Experiment 5

#include <stdio.h>

void main()

{

int capacity, no\_items, cur\_weight, item;

int used[10];

float total\_profit;

int i;

int weight[10];

int value[10];

printf("Enter the capacity of knapsack:\n");

scanf("%d", &capacity);

printf("Enter the number of items:\n");

scanf("%d", &no\_items);

printf("Enter the weight and value of %d item:\n", no\_items);

for (i = 0; i < no\_items; i++)

{

printf("Weight[%d]:\t", i);

scanf("%d", &weight[i]);

printf("Value[%d]:\t", i);

scanf("%d", &value[i]);

}

for (i = 0; i < no\_items; ++i)

used[i] = 0;

cur\_weight = capacity;

while (cur\_weight > 0)

{

item = -1;

for (i = 0; i < no\_items; ++i)

if ((used[i] == 0) &&

((item == -1) || ((float) value[i] / weight[i] > (float) value[item] / weight[item])))

item = i;

used[item] = 1;

cur\_weight -= weight[item];

total\_profit += value[item];

if (cur\_weight >= 0)

printf("Added object %d (%d Rs., %dKg) completely in the bag. Space left: %d.\n", item + 1, value[item], weight[item], cur\_weight);

else

{

int item\_percent = (int) ((1 + (float) cur\_weight / weight[item]) \* 100);

printf("Added %d%% (%d Rs., %dKg) of object %d in the bag.\n", item\_percent, value[item], weight[item], item + 1);

total\_profit -= value[item];

total\_profit += (1 + (float)cur\_weight / weight[item]) \* value[item];

}

}

printf("Filled the bag with objects worth %.2f Rs.\n", total\_profit);

}

