Educational DP Contest AtCoder D - Knapsack 1

Time limit: 0.25s **Memory limit:** 1G
Python: 1.0s

There are N items, numbered $1, 2, \ldots, N$. For each i $(1 \leq i \leq N)$, item i has a weight of w_i and a value of v_i.

Taro has decided to choose some of the N items and carry them home in a knapsack. The capacity of the knapsack is W, which means that the sum of the weights of items taken must be at most W.

Find the maximum possible sum of the values of items that Taro takes home.

Constraints

- All values in input are integers.
- $1 \leq N \leq 100$
- $1 \leq W \leq 10^5$
- $1 \leq w_i \leq W$
- $1 \leq v_i \leq 10^9$

Input Specification

The first line of input will contain 2 space separated integers, N and W.

The next N lines will contain 2 space separated integers, w_i and v_i, the weight and value of item i.

Output Specification

You are to output a single integer, the maximum possible sum of the values of items that Taro takes home.

Sample Input 1

```
3 8
3 30
4 50
5 60
```

Sample Output 1

```
90
```

Sample Input 2

```
5 5
1 1000000000
1 1000000000
1 1000000000
1 1000000000
1 1000000000
```

Sample Output 2

```
5000000000
```

Sample Input 3

```
6 15
6 5
5 6
6 4
6 6
3 5
7 2
```

Sample Output 3

```
17
```

Sample Explanations

For the first sample, items 1 and 3 should be taken. Then, the sum of the weights is $3 + 5 = 8$, and the sum of the values is $30 + 60 = 90$.

For the second sample, it is important to note that the answer may not fit in a 32-bit integer type.

For the third sample, items 2, 4, and 5 should be taken. Then, the sum of the weights is $5 + 6 + 3 = 14$, and the sum of the values is $6 + 6 + 5 = 17$.