# Meeting Trees

Somewhere in a tropical forest, a group of monkeys live in the trees. Being social animals, the monkeys would like to get together, all on the same tree. The monkeys do not want to step on the ground and, as they cannot fly, they have to reach the meeting point by jumping from tree to tree. But humidity has been so low lately that tree branches cracked and the force exerted on them when a monkey jumps to another tree eventually breaks them. Fortunately the monkeys know exactly the branches that can still be used and how many times a monkey can jump off each tree before all its branches become unusable. Jumping to a tree does not damage it.
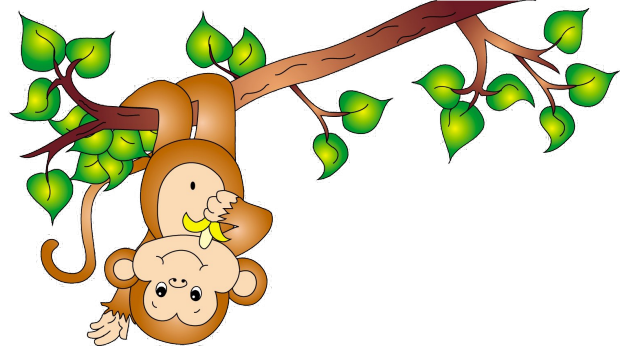
Can you help the monkeys find all trees where they can meet?

## Task

Given the maximum distance monkeys can jump (in a single leap), the Cartesian coordinates of the trees, the number of monkeys in each tree, and the maximum number of monkey jumps off it, identify the trees where all monkeys can meet.

## Input

The input first line has a single integer $C$, which corresponds to the number of test cases.

For each test case, the first line contains a floating point number $D$, with a dot as decimal separator, and an integer $T$, representing the maximum distance a monkey can jump and the number of trees respectively. $T$ lines follow, each one with four integers, $x$, $y$, $m$, and $j$, which denote the Cartesian coordinates of a tree, the number of monkeys in it, and the maximum number of times a monkey can jump off it.

## Constraints

| | |
|---|---|
| $1 \leq C \leq 10$ | (Number of test cases) |
| $0 < D \leq 10\,000$ | (Maximum distance a monkey can jump) |
| $1 \leq T \leq 100$ | (Number of trees) |
| $0 \leq x \leq 30\,000$ | (Abscissa of a tree) |
| $0 \leq y \leq 30\,000$ | (Ordinate of a tree) |
| $0 \leq m \leq 10$ | (Number of monkeys in an tree) |
| $1 \leq j \leq 200$ | (Maximum number of jumps off a tree) |

## Output

The output consists of $C$ lines, one for each test case, containing the indices of the trees where all monkeys can meet. Indices start at zero and should be written in strictly increasing order. If no such tree exists, the corresponding line has "-1".

## Sample Input

```
3
1.5 3
0 0 5 10
1 1 0 3
2 2 2 3
1.5 3
0 0 5 10
1 0 3 9
3 0 1 1
3.2 5
1 1 1 1
2 3 0 1
3 5 1 1
5 1 1 1
5 4 0 1
```

## Sample Output

```
0 1
-1
1 2 4
```