Moving Boxes

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

In a large warehouse, there are n boxes lined up in a straight row. Each box i is initially placed at a location represented by the coordinate x_i. However, due to a reorganization plan, each box needs to be moved to a new position, y_i.

To assist with this reorganization, a specialized robot is at your disposal. This robot is designed to move at a speed of one unit of length per second and is capable of carrying only one box at any given time. The time taken by the robot to pick up and drop off boxes is negligible, but it requires C seconds to change its direction. Initially, you can set the robot in any position and facing any direction. But after all boxes are relocated, the robot must return to its original position and direction. The boxes do not need to be transported to the destination all at once, which means they can be dropped off halfway. Additionally, multiple boxes can coexist in the same location during the process.

Your challenge is to strategize the robot's movements such that the total time to relocate all the boxes is minimized. Please calculate minimum total time required for the robot to relocate all boxes.

Input

The first line contains two integers n and C ($1 \le n \le 10^5$, $1 \le C \le 10^9$), indicating the number of boxes and the time cost for changing direction.

Each of the following n lines contains two integers x_i and y_i ($1 \le x_i, y_i \le 10^9$, $x_i \ne y_i$), indicating the initial position and the end position of box i. It is guaranteed that all x_i are distinct from each other, and all y_i are distinct from each other.

Output

Output a single integer denoting the minimum time for the robot to relocate all boxes.

Examples

standard input	standard output
3 1 1 2 4 6 5 3	12
3 4 5 10 9 1 8 6	38
4 1 1 1001 1002 2 3 1003 1004 4	4008

Note

Example 2: Start at position 1, heading in the positive direction. Move to position 5. Pick up box 1. Move to position 8. Drop off box 1. Pick up box 3. Change direction. Move to position 6. Drop off box 3. Change direction. Move to position 8. Pick up box 1. Move to position 10. Drop off box 1. Change direction. Move

to position 9. Pick up box 2. Move to position 1. Drop off box 2. Change direction. The total time taken is 38 seconds.

Example 3: Start at position 3, heading in the positive direction. Pick up box 3. Move to position 1003. Drop off box 3. Move to position 1004. Pick up box 4. Change direction. Move to position 1002. Drop off box 4. Pick up box 2. Move to position 2. Drop off box 2. Move to position 1. Pick up box 1. Change direction. Move to position 1001. Drop off box 1. Move to position 1002. Pick up box 4. Change direction. Move to position 4. Drop off box 4. Move to position 3. Change direction. The total time taken is 4008 seconds.