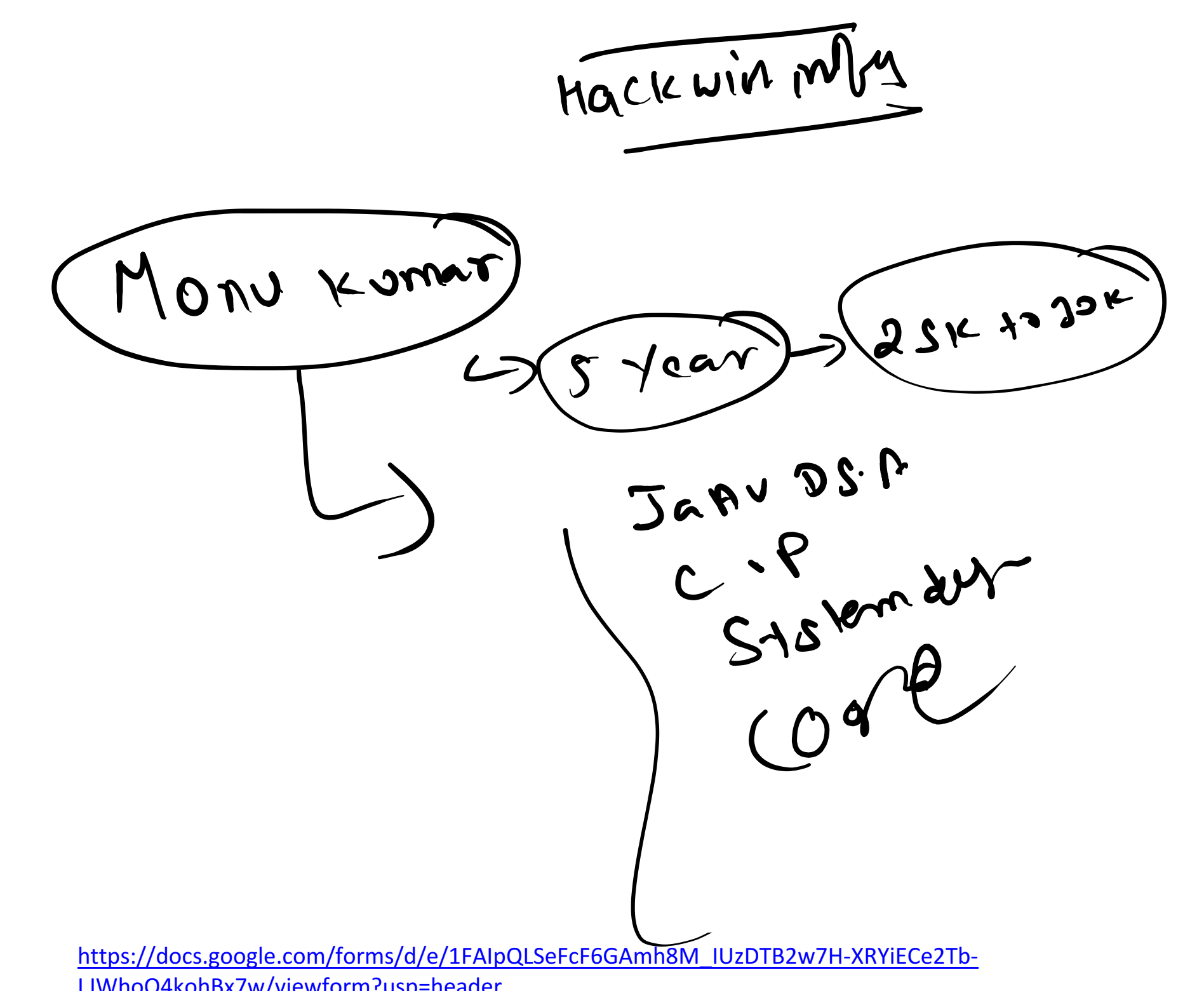
Lec-1

06/06/25 6:05 PM



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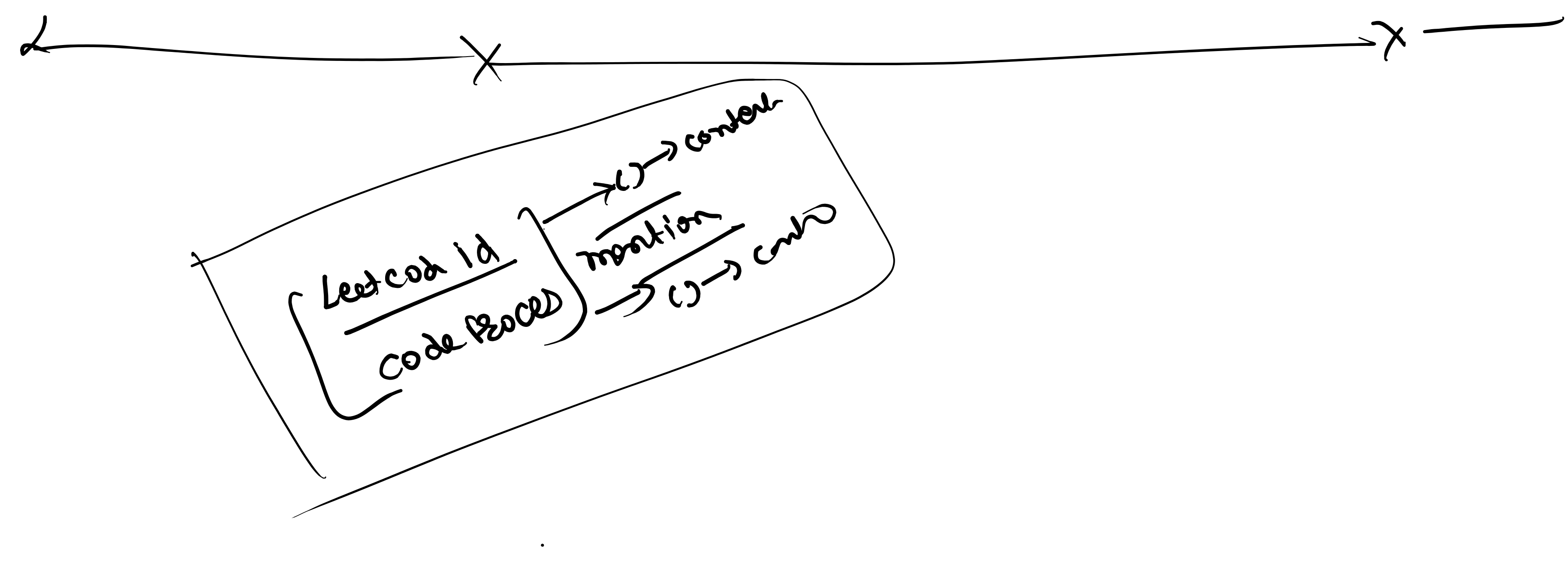

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Input: nums = [5,0,3,8,6]
Output: 3
Explanation: left = [5,0,3], right = [8,6]
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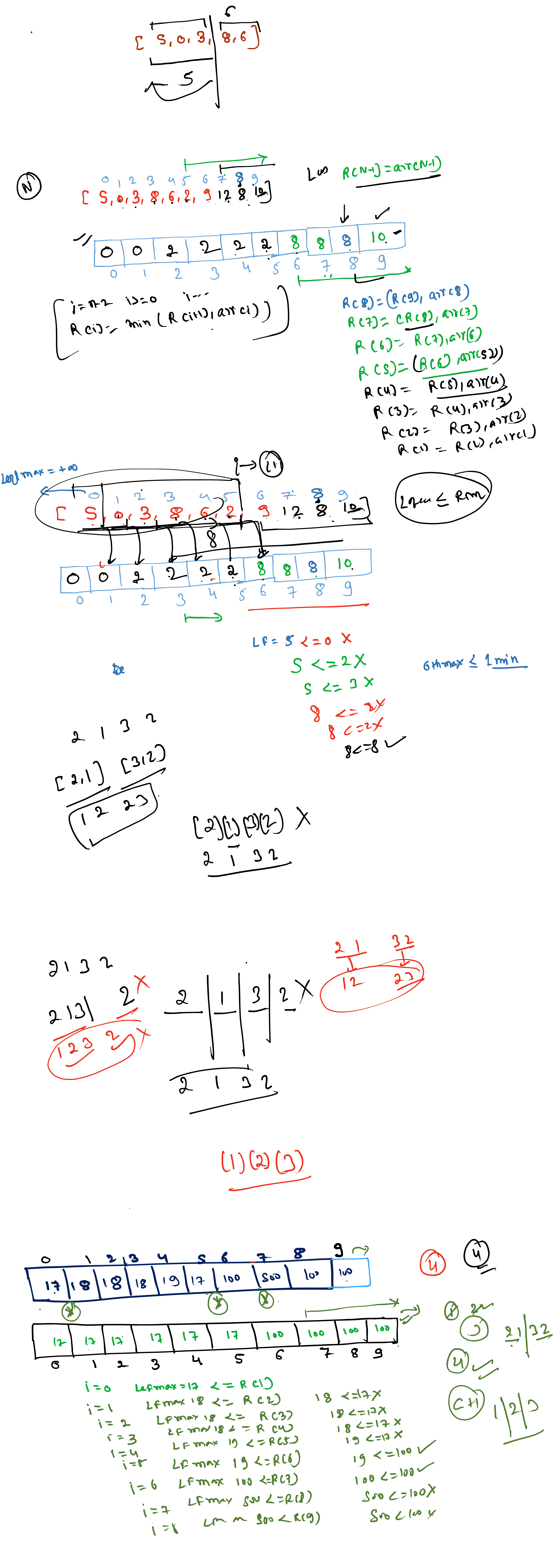

memory limit per test: 256 megabytes

There are n points on a coordinate axis OX. The i-th point is located at the integer point x_i and has a speed v_i. It is guaranteed that no two points occupy the same coordinate. All n points move with the constant speed, the coordinate of the i-th point at the moment t (**t can be non-integer**) is calculated as $x_i + t \cdot v_i$.

Consider two points i and j. Let $d(i, j)$ be the minimum possible distance between these two points over any possible moments of time (even **non-integer**). It means that if two points i and j coincide at some moment, the value $d(i, j)$ will be 0.

Your task is to calculate the value $\sum_{1 \le i < j \le n} d(i, j)$ (the sum of minimum distances over all pairs of points).

Input

The first line of the input contains one integer n ($2 \le n \le 2 \cdot 10^5$) — the number of points.

The second line of the input contains n integers $x_1, x_2, \ldots, x_n$ ($1 \le x_i \le 10^8$), where x_i is the initial coordinate of the i-th point. It is guaranteed that all x_i are distinct.

The third line of the input contains n integers $v_1, v_2, \ldots, v_n$ ($-10^8 \le v_i \le 10^8$), where v_i is the speed of the i-th point.

Output

Print one integer — the value $\sum_{1 \le i < j \le n} d(i, j)$ (the sum of minimum distances over all pairs of points).