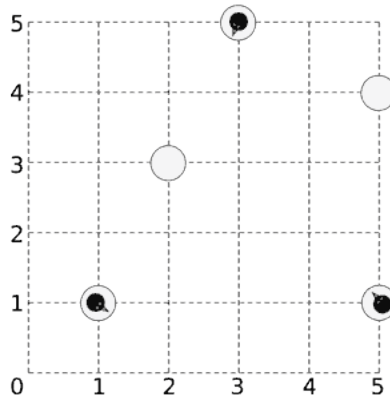


CSULA PROGFEST 2014

Problem 9 Ice Hopping

Somewhere in Canada, for some strange reason, Richard and his family are standing on a number of ice floes. As seen on the diagram below(which corresponds to the first test case), The family would like to meet on the same floe. They don't want to fall the water, as it would be life threatening, so they have use their limited jumping distance to get together by jumping from piece to piece. However, due to global warming, the floes are showing cracks, and they get damaged further by the force needed to jump to another floe. Richard calculated how many times a person can jump off each floe before it breaks apart and disappears. Landing on an ice floe does not damage it. You have to help the family find all floes where they can meet.



Input

On the first line one positive number: the number of test cases, at most 100. After that per test case:

- One line with the integer N ($1 \leq N \leq 100$) and a floating-point number D ($0 \leq D \leq 100000$), denoting the number of ice pieces and the maximum distance a person can jump.
- N lines, each line containing x_i, y_i, n_i and m_i , denoting for each ice piece its X and Y coordinate, the number of people on it and the maximum number of times people can jump off this piece before it disappears ($-10000 \leq x_i, y_i \leq 10000$, $0 \leq n_i \leq 10$, $1 \leq m_i \leq 200$).

Output

Per test case:

- One line containing a space-separated list of 0-based indices of the pieces on which all people can meet. If no such piece exists, output a line with the single number -1.

Sample Input

```
2
5 3.5
1 1 1 1
2 3 0 1
3 5 1 1
5 1 1 1
5 4 0 1
3 2
-1 0 5 10
0 0 4 1
2 0 2 1
```

Sample Output

```
1 2 4
-1
```
