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 2 0 0 1 1 1 1 5 0 1 2 0 3 4 1 0 1 2 1 2 3 2 1 8 1 1 2 0 2 4 2 2 6 1 2 2 1 5 1 1 4 1 1 6 1 1 7 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	0 2 4 5 5 4 6 5 7 8 2 5 10

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 use many different paths leading to Ape in the minimum total distance of $3\sqrt{2}$.