

## Experiment no:5

### Fractional knapsack:

Code:

```
#include <stdio.h>
#include <conio.h>

void main()
{
    int capacity, no_items, cur_weight, item;
    int used[10];
    float total_profit;
    int i;
    int weight[10];
    int value[10];
    clrscr();
    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:

## Output

^ /tmp/5IWj4WBfqm.o

Enter the capacity of knapsack:

5

Enter the number of items:

7

Enter the weight and value of 7 item:

Weight[0]: 10

Value[0]: 20

Weight[1]: 20

Value[1]: 30

Weight[2]: 30

Value[2]: 40

Weight[3]: 40

Value[3]: 50

Weight[4]: 50

Value[4]: 60

Weight[5]: 80

9Value[5]: 100

Weight[6]: 50

Value[6]: 800

Added 10% (800 Rs., 50Kg) of object 7 in the bag.

Filled the bag with objects worth 80.00 Rs.