#include <stdio.h>

#include <stdlib.h>

#include <time.h>

int a[20][20],reach[20],n;

void dfs(int v){

int i;

reach[v]=1;

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

{

if(a[v][i]&&!reach[i])

{

printf("\n%d->%d",v,i);

dfs(i);

}

}

}

int main(){

int i,j,count=0;

clock\_t start,end;

double time;

printf("\nEnter no of vertices :");

scanf("%d",&n);

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

for(j=1;j<=n;j++){

reach[i]=0;

a[i][j]=0;

}

printf("\nEnter adjacency matrix :\n");

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

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

scanf("%d",&a[i][j]);

start=clock();

dfs(1);

end=clock();

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

if(reach[i])

count++;

if(count==n)

printf("\nGraph is connected.");

else

printf("\nGraph is disconnected.");

return(0);

}

output:

[shilpa@shilpa-linux ADA\_LAB-PROG-main]$ gcc -o DFS DFS.c

[shilpa@shilpa-linux ADA\_LAB-PROG-main]$ ./DFS

Enter no of vertices :4

Enter adjacency matrix :

0 1 0 1

1 0 1 1

1 1 1 0

0 0 0 0

1->2

2->3

2->4

Graph is connected.[shilpa@shilpa-linux ADA\_LAB-PROG-main]$ ./DFS

Enter no of vertices :4

Enter adjacency matrix :

0 1 0 0

0 0 1 0

0 0 0 1

1 0 0 0

1->2

2->3

3->4

Graph is connected.

Enter no of vertices :4

Enter adjacency matrix :

0 0 1 0

0 0 0 1

0 0 0 0

1 0 0 0

1->3

Graph is disconnected