

Problem I. Interval Problem

Input file: standard input
Output file: standard output
Time limit: 2 seconds
Memory limit: 1024 megabytes

You are given n intervals $[l_i, r_i]$. If two intervals intersect, add an undirected, unweighted edge between them.

Let $d(i, j)$ be the length of the shortest path between the i -th interval and the j -th interval. If there is no path from i to j , $d(i, j) = 0$.

For $i = 1, 2, \dots, n$, output $\sum_{j=1}^n d(i, j)$.

Input

In the first line, n ($1 \leq n \leq 2 \times 10^5$).

In the following n lines, l_i, r_i ($1 \leq l_i < r_i \leq 2n$). It's guaranteed that the endpoints of intervals are distinct.

Output

n lines, the answer of $i = 1, 2, \dots, n$.

Example

standard input	standard output
5	7
2 3	5
6 7	4
1 9	5
5 10	5
4 8	