Practical:6

- Implement Program for fractional knapsack using Greedydesign technique.

Code:-

```c
#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);
}
```

Output:

```
Enter the capacity of knapsack:
12
Enter the number of items:
5
Enter the weight and value of 5 item:
Weight[0]:  1
Value[0]:   2
Weight[1]:  3
Value[1]:   4
Weight[2]:  4
Value[2]:   6
Weight[3]:  5
Value[3]:   3
Weight[4]:  4
Value[4]:   3
Added object 1 (2 Rs., 1Kg) completely in the bag. Space left: 11.
Added object 3 (6 Rs., 4Kg) completely in the bag. Space left: 7.
Added object 2 (4 Rs., 3Kg) completely in the bag. Space left: 4.
Added object 5 (3 Rs., 4Kg) completely in the bag. Space left: 0.
Filled the bag with objects worth 15.00 Rs.
```