Practical-12

Aim: **Implementation of Graph and Searching (BFS**)

#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;

char ans ='y';

void create(),bfs(int v1);

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();

do

{

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

visit[v1] = FALSE;

clrscr();

printf("Enter the Vertex from which you want to

traverse: ");

scanf("%d", &v1);

if ( v1 >= n )

printf("Invalid Vertex\n");

else

{

printf("The Breadth First Search of the Graph

is\n");

bfs(v1);

getch();

}

printf("\nDo you want to traverse from any other

node?");

ans=getche();

}while(ans=='y');

exit(0);

}

void create()

{

int v1, v2;

char ans='y';

printf("\n\t\t This is a Program To Create a Graph");

printf("\n\t\t The Display Is In Breadth First

Manner");

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("\nEnter the vertices no. starting from 0: ");

do

{

printf("\nEnter the vertices v1 & v2: ");

scanf("%d%d", &v1, &v2);

if ( v1 >= n || v2 >= n)

printf("Invalid Vertex Value\n " );

else

{

g[v1][v2] = TRUE;

g[v2][v1] = TRUE;

}

printf("\n\nAdd more edges??(y/n) ");

ans=getche();

}while(ans==’y’);

}

void bfs(int v1)

{

int v2;

visit[v1] = TRUE;

front = rear = -1;

Q[++rear] = v1;

while ( front != rear )

{

v1 = Q[++front];

printf("%d\n", v1);

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

{

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

{

Q[++rear] = v2;

visit[v2] = TRUE;

}

}

}

}