Problem A. Adventure on the space

Source file name:	`A.c, A.cpp, A.java`
Input:	`Standard`
Output:	`Standard`
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Professor JJ has developed the most powerful space travel machine, this machine has the ability it can go from planet A to planet B in just a few miliseconds if B is in the spatial range from A. The spatial range in a planet is given by an integer D, and it is said B is in the spatial range of A if the distance between the planets is at most D.

As some of you are aware JJ prefers always to go in the most secure way, this is why he is developing what he calls the most secure grid of planets. The most secure grid of planets is created selecting pairs of planets where you could travel between those planets using JJ's space travel machine and also it follows these restrictions:

- All planets in the universe should be in the grid of planets.
- For any pair of planets A and B there is only one way to reach B from A using JJ's space travel machine

You always argue with JJ, and now you two are arguing that he should not call his grid "the most secure grid of planets" as there can be more than one way to create it or there may not be a way to create the grid at all. JJ will not believe you until you get some evidence. This is why he just challenged you (as always) given the number N of planets in the universe, the value D that defines the spatial range of a planet and the coordinates where the planets are in the universe, can you determine how many different "secure grids" JJ can create? A "secure grid" A differs from other "secure grid" B if there is at least one pair of planets in the grid A that is not in the grid B.

Input

The input consist of several test cases. Each test case begins with a line containing two numbers N and D. The next N lines contains the values x_i, y_i separated by a space the coordinates of each planet. The end of the test cases is given by a case where N and D equals 0.

- $2 \leq N \leq 10$
- $1 \leq D \leq 10^3$
- $0 \leq x_i, y_i \leq 10^3$

Output

For each test case print in one line the number of different "secure grids" JJ can create. As this number can be very large please print it modulo $10^9 + 7$

Example

Input	Output
3 5 1 1 2 2 1 2 3 1 1 1 2 2 1 2 0 0	3 0

Explanation

In the first case, there are 3 planets and you can reach any of them from any other. Let the planets be 1,2,3 , you can select the pairs to create 3 different "secure grids" : 1,2,2,3, 1,2,1,3, 1,3,2,3. In the second test case there is no way to select pairs in such a way that all the requirements for a "secure grid" are met.