

Conquest

Input file: *standard input*
Output file: *standard output*
Time limit: 1 second
Memory limit: 2048 MB

You are on a quest to conquer the rich and prosperous country of Rejkistan. However, this is no easy task as the country is well protected by some of the finest knights. You know that the number of these knights is N and initially you have been given some power P .

Unfortunately, due to poor tactical decisions, the knights have formed a circle around you. Each knight has two associated properties - defence d_i and power p_i . You can defeat any knight by ensuring that your current power is greater or equal than that knight's defence d_i . Once you have defeated a knight, you obtain their power p_i which is added to your current power P . In order to conquer Rejkistan, you have to defeat all knights in a clockwise order - you can choose which knight to attack first.

Your goal is to find the smallest starting power P , using which you can successfully defeat all knights and conquer the country.

Input

The first line contains an integer N , the number of knights.

Each of the next N lines contains two integers d and p , the defence and power of each knight, given in clockwise order.

Constraints

- $1 \leq N \leq 10^5$
- $1 \leq d_i, p_i \leq 10^8$

Output

Print a single integer - the minimum starting power P

Example

standard input	standard output
5 2 1 100 1 1 1 1 1 2 1	96