Single Door Shop

John is the owner of a bakery shop. Throughout the day at D distinct instants of time, some customers in groups arrive outside his shop. That is at a given time T, N_T number of customers arrive at his shop. Now the customers must find the door of his shop open otherwise they will go to some other shop. Unfortunately enough, John's shop has only one door (that is initially closed) which can be opened at most K times. Note that John can toggle the state of the door only at an integral time. Also, note that the transition between state of the door takes negligible time. Now John has to make sure that all candidate customers must enter his shop, but in a way such that the maximum number of people that enter his shop during an 'open' state of the door gets minimized. Your task is to find out the minimum possible maximum number of people that can enter the shop during an 'open' state of the door.

Input:
First line of input contains an integer K denoting the maximum number of times the door of the shop can be opened.
Second line of input contains an integer D denoting the number of distinct times at which customers arrive at John's shop.
Following D lines contain two space separated integers T N denoting the time T at which N customers together arrive at his shop.

Output:
Output an integer denoting the minimum possible maximum number of people that can enter the shop during an 'open' state of the door.

Constraints:
1<= K <=D
1<= D <=10^5
1<= Ti <=10^6
1<= Ni <=10^6
Time instants Ti will be distinct i.e. they will not repeat

Sample Input:
3
4
1 5
5 9
9 2
15 10

Sample Output:
11

Explanation:
John can open the door at t=1, let first 5 customers in, then close the door at t=5
Now, he opens the door at t=5, lets in 9 + 2 = 11 customers in, then closes the door at t = 15
Now, he again opens the door at t=15, lets 10 customers in, then closes the door at t=15.

Overall, max{5, 11, 10} = 11 is the minimum possible maximum number of customers that can enter the shop during an 'open' state of the door.