Site: https://open.kattis.com/problems/shatteredcake

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Shattered Cake 1024 MB, 6 secs

A rectangular cake is transported via a truck to a restaurant. On the way to the destination, the truck hits a pothole, which shatters the cake into N perfectly rectangular pieces of width w_i and length l_i , for $1 \le i \le N$.

At the destination, the damage is assessed, and the customer decides to order a replacement cake of the same dimensions. Unfortunately, the original order form was incompletely filled and only the width W of the cake is known. The restaurant asks for your help to find out the length L of the cake. Fortunately, all pieces of the shattered cake have been kept.Input



The input consists of the following integers:

- on the first line, the width W of the cake;
- on the second line, the number N of shattered pieces;
- on each of the next N lines, the width w_i and length l_i of each piece.

Limits

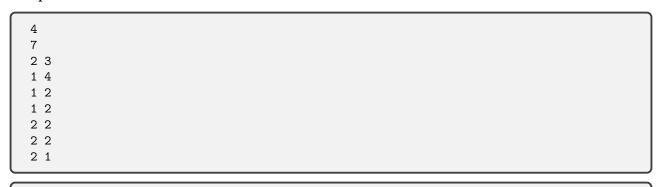
- $1 \leqslant N \leqslant 5000000$;
- $1 \leqslant W, L \leqslant 10000$;
- for each $1 \le i \le N$, $1 \le w_i, l_i \le 10000$.

Output

The output should be the integer L.

Sample

Sample 1



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