# UCF “Practice” Local Contest — Aug 25, 2012

## Metallic Equipment Rigid

*filename:* rigid

Rigid Reptile is trying to covertly infiltrate the compound of his nemesis Pistol Wildcat. The compound is under heavy surveillance by large numbers of video cameras and genetically enhanced soldiers. Luckily for Reptile, the soldiers’ enhancements grant them eyesight, hearing, and intelligence that is far inferior to that of an ordinary person. Between his cardboard box and tricks he picked up from Decoy Calamari, he’ll have little trouble evading the soldiers. The security cameras, though, are a different story.

### The Problem:

The cameras in Pistol Wildcat’s compound have a circular detection radius which varies from camera to camera. Any unauthorized person (such as Rigid Reptile) who gets closer ( $\leq$ ) to a camera than the specified radius will immediately trigger an alarm. Ordinarily, the genetically enhanced soldiers think nothing of a person-sized cardboard box walking around, but when an alarm goes off, they are apt to shoot anything and everything. Naturally, Reptile would like to avoid this. You must write a program that, given Rigid Reptile’s path as a series of two-dimensional line segments and the positions and detection radii of the cameras, outputs which cameras (if any) Reptile gets too close to.

### The Input:

Input begins with a single positive integer, $n$, on a line by itself, indicating the number of compounds facing Rigid Reptile (i.e., the number of data sets to be processed). Following that line are $n$ compound descriptions. The description of a compound begins with a line containing two integers $c$ and $p$ representing the number of cameras and the number of points along Reptile’s path, respectively, where $1 \leq c \leq 50$ and $2 \leq p \leq 50$. The next $c$ lines contain three integers indicating the $x$ coordinate, $y$ coordinate, and detection radius, respectively, of a camera (consider the first camera to be numbered 1, the second camera to be numbered 2, etc.). The following $p$ lines each contain two integers representing the $x$ and $y$ coordinates of successive points along Reptile’s path (assume all points are distinct).

### The Output:

Rigid Reptile moves in a straight line between successive points on his path. If at any time his Euclidean distance to a camera is less than or equal to its detection radius (or within 0.01), he has triggered that camera’s alarm. For each compound (data set), print a line indicating which cameras Reptile has triggered. This line should be of the form:

```
Compound #i: message
```

where $i$ is the compound number (starting at 1). If Reptile triggered no cameras, *message* should be “Rigid Reptile was undetected”. If Reptile triggered one or more cameras, 14

*message* should be of the form “Reptile triggered these cameras: *list*” where *list* is a list of the cameras triggered by reptile, sorted in ascending numerical order (leave exactly one space between numbers on this list).

Leave a blank line after the output for each data set. Follow the format illustrated in Sample Output.

**Sample Input:**

```
3
3 3
5 5 3
2 8 2
7 3 1
4 5
2 7
6 3
1 4
0 0 5
10 0
10 10
0 10
0 20
2 2
0 0 5
20 0 5
13 1
27 1
```

**Sample Output:**

```
Compound #1: Reptile triggered these cameras: 1 2 3

Compound #2: Rigid Reptile was undetected

Compound #3: Reptile triggered these cameras: 2
```