# Problem C: Radar Installation

(input file: radar.in)

Assume the coasting is an infinite straight line. Land is in one side of coasting, sea in the other. Each small island is a point locating in the sea side. And any radar installation, locating on the coasting, can only cover *d* distance, so an island in the sea can be covered by a radius installation, if the distance between them is at most *d*.

We use Cartesian coordinate system, defining the coasting is the *x*-axis. The sea side is above *x*-axis, and the land side below. Given the position of each island in the sea, and given the distance of the coverage of the radar installation, your task is to write a program to find the minimal number of radar installations to cover all the islands. Note that the position of an island is represented by its *x-y* coordinates.



Figure 1 A Sample Input of *Radar Installations*

### Input

The input consists of several test cases. The first line of each case contains two integers *n* (1≤*n*≤1000) and *d*, where *n* is the number of islands in the sea and *d* is the distance of coverage of the radar installation. This is followed by *n* lines each containing two integers representing the coordinate of the position of each island. Then a blank line follows to separate the cases.

The input is terminated by a line containing pair of zeros.

### Output

For each test case output one line consisting of the test case number followed by the minimal number of radar installations needed. “-1” installation means no solution for that case.

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| Sample Input | Output for the sample input |
| 3 2  1 2  -3 1  2 1  1 2  0 2  0 0 | Case 1: 2  Case 2: 1 |