Problem A. The Knapsack Problem

Time limit	1000 ms
Mem limit	1572864 kB
Code length Limit	50000 B
OS	Linux

The famous knapsack problem. You are packing for a vacation on the sea side and you are going to carry only one bag with capacity S (1 <= S <= 2000). You also have N (1<= N <= 2000) items that you might want to take with you to the sea side. Unfortunately you can not fit all of them in the knapsack so you will have to choose. For each item you are given its size and its value. You want to maximize the total value of all the items you are going to bring. What is this maximum total value?

Input

On the first line you are given S and N. N lines follow with two integers on each line describing one of your items. The first number is the size of the item and the next is the value of the item.

Output

You should output a single integer on one like – the total maximum value from the best choice of items for your trip.

Example

Input:
```
4 5
1 8
2 4
3 0
2 5
2 3
```

Output:
```
13
```