

Problem B

Boursaks

Time limit: 5 seconds

Astana, Kazakhstan

Nick, a passionate foodie, has traveled to the vast steppes of Kazakhstan in search of legendary boursaks (a type of traditional Kazakh fried dough). After days of research, he’s mapped their locations along a 1-dimensional plain. Starving from his journey, Nick must optimize his path to consume as many Calories as possible.

There are n boursaks placed at various integer positions along a line. Each position can have at most one boursak. Nick starts at position 0 with 0 Calories. Moving 1 unit of distance (either left or right) costs 1 Calorie. Nick can never have negative Calories—if Nick doesn’t have enough Calories to make a move, he cannot move. Each boursak contains c_i Calories that Nick can consume when he reaches its position.



A wild boursak carrying its young.

Nick’s goal is to consume as many Calories as possible. Determine how many Calories he can consume.

Input

The first line contains a single integer n ($1 \leq n \leq 2000$)—the number of boursaks.

The next n lines each contain two integers p_i and c_i ($-10^8 \leq p_i \leq 10^8$, $1 \leq c_i \leq 10^6$)—the position of the i^{th} boursak on the number line and the amount of Calories it contains.

All p_i values are guaranteed to be distinct, but they are not necessarily given in sorted order.

Output

Output a single integer—the maximum amount of Calories Nick can consume.

Sample Input 1	Sample Output 1
2 0 1 2 3	1
Sample Input 2	Sample Output 2
4 0 2 -2 5 -3 1 3 4	11