E. Radio stations

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

In the lattice points of the coordinate line there are n radio stations, the i-th of which is described by three integers:

- x_i — the coordinate of the i-th station on the line,
- r_i — the broadcasting range of the i-th station,
- f_i — the broadcasting frequency of the i-th station.

We will say that two radio stations with numbers i and j reach each other, if the broadcasting range of each of them is more or equal to the distance between them. In other words $min(r_i, r_j) \geq |x_i - x_j|$.

Let's call a pair of radio stations (i, j) bad if $i < j$, stations i and j reach each other and they are close in frequency, that is, $|f_i - f_j| \leq k$.

Find the number of bad pairs of radio stations.

Input

The first line contains two integers n and k ($1 \leq n \leq 10^5$, $0 \leq k \leq 10$) — the number of radio stations and the maximum difference in the frequencies for the pair of stations that reach each other to be considered bad.

In the next n lines follow the descriptions of radio stations. Each line contains three integers x_i, r_i and f_i ($1 \leq x_i, r_i \leq 10^9$, $1 \leq f_i \leq 10^4$) — the coordinate of the i-th radio station, it's broadcasting range and it's broadcasting frequency. **No two radio stations will share a coordinate**.

Output

Output the number of bad pairs of radio stations.

Examples

input
3 2 1 3 10 3 2 5 4 10 8

output
1

input
3 3 1 3 10 3 2 5 4 10 8

output
2

input
5 1 1 3 2 2 2 4 3 2 1 4 2 1 5 3 3

output

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2
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input

```
5 1
1 5 2
2 5 4
3 5 1
4 5 1
5 5 3
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output

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5
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