer in the input has an absolute value greater than 10^6. It is guaranteed that Sally and Ryan are not currently inside a parking garage, and that parking garages do not intersect each other.

The Output:

For each test case, output a single line containing "`Day #i: Garage x`" without the quotes, where `i` is the number of the day, and `x` is a capital letter representing the number of the garage in the order given in the input (A comes first, then B, and so on).

Sample Input:

```
2
0 0
3
10 10 20 20
-20 -100 -10 100
0 1000 1 1001
999 0
3
10 10 20 20
-20 -100 -10 100
1000 0 1001 1
```

Sample Output:

```
Day #1: Garage B
Day #2: Garage C
```