Greedy Algorithms

Greedy algorithm obtains the solution of a problem by making a sequence of choices. At each decision point, the best possible choice is made.

In this online, you have to implement greedy algorithm for a defined problem. You have to read the inputs from a file. Also you have to show the performance of your implementation by printing the running time.

Fractional Knapsack

Given the weight of items, w_i along with its value, v_i and also the maximum weight capacity, C that we can to take, we have to maximize the value we can get. Unlike 0-1 knapsack, here we are allowed to take fractional items. Hence this problem is called fractional knapsack. Fractional knapsack problem is solvable by greedy strategy.

The basic idea is to calculate for each item the ratio of v_i/w_i. Then by looping over the array, take the items with the highest ratios and add them until we can't add the next item as whole. Finally add as much as you can of the next item.

Item *i*	**Weight, w_i**	**Value (Cost), v_i**
1	100	150
2	12	20
3	50	55
4	20	80
5	50	100
6	35	60
7	25	90

Here, maximum weight capacity, C = 200. Find a list of items which can be added to maximize the profit within C.