#include <iostream>

#include <queue>

using namespace std;

int adj\_mat[50][50] = {0,0};

int visited[50] = {0};

void dfs(int s, int n, string arr[])

{

visited[s] = 1;

cout<<arr[s]<<" ";

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

{

if(adj\_mat[s][i] && !visited[i])

dfs(i,n,arr);

}

}

void bfs(int s, int n, string arr[])

{

bool visited[n];

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

visited[i] = false;

int v;

queue<int> bfsq;

if(!visited[s])

{

cout<<arr[s]<<" ";

bfsq.push(s);

visited[s] = true;

while(!bfsq.empty())

{

v = bfsq.front();

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

{

if(adj\_mat[v][i] && !visited[i])

{

cout<<arr[i]<<" ";

visited[i] = true;

bfsq.push(i);

}

}

bfsq.pop();

}

}

}

int main

()

{

cout<<"Enter no. of cities: ";

int n, u;

cin>>n;

string cities[n];

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

{

cout<<"Enter city #"<<i<<" (Airport Code): ";

cin>>cities[i];

}

cout<<"\nYour cities are: "<<endl;

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

cout<<"city #"<<i<<": "<<cities[i]<<endl;

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

{

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

{

cout<<"Enter distance between "<<cities[i]<<" and "<<cities[j]<<": ";

cin>>adj\_mat[i][j];

adj\_mat[j][i] = adj\_mat[i][j];

}

}

cout<<endl;

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

cout<<"\t"<<cities[i]<<"\t";

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

{

cout<<"\n"<<cities[i];

for(int j=0; j<n; j++)

cout<<"\t"<<adj\_mat[i][j]<<"\t";

cout<<endl;

}

cout<<"Enter Starting Vertex: ";

cin>>u;

cout<<"DFS: "; dfs(u,n,cities);

cout<<endl;

cout<<"BFS: "; bfs(u,n,cities);

return 0;

}