**Depth First search:**

#include<stdio.h>

#include<conio.h>

#include<stdlib.h>

#define size 20

#define TRUE 1

#define FALSE 0

int g[size][size];

int visit[size];

int Q[size];

int front, rear;

int n;

void main ()

{

int v1, v2,flag;

void create();

void Dfs(int v1);

int isconn();

clrscr();

create();

clrscr();

printf("The Adjacency Matrix for the graph is \n");

for ( v1 = 0; v1 < n; v1++)

{

for ( v2 = 0; v2 < n; v2++)

printf(" %d ", g[v1][v2]);

printf("\n");

}

getch();

for ( v1 = 0; v1 < n; v1++)

visit[v1] = FALSE;

Dfs(0);

flag=isconn();

if(flag==1)

printf("\n The Roads are Connected to different cities");

}

void create()

{

int v1, v2,dist;

printf("\nEnter no. of nodes ");

scanf("%d",&n);

for ( v1 = 0; v1 < n; v1++)

for ( v2 = 0; v2 < n; v2++)

g[v1][v2] = FALSE;

printf("\n Enter the distance between JPNAGAR and JAYANAGAR ");

scanf("%d",&dist);

g[0][1] = dist;

printf("\n Enter the distance between JAYANAGAR and BTM ");

scanf("%d",&dist);

g[1][2] = dist;

printf("\n Enter the distance between BTM to V.V. PURAM ");

scanf("%d",&dist);

g[2][3] = dist;

printf("\n Enter the distance between V.V. PURAM to JAYANAGAR ");

scanf("%d",&dist);

g[3][1] = dist;

printf("\n Enter the distance between BTM to JPNAGAR ");

scanf("%d",&dist);

g[2][0] = dist;

}

void Dfs(int v1)

{

int v2;

printf("\nThe road is connected to:");

switch(v1)

{

case 0:printf(" JPNAGAR ");

break;

case 1:printf(" JAYANAGAR ");

break;

case 2:printf(" BTM ");

break;

case 3:printf(" V.V.PURAM ");

break;

case 4:printf(" K.R.PURAM ");

break;

}

visit[v1] = TRUE;

for ( v2 = 0; v2 < size; v2++)

if ( g[v1][v2] != 0 && visit[v2] == FALSE )

Dfs(v2);

}

int isconn()

{

int i;

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

{

if(visit[i]==FALSE)

{

printf("\n The Road to K.R.PURAM is not Connected");

return 0;

}

}

return 1;

}