Problem G. M-11 Highway

Time limit: 1 second
Memory limit: 512 megabytes

The new high-speed highway M-11 is an infinite straight line.

On the highway, there are n stopping points, each of which is a rest area or a gas station. Each stopping point is defined by its coordinate x_i, and no two stopping points are located at the same place. A triplet of stopping points (i, j, k) is called *convenient* if $x_i < x_j < x_k$, there are gas stations at points x_i and x_k, a rest area at point x_j, and the distance between the gas stations does not exceed d.

A team from Moscow is planning to travel to the contest along the M-11 highway, and its leader became curious about how many convenient triplets of stopping points exist along the way.

Input

The first line contains two natural numbers n and d — the number of stopping points and the maximum distance between gas stations ($3 \le n \le 5 \cdot 10^5$, $2 \le d \le 10^9$).

In the following n lines, the stopping points are given. Each stopping point is defined by two integers x_i and t_i — the coordinate of the point and its type. Type 0 denotes a rest area, and type 1 denotes a gas station ($-10^{18} \le x_i \le 10^{18}$; $t_i \in \{0, 1\}$). It is guaranteed that the coordinates of the stopping points are in increasing order.

Output

Output a single number — the number of convenient triplets.

Examples

standard input	standard output
8 5 1 1 2 0 3 1 6 0 7 0 8 1 15 1 19 1	3
10 6 0 1 1 0 3 1 4 0 5 1 8 1 10 0 11 0 14 1 18 1	7

Note

In the first input set, the convenient triplets are $(1, 2, 3)$, $(3, 4, 6)$, and $(3, 5, 6)$.