#include <bits/stdc++.h>

using namespace std;

//tham lam

int thamlam(float \*v, int n, float c){

int i = 1;

while(i <= n && c > 0){

c = c - v[i];

i++;

}

if(c == 0) return i-1;

return -1;

}

//cai tui

void caitui(int \*m, float \*v, int n, int M, float \*\*f){

for(int i = 1; i <= n; i++){

for(int j = 0; j <= M; j++){

if(m[i] > j){

f[i][j] = f[i-1][j];

} else{

f[i][j] = max(f[i-1][j], f[i-1][j-m[i]]+v[i]);

}

}

}

}

void truyvet(int \*m, float \*v, int n, int M, float \*\*f){

cout << "Gia tri lon nhat P = " << f[n][M] << " de khong vuot qua M = " << M << "\n";

int i = n, j = M;

while(i > 0 && j >= 0){

if(f[i][j] != f[i-1][j]){

cout << m[i] << " " << v[i] << "\n";

j = j - m[i];

}

i--;

}

}

int main(){

int n = 8;

int \*m = new int[n+1]{0, 1, 2, 5, 8, 4, 6, 7, 3};

float \*v = new float[n+1]{0, 1, 2, 3, 4, 5, 6, 7, 8};

float C = 10;

int M = 10;

//tham lam

int kq1 = thamlam(v, n, C);

cout << "Kq1 = " << kq1 << "\n";

if(kq1 == -1){

cout << "Khong co cach nao de lay\n";

} else{

cout << "So luong goi hang nhieu nhat duoc lay D = " << kq1 << " de duoc gia tri dung bang C = " << C << "\n";

cout << "Cac tui do la: ";

for(int i = 1; i <= kq1; i++){

cout << v[i] << " ";

}

cout << "\n";

}

//cai tui

cout << "\n-------------------------------\n";

float \*\*f = new float \*[n+1];

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

f[i] = new float[M+1];

for(int j = 0; j <= M; j++){

f[i][j] = 0;

}

}

caitui(m, v, n, M, f);

truyvet(m, v, n, M, f);

}