Problem D. Radar Installation

Time limit 1000 ms
Mem limit 10000 kB

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.

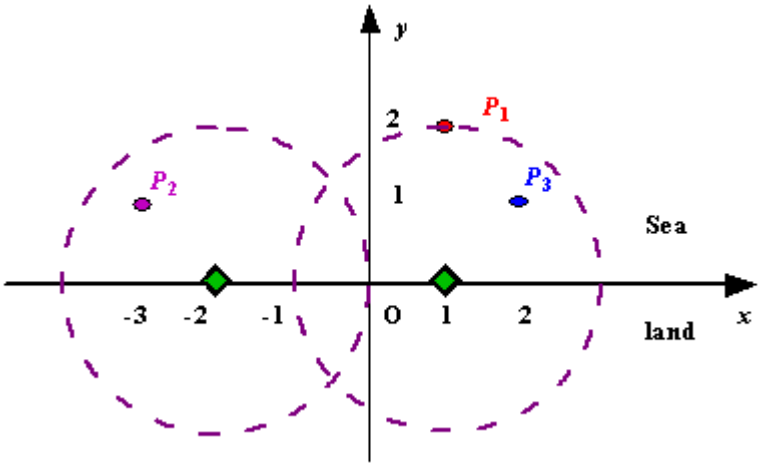

Figure A Sample Input of Radar Installations

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.

Sample

Input	Output
3 2 1 2 -3 1 2 1 1 2 0 2 0 0	Case 1: 2 Case 2: 1