*//Knapsack problem*

*#include <iostream>*

*#include <vector>*

*#include <algorithm>*

*using namespace std;*

*int main() {*

*int n, m;*

*cout<<"Enter max weight and no weights"<<endl;*

*cin >> m >> n;*

*vector<int> p(n); // price array*

*vector<int> w(n); // weight array*

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

*cout<<"Enter profit and weight for "<<i+1<<endl;*

*cin >> p[i] >> w[i];*

*}*

*vector<pair<double, int>> pw(n);*

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

*pw[i] = make\_pair((double)p[i] / w[i], i); // pw ratio of that object*

*}*

*sort(pw.begin(), pw.end(), greater<pair<double, int>>()); // sort in descending order*

*double profit = 0;*

*int k = 0;*

*while (m > 0 && k < n) {*

*int idx = pw[k].second;*

*if (w[idx] <= m) {*

*m -= w[idx];*

*profit += p[idx];*

*cout << "Object " << idx + 1 << " added with weight " << w[idx] << " and profit " << p[idx] << endl;*

*}*

*else {*

*profit += (pw[k].first \* m); // add fractional part of pw ratio*

*cout << "Object " << idx + 1 << " added with weight " << m << " and profit " << pw[k].first \* m << endl;*

*m = 0;*

*}*

*k++;*

*}*

*cout << "Total profit: " << profit << endl;*

*return 0;*

*}*

Text

Description automatically generated