#include <bits/stdc++.h>

using namespace std;

//char label[4] = {'0', 'A', 'B', 'C', 'D'};

//string name[4] = {"0", "Tung", "Cuc", "Truc", "Mai"};

void swap(string &a, string &b){

string tg = a;

a = b;

b = tg;

}

//Cách 1: Sinh hoán vị

void view\_config(int n, char label[], string name[]){

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

cout << label[i] << "-" << name[i] << " ";

}

cout << endl;

}

void next\_config(int n, string name[], int i){

int k = n;

while(name[k] < name[i]){

k--;

}

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

int j = n; i++;

while(i < j){

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

i++; j--;

}

}

void list\_config(int n, int &cnt, char label[], string name[]){

int i;

do{

view\_config(n, label, name);

i = n-1;

while(i > 0 && name[i] > name[i+1]){

i--;

}

if(i > 0){

next\_config(n, name, i);

cnt++;

}

}while(i > 0);

}

//Cách 2: Hoán vị bằng phương pháp quay lui

void Try(int k, int n, char label[], string name[], int check[], int &cnt){

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

if(check[i] == 0){

label[k] = (char)(i+64);

if(k == n) {

cnt++;

view\_config(n, label, name);

}

else{

check[i] = 1;

Try(k+1, n, label, name, check, cnt);

check[i] = 0;

}

}

}

}

int main(){

int n;

n = 4;

char label[5] = {'0', 'A', 'B', 'C', 'D'};

string name[5] = {"0","Cuc", "Mai", "Truc", "Tung"};

int check[5] = {0};

//Cach 1: Sinh hoan vi(Liet ke hoan vi)

int cnt = 1;

list\_config(n, cnt, label, name);

//Cach 2: Quay lui

// int cnt = 0;

// Try(1, n, label, name, check, cnt);

cout << "Tong so sach sap xep: " << cnt << endl;

}