

C. Dragons

time limit per test: 2 seconds🕒

memory limit per test: 256 megabytes

Kirito is stuck on a level of the MMORPG he is playing now. To move on in the game, he's got to defeat all n dragons that live on this level. Kirito and the dragons have strength, which is represented by an integer. In the duel between two opponents the duel's outcome is determined by their strength. Initially, Kirito's strength equals s .

If Kirito starts duelling with the i -th ($1 \leq i \leq n$) dragon and Kirito's strength is not greater than the dragon's strength x_i , then Kirito loses the duel and dies. But if Kirito's strength is greater than the dragon's strength, then he defeats the dragon and gets a bonus strength increase by y_i .

Kirito can fight the dragons in any order. Determine whether he can move on to the next level of the game, that is, defeat all dragons without a single loss.

Input

The first line contains two space-separated integers s and n ($1 \leq s \leq 10^4$, $1 \leq n \leq 10^3$). Then n lines follow: the i -th line contains space-separated integers x_i and y_i ($1 \leq x_i \leq 10^4$, $0 \leq y_i \leq 10^4$) — the i -th dragon's strength and the bonus for defeating it.

Output

On a single line print "YES" (without the quotes), if Kirito can move on to the next level and print "NO" (without the quotes), if he can't.

Examples

input	Copy
<div>2 2</div> <div>1 99</div> <div>100 0</div>	
output	Copy
YES	

input	Copy
<div>10 1</div> <div>100 100</div>	
output	Copy
NO	

Note

In the first sample Kirito's strength initially equals 2. As the first dragon's strength is less than 2, Kirito can fight it and defeat it. After that he gets the bonus and his strength increases to $2 + 99 = 101$. Now he can defeat the second dragon and move on to the next level.

In the second sample Kirito's strength is too small to defeat the only dragon and win.

→ Attention

The package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, a solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then the value 800 ms will be displayed and used to determine the verdict.

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Finished

Practice