#include <bits/stdc++.h>

using namespace std;

struct Flight{

string id;

float cost;

int cnt;

};

void findcost(Flight \*a, vector<Flight>&res, int l, int r){

if(l == r){

if(a[l].cost > 700000){

res.push\_back(a[l]);

}

} else{

int m = (l+r)/2;

findcost(a, res, l, m);

findcost(a, res, m+1, r);

}

}

int findMin(Flight \*a, int l, int r){

if(l == r){

return l;

} else{

int m = (l+r)/2;

int lmin = findMin(a, l, m);

int rmin = findMin(a, m+1, r);

if(a[lmin].cost < a[rmin].cost) return lmin;

else return rmin;

}

}

//Tổ hợp chập k bằng cách sinh hoán vị

void view(Flight \*a, int x[], int k){

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

cout << a[x[i]-1].id << " ";

}

cout << endl;

}

void Try(int n, int k, Flight \*a, int x[], int start, int size){

if(k == size){

view(a, x, k);

}

else{

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

x[size] = i;

Try(n, k, a, x, i+1, size+1);

}

}

}

//TO HOP CHAP K

//Tổ hợp chập k bằng phương pháp quay lui

void nextconfig\_1(int k, int x[], int i){

//1236 -> 1246

x[i] = x[i]+1; i++;

//1246->1245

while(i <= k){

x[i] = x[i-1]+1;

i++;

}

}

void listconfig\_1(int n,int k, Flight \*a){

int i;

int x[n+1];

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

x[i] = i;

}

do{

// viewconfig(k, x);

// view(a, x, k);

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

cout << a[x[i]-1].id << " ";

}

cout << endl;

i = k;

while(i> 0 && x[i] == n-k+i){

i--;

}

if(i > 0){

nextconfig\_1(k, x, i);

}

}while(i > 0);

}

//HOAN VI

//Hoán vị bằng phương pháp sinh hoán vị

void nextconfig\_2(int x[], int n, int i){

//136542

//->

int k = n;

while(x[k] < x[i]) k--;

swap(x[i], x[k]);

int j = n; i++;

while(i < j){

swap(x[i], x[j]);

i++; j--;

}

}

void listconfig\_2(int n, Flight \*a){

int i;

int x[n+1];

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

x[i] = i;

}

do{

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

cout << a[x[i]-1].id << " ";

}

cout << endl;

i = n-1;

while(i > 0 &&x[i] > x[i+1]) i--;

if(i > 0) nextconfig\_2(x, n, i);

}while(i > 0);

}

int main(){

int n;

n = 6;

Flight \*a = new Flight[n];

a[0] = {"VN001", 2000000, 30};

a[1] = {"VN002", 100000, 40};

a[2] = {"VN003", 300000, 50};

a[3] = {"VN004", 5000000, 40};

a[4] = {"VN005", 300000, 20};

a[5] = {"VN006", 4000000, 60};

cout << "\nCac chuyen bay co gia lon hon 700000: ";

vector<Flight> res;

findcost(a, res, 0, n-1);

if(res.size() == 0){

cout << "Khong co chiec nao";

} else{

for(int i = 0; i < res.size(); i++){

cout << res[i].id << " ";

}

}

cout << "\nChuyen bay co gia thap nhat: ";

int kq = findMin(a, 0, n-1);

cout << a[kq].id << endl;

int k = 4;

// int x[k+1];

// cout << "Tat ca cac phuong an khac nhau de chon 4 chuyen bay: \n";

// Try(n, k, a, x, 1, 0);

cout << "Tat ca cac phuong an khac nhau de chon 4 chuyen bay(Cach 2): \n";

listconfig\_1(n, k, a);

cout << "Thu tu xuat phat co the co: ";

listconfig\_2(n, a);

}