

Tarzan of The Apes

Input file: **standard input**
Output file: **standard output**
Time limit: 0.25 seconds
Memory limit: 4 megabytes

Tarzan is moving through trees in a forest when he hears a cry from his friend Ape in a distant tree. He wants to reach him as quickly as possible while avoiding the ground. Trusting in his skills, Tarzan is able to perform the following move:

- swing from a tree to any other tree within a distance equal to the height of the **current** tree.

Help him determine a sequence of moves that minimizes the Euclidean distance required to travel from the starting tree to Ape's.

Input

The first line of the input contains a single integer, t ($1 \leq t \leq 1000$) — the number of test cases.

The first line of each test case contains a single integer, n ($2 \leq n \leq 5000$) — the number of trees in the forest.

Then follow n lines of each test case, each with three integers, x_i , y_i and h_i ($-10^9 \leq x_i, y_i \leq 10^9$, $1 \leq h_i \leq 10^9$) — the coordinates of the i -th tree and its height. The first of these lines denotes Tarzan's starting tree, while the last one denotes Ape's.

Output

For each test case, first output a single integer, m — the number of moves made by Tarzan on his way to Ape; or 0 if it's impossible.

Then, on the next line, output m integers — the indices of the trees visited by Tarzan on his way to Ape's (inclusive). If there are many possible sequences, output any of them.

Example

standard input	standard output
4	0
2	2
0 0 1	4 5
1 1 1	3
5	2 3 5
0 1 2	2
0 3 4	5 10
1 0 1	
2 1 2	
3 2 1	
5	
1 1 2	
1 2 2	
1 4 1	
2 2 4	
1 5 1	
10	
0 0 3	
0 1 3	
0 2 3	
1 0 3	
1 1 3	
1 2 3	
2 0 3	
2 1 3	
2 2 3	
3 3 3	

Note

In the first test case, there is no path connecting Tarzan's tree to Ape's.

In the second test case, Tarzan can move through trees 4 and 5 to reach Ape in $2 + \sqrt{2}$ units of distance. That is the best he can do.

In the fourth test case, Tarzan can move through many different paths leading to Ape in the minimum total distance of $3\sqrt{2}$.