

## CMPUT 274 - Tangible Computing

### Morning Problem: Large Points

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#### Description

Jacob is a gifted undergraduate mathematics student at the University of Alberta. For his summer research project, he has decided to investigate points in detail. After weeks of research, Jacob has found a way to make points larger. He has decided to call these large points “circles”.

But with these large points has come large confusion. Jacob can no longer tell the difference between his new large points and the old boring small points.

Given a list of circles, Jacob needs your help to find out if a (small) point lies within the boundary of any of the circles.

**Hint:** `math.sqrt()` might come in handy. Alternatively, there is also a solution without using square roots.

#### Input

The first line of input contains an integer  $n$  indicating the number of circles. ( $1 \leq n \leq 10,000$ ).

The next  $n$  lines of input contain three space-separated real numbers,  $x$ ,  $y$ , and  $r$ . Here,  $x$  and  $y$  indicate the centre of the circle and  $r$  is the radius of the circle.

The next line of input contains an integer  $m$  indicating the number of points Jacob is curious about. ( $1 \leq m \leq 100$ ).

The next  $m$  lines of input each contain two space-separated real numbers,  $x$  and  $y$ , indicating the co-ordinates of the point in question.

For all coordinates,  $-100,000 \leq x, y \leq 100,000$ . Each radius  $r$  satisfies  $0 \leq r \leq 500$ . Additionally, no point will be within  $10^{-6}$  of the edge of a circle.

#### Output

Output should consist of  $m$  lines. For each point, output one line that says **Large** if the point is in a circle and **Small** otherwise.

### Sample Input 1

```
3
0 0 1
0 -0.5 1
2 1 0.5
3
0 0
2 0
1.75 1
```

### Sample Output 1

```
Large
Small
Large
```

