1 Wabot

Time Limit: 2.0s
Memory Limit: 128MB

1.1 Problem Description

As part of his master plan to take down Jiahai's potato farm, Benson the Rabbit has begun developing robots to help him spy on Jiahai. His most recent invention, dubbed Wabot, is modular in nature. This means that parts (known as modules) can be attached and detached easily without needing to significantly modify the Wabot.

To gather intelligence on Jiahai, Benson the Rabbit went to look for some spying modules and found N of them. The i^{th} module is defined by 2 characteristics; its module level L_i and its complexity C_i. Benson the Rabbit wants to use all N modules, but Wabot is still a new invention. Consequently, it can only have at most 1 module per level, though the number of modules it can be attached to is unlimited.

Fortunately, Benson the Rabbit has an infinite supply of module integrators. He can use one of these to take 2 modules of the same level and create a new module 1 level higher. For example, he can take 2 modules of level 7 and form a module of level 8, but he can't combine a module of level 2 with a module of level 5. Using a module integrator on 2 modules of complexity X and Y takes $X+Y$ seconds, and will form a new module of complexity $X+Y$.

Help Benson the Rabbit find the minimum possible amount of time he needs to combine the modules using the module integrators in some way each module level has at most 1 module remaining. It is guaranteed that such a final configuration is always achievable.

1.2 Input Format

The input format is as follows:

- The first line of input will contain 1 integer N.
- The next N lines of input will contain 2 spaced integers, the i^{th} one containing L_i and C_i respectively.

1.3 Output Format

The output format is as follows:

- Output a single integer, the minimum possible amount of time (in seconds) Benson the Rabbit needs to combine the modules. It is guaranteed that, given the limits of the problem, the answer will fit in a 64-bit integer data type.

1.4 Subtasks

For all testcases, it is guaranteed that:

- $1 \leq N \leq 3 \cdot 10^5$
- $1 \leq L_i \leq 10^6$
- $1 \leq C_i \leq 10^9$

Subtask	Score	N	Additional constraints
1	7	-	$L_i \neq L_j$ for all $i \neq j$.
2	9	$N = 2$	-
3	19	$1 \leq N \leq 10$	-
4	23	-	$L_i = L_j$ for all i, j
5	11	$1 \leq N \leq 3000$	-
6	31	-	-
7	0	Sample Testcases	

1.5 Examples

standard input	standard output
3 1 2 2 4 1 3	14
5 1 1 1 2 1 3 2 4 2 5	10
5 1 6 1 2 1 3 1 10 1 2	26

For Sample 1: Benson the Rabbit combines the 2 level 1 modules to form of level 2 module with complexity $2 + 3 = 5$, and this takes him 5 seconds. He then combines the 2 level 2 modules to form a level 3 module with complexity $5 + 4 = 9$, which takes him another 9 seconds. Thus, he needs 14 seconds in total.