

Treasure map

Yk is a archaeologist. When discovering the pyramids of Egypt, he found a treasure map which show the location of n secret islands, each island has only a kind of precious stone, with the weight $m[i]$ (kg) and the quantity $s[i]$.

So he decided to buy a plane to look for the treasure. But he just hired a small plane which carrying the maximum of l (kg).

So he want to know how many ways to select the stones which fill the plane? (total of the weight of the stones is l).

Input

- The first line is two integer: l, n ($l \leq 20000$, $n \leq 500$).
- Each of next n line is two integer: $m[i], s[i]$ ($m[i] \leq 5000$, $s[i] \leq 100$).

Output

- Only line is your answer.

Example

Input:

```
10 3
4 7
4 5
2 5
```

Output:

```
6
```

Note: you must optimize your code to get AC, time limit will be 11s :)