

Program:

```
#include<bits/stdc++.h>

using namespace std;

bool cmp(vector<int> a, vector<int> b){

    float n1 = a[1]*1.0/a[0];

    float n2 = b[1]*1.0/b[0];

    return n1 > n2;

}

float knapsack(vector<vector<int>> v, int n, int val){

    sort(v.begin(), v.end(), cmp);

    float ans = 0;

    float weight = 0;

    for(int i=0; i<n; i++){

        if(weight + v[i][0] < val){

            weight += v[i][0];

            ans += v[i][1];

        }else{

            if(weight == val){

                break;

            }else{

                // cout << weight << " -<weight" << endl;

                float temp = 1 - (v[i][0] - (val - weight))*1.0/v[i][0];

                ans += v[i][1]*1.0*temp;

                break;

            }

        }

    }

    return ans;

}

int main(){

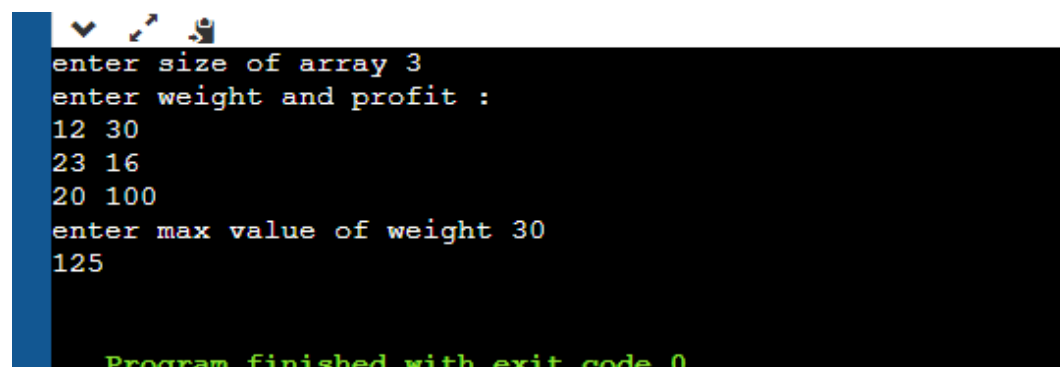
    int n;
```

```

cout << "enter size of array ";
cin >> n;
cout << "enter weight and profit : " << endl;
vector<vector<int>> v(n, vector<int> (2,0)); // weight, price
for(int i=0; i<n; i++){
    cin >> v[i][0] >> v[i][1];
}
int val;
cout << "enter max value of weight ";
cin >> val;
float value = knapsack(v, n, val);
cout << value << endl;
}

```

Output:



```

enter size of array 3
enter weight and profit :
12 30
23 16
20 100
enter max value of weight 30
125
...Program finished with exit code 0

```