

Fast Food Restaurant

What a nice holiday! After travelling to a small beautiful town, Tom plans to get something to eat, finally he finds a small fast food restaurant with a long queue for ordering. He wonders how long he has to wait before ordering his food.

Giving you N customers, for each customer you will be given the arrival time A , the service time O needed for making order and the maximum number L of the people representing that if there are more than L people ahead of him (when he/she arrives) in the queue, the customer will give up.

Input

The input contains multiple test cases. For each test case, the first line contains a number N indicating the number of customers. Each of the following N lines contains three numbers, A_i , O_i and L_i corresponding to the i -th customer. It is guaranteed that the sequence of arrival times is non-decreasing (if two customers have the same arrival time, the customer who is earlier in the input is considered to have arrived earlier).

$1 \leq N \leq 100000$, $0 \leq A$, $L \leq 100000$, $0 \leq O \leq 100$.

Output

For each test case, print the result of the last customer, that is print -1 if he/she gives up, otherwise print the time when he/she begins to be served.

Sample Input	Sample Output
2	-1
1 1 1	-1
1 0 0	1
3	13
0 1 1	16
0 1 2	
0 1 1	
3	
0 1 1	
0 0 1	
0 1 2	
4	
0 9 0	
7 4 1	
8 3 1	
12 2 2	
4	
0 9 0	
7 4 1	
9 3 1	
12 2 2	

Explain: in the first test case, there are two customers, the first customer arrives at time 1 and use 1 unit of time to make the order, the second customer cannot endure for the queue size larger than 0 and gives up.