Arab Bike racing

In a very strange bike racing where a bike can be ridden by n players, two bikes are racing. 2n Arab students from various countries are going to participate in this race.

We have to split these 2n students into two groups where each n students will ride a bike. Each student has a skill index that is a known integer and the bike total strength is the sum of skill indices of students riding it. To make students relieved during the race they are asked to choose a position they prefer to take for each bike, that is they cannot choose the bike to ride but they can choose a preferred position for the first bike and a preferred position for a second bike.

Your task is to determine if it is possible to choose the students that should ride the first bike and the students who should ride the second one, taking into consideration the preferences of student, **but the different between the total strength of two bikes should be less than a given integer k**. take into account that no two students can share a position, that is all positions should be filled.

Input

First line contains integer n, integer k <= 20*n

For each next 2n lines, each line describe a player and contains three integers, the preferred position for first bike, the preferred position for second bike and the skill s where s <= 20

Output:

One line with only one word: "YES" if it is possible to find a way to assign students to bikes to satisfy the conditions. And "NO" otherwise (they are all capital letters)

Example:

Input	Output
4 1 1 1 1 2 1 2 2 2 8 1 2 2 3 3 5 3 3 2 4 4 1 4 4 2	YES
2 5 1 1 1 1 2 4 2 2 1 2 1 4	No

Scoring:

Subtask	Conditions	Points
1	$n \leq 10$	18
2	$n \leq 2000$	30

3	$n \leq 30\,000, s_i = 1$	23
4	$n \leq 30\,000$	29