

# Knapsack Problem

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Problem Code	hw08b_knapsack
Running Time Limit	1 sec
Memory Limit	16 mb

## Objective

- Be able to solve 0-1 knapsack problem.

## Introduction

A knapsack problem is defined as follows. You are given a bag that could carry  $W$  kg of items and a list of weight and price of  $N$  items. We wish to know a subset of  $N$  items such that their total weight does not exceed  $W$  and their total price is maximal.

## Task

Your task is to compute the maximal price from the given items that satisfy the knapsack problem.

## Input

The first line of input contains one integer and one floating point number  $N$  and  $W$ .  $N$  ( $1 \leq N \leq 50$ ) is the number of items while  $W$  ( $1 \leq W \leq 1,000,000$ ) indicates the maximal weight of the bag. This is followed by  $N$  more lines. In each line, the weight and the price of the items are given. Both are floating point number. It is suggested that all floating point variable should be declared as double.

## Output

The output contains one floating point number giving the maximal price from the selected subset. The output must have exactly two decimal points.

## Example

### Ex1

Input	Output
4 10.0 5 30.0 4 60.0 6 50.0 3 40.0	110.00