

ASK/VIEW DOUBT

SOLUTION

HINT

Problem

Result

Code : Knapsack

Send Feedback

A thief robbing a store and can carry a maximal weight of W into his knapsack. There are N items and ith item weigh wi and is value vi. What is the maximum value V, that thief can take ?

Input Format :

Line 1 : N i.e. number of items

Line 2 : N Integers i.e. weights of items separated by space

Line 3 : N Integers i.e. values of items separated by space

Line 4 : Integer W i.e. maximum weight thief can carry

Output Format :

Line 1 : Maximum value V

Constraints

1 <= N <= 20

1<= wi <= 100

1 <= vi <= 100

Sample Input 1 :

4

1 2 4 5

5 4 8 6

5

Sample Output :

13

1#include <iostream>

2using namespace std;

3int knapsack(int* weights, int* values, int n, int maxWeight){

4

5/* Don't write main().

6* Don't read input, it is passed as function argument.

7* Return output and don't print it.

8* Taking input and printing output is handled automatically.

9*/

10

11//write your code here

12

13//base case

14

15if(n==0 || maxWeight<0)

16return 0;

17

18if(maxWeight<weights[0]){

19return knapsack(weights+1,values+1,n-1,maxWeight);

20}

21

22

23int a = knapsack(weights+1,values+1,n-1,maxWeight);

24int b = knapsack(weights+1,values+1,n-1,maxWeight-weights[0]) + values[0] ;

25

26return max(a,b);

27

28

29}

30

31

32

< PREVIOUS

> NEXT

CUSTOM INPUT

SUBMIT SOLUTION