Problem H. Hues

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Dwarf the Painter, a master of magic colors, has N available buckets of paint, each containing a different color. Whenever a subset of these colors is applied on the same piece (of non-zero area) of a white canvas, it produces a particular hue. Different subsets of colors produce different hues.

Dwarf the Painter was challenged by the village elders to create a painting containing all possible $2^N - 1$ hues (this number excludes the hue of the canvas itself, where no color was placed). Being almost as lazy as Dwarf the Coach Potato, Dwarf the Painter painted N circles, each filled with one color. When he showed it to the elders, their jaws dropped in amazement at the sheer quality of the masterpiece. However, they were not at all sure whether all $2^N - 1$ hues were actually created in this way. Help them with this task.

Input

The first line of the input contains an integer T, the number of test cases.

The first line of each test case contains an integer N, representing the number of circles. The next N lines of each test case contain three integers x_i, y_i and r_i, separated by a single space, where (x_i, y_i) and r_i represent the coordinates of the center and radius of the circle filled with the i-th color. No three circles intersect at one point.

Limits $1 \le T \le 200$, $1 \le N \le 200$, $-1\,000 \le x_i, y_i \le 1\,000$, $1 \le r_i \le 1\,000$, the sum of N in all testcases does not exceed 200.

Output

The *description of a hue* is a sequence of N numbers, separated by a single space, where each number is equal either to 1 or to 0. The i-th color is used to create the hue if and only if the i-th number of the description is 1.

For each test case, if the painting contains all $2^N - 1$ hues, print one line with the word `YES`. Otherwise print two lines: the first one should contain the word `NO` and the second one should contain the description of one of the missing hues. If more than one hue is missing from the painting, your program can print the description of any of them. Remember that a hue is produced only if the corresponding colors are placed on a canvas piece of *non-zero* area. You may assume that all the circles in one test case are pairwise distinct.

Example

standard input	standard output
5 2 0 0 1 1 0 1 2 0 0 1 2 0 1 3 -1 0 2 1 0 2 0 1 2 5 0 0 4 5 -4 4 10 0 4 15 -4 4 20 0 4 5 0 0 7 0 3 4 3 0 4 0 -3 4 -3 0 4	YES NO 1 1 YES NO 1 0 1 0 0 NO 0 1 0 0 0