#include <bits/stdc++.h>

using namespace std;

//struct Time{

// int minute;

// int hour;

//};

struct Work{

string id;

string begin;

string worktime;

};

void printAWork(Work a){

cout << "ID: " << a.id << "\n";

// cout << "Thoi gian bat dau: " << a.begin.hour <<":" <<a.begin.minute<< "\n";

// cout << "Thoi gian thuc hien: " << a.timework.hour <<":" <<a.timework.minute<< "\n";

cout << "Thoi gian bat dau: " << a.begin << "\n";

cout << "Thoi gian thuc hien: " << a.worktime << "\n";

}

void hienthinguoc(Work \*a, int n){

if(n == 0) return;

else {

printAWork(a[n-1]);

hienthinguoc(a, n-1);

}

}

//Sinh hoan vi chap K cua N phan tu

void viewconfig\_1(int k, int x[], Work \*a){

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

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

}

cout << endl;

}

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

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

i++;

// int j = k;

while(i <= k){

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

i++;

}

}

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

int i;

int x[n+1] = {0};

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

x[i] = i;

}

do{

viewconfig\_1(k, x, a);

i = k;

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

if(i > 0) nextconfig\_1(k, x, i);

}while(i > 0);

}

//Sinh hoan vi cua N

void nextconfig\_3(int n, int x[], int i){

int k = n;

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

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

int j = n; i++;

while(i <= j){

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

i++; j--;

}

}

void listconfig\_3(int n, Work \*a){

int i;

int x[n+1] = {0};

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

x[i] = i;

}

do{

viewconfig\_1(n, x, a);

i = n-1;

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

if(i > 0) nextconfig\_3(n, x, i);

}while(i > 0);

}

//Quay lui to hop chap k cua n phan tu

void Try\_1(int n, int k, int x[], Work \*a, int start, int size){

if(size == k){

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

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

}

cout << endl;

} else{

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

x[size] = i;

Try\_1(n, k, x, a, i+1, size+1);

}

}

}

//Quay lui hoan vi n phan tu

void Try\_2(int n, int k, int x[], Work \*a, int check[]){

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

if(check[i] == 0){

x[k] = i;

if(k == n) {

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

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

}

cout << endl;

}

else{

check[i] == 1;

Try\_2(n, k+1, x, a, check);

check[i] == 0;

}

}

}

}

int main(){

int n = 6;

Work \*a = new Work[n];

// a[0] = {"W001", time1, time1};

a[0] = {"W001", "12:30", "01:30"};

a[1] = {"W002", "12:30", "00:30"};

a[2] = {"W003", "12:30", "02:30"};

a[3] = {"W004", "12:30", "04:30"};

a[4] = {"W005", "12:30", "00:30"};

a[5] = {"W006", "12:30", "02:30"};

// printAWork(a[0]);

// cout << "Hien thi danh sach cong viec duoi dang nguoc lai\n";

// hienthinguoc(a, n);

// cout << "\nTat ca cac phuong an lay ra 5 cong viec la: \n";

// int k = 5;

// listconfig\_1(n, k, a);

// cout << "\nTat ca cac phuong an lay ra 6 cong viec lan luot la: \n";

// listconfig\_3(n, a);

//

int x[n+1] = {0}, check[n+1] = {0};

// cout << "\nTat ca cac phuong an lay ra 5 cong viec la: \n";

// int k = 5;

// Try\_1(n, k, x, a, 1, 0);

// cout << "\nTat ca cac phuong an lay ra 6 cong viec lan luot la: \n";

// Try\_2(n, 1, x, a, check);

}