

## Problem D. Dangerous Tower

Input file: *standard input*  
Output file: *standard output*  
Time limit: 3 seconds  
Memory limit: 256 mebibytes

Rabbit loves to play with building blocks. She decided to construct a tower using her  $N$  rectangular parallelepiped blocks. The  $i$ -th block is of the size  $1 \times A_i \times B_i$ . She can place this block as one of the following:

- depth = 1, width =  $A_i$ , height =  $B_i$ .
- depth = 1, width =  $B_i$ , height =  $A_i$ .

A tower is defined by a sequence of placed blocks  $p_1, \dots, p_k$ , where  $p_1$  is the bottommost block and  $p_k$  is the topmost block. For each  $j$  ( $1 \leq j \leq k - 1$ ),  $p_{j+1}$  is placed on the top of  $p_j$ , and the width of  $p_{j+1}$  must be strictly smaller than the width of  $p_j$ . The height of the tower is the sum of the heights of  $p_j$ , for  $1 \leq j \leq k$ .

Rabbit can use her blocks in any order. Also, she does not have to use all blocks. Write a program that finds the maximum possible height of a tower that can be formed by her blocks.

### Input

The input is given in the following format:

```
N
A1 B1
⋮
AN BN
```

The first line contains an integer  $N$  ( $1 \leq N \leq 1000$ ), denoting the number of blocks. The  $i$ -th line of the following  $N$  lines ( $1 \leq i \leq N$ ) contains two integers  $A_i$  and  $B_i$  ( $1 \leq A_i \leq 10^6$ ,  $1 \leq B_i \leq 10^6$ ), denoting the dimensions of the  $i$ -th block.

### Output

Your program should output an integer: the maximum possible height of a tower.

### Examples

standard input	standard output
3 10 40 10 40 20 30	80
4 1 2 2 3 3 4 4 1	11