Booby Trap Treasure Hunt

Jimothy is a seasoned adventurer scavenging the underground golden dungeon of the mad wizard, he stumbles onto a room where N traps of increasing complexity guard the way.

Jimothy needs to disarm every $trap_i$ but has to warm up by solving the easiest ($trap_1$) before he gets to choose, otherwise he does not dare disarm the others.

Each $trap_i$ requires s steps and has c complexity. For each step of disarming a trap, Jimothy incurs fatigue equal to the complexity of the trap he has solved with the most steps (zero if it is the first).

The most difficult trap contains an artifact that allows him to disarm all the other ones, allowing for easy treasure collection! How greedy...

Help Jimothy minimize his fatigue after disarming all the traps so that he can keep exploring this never-ending trove.

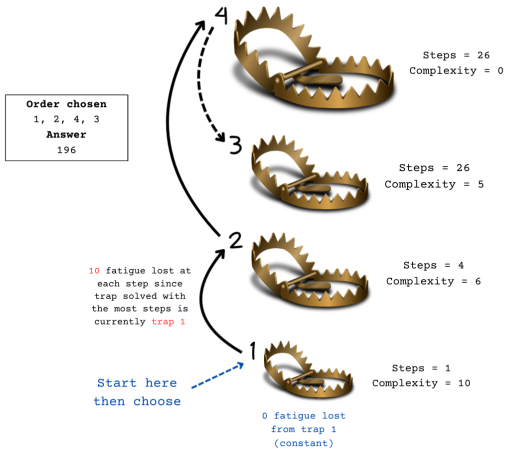

Figure 1: Example

Input

The first line of input contains an integer 1 <= n <= 10^5 indicating the number of traps followed by n lines for each trap containing 2 integers, $steps_i$ and $complexity_i$.
It is always the case.
$steps_1 = 1$, $steps_1 < steps_i < steps_n$ and
$complexity_1 > complexity_i > complexity_n$
$complexity_n = 0$.

Output

An integer f denotes the minimum fatigue Jimothy can incur when disarming all the booby traps.

Sample Input 1

```
3
1 10
3 3
5 0
```

Sample Output 1

```
45
```

Sample Input 2

```
3
1 10
10 5
11 0
```

Sample Output 2

```
110
```

Sample Input 3

```
4
1 10
4 6
25 5
26 0
```

Sample Output 3

```
196
```