

Problem E. Lines Game

Input file: *standard input*
Output file: *standard output*
Time limit: 2 seconds
Memory limit: 512 mebibytes

Consider the following game about removing N straight line segments on the plane. The segments are numbered from 1 to N . The i -th segment connects points $(0, i)$ and $(1, p_i)$, where the numbers p_1, p_2, \dots, p_N are a permutation of numbers from 1 to N . You are also given N positive integers v_1, v_2, \dots, v_N . On each step, you can select any segment i which is not removed yet, pay v_i dollars, and then remove the i -th segment and all segments intersecting with it. Note that you **MUST** remove all segments which intersect with i -th segment.

The purpose of this game is to remove all segments while spending the minimum possible sum of dollars. Please answer how much you need to spend when you play the game with best strategy.

Input

The input consists of three lines. The first line contains an integer N . The second line consists of N integers p_1, p_2, \dots, p_N . The third line consists of N integer v_1, v_2, \dots, v_N .

- $1 \leq N \leq 10^5$
- $\langle p_i \rangle$ is a permutation of $1, 2, \dots, N$
- $1 \leq v_i \leq 2 \times 10^4$

Output

Output only one number indicating the minimum possible sum of dollars required to remove all segments.

Examples

standard input	standard output
4 2 1 4 3 1 2 3 4	4
4 1 2 3 4 1 2 3 4	10