**Lab Assignment No. 6(C)**

**Problem Statement –**

Represent a given graph using adjacency matrix/list to perform DFS and using adjacency list to perform BFS. Use the map of the area around the college as the graph. Identify the prominent land marks as nodes and perform DFS and BFS on that.

**Code --**

#include <iostream>

#include <stdlib.h>

using namespace std;

int cost[10][10], i, j, k, n, qu[10], front, rear, v, visit[10], visited[10];

int stk[10], top, visit1[10], visited1[10];

int main()

{

int m;

cout << "Enter number of vertices : ";

cin >> n;

cout << "Enter number of edges : ";

cin >> m;

cout << "\nEDGES :\n";

for (k = 1; k <= m; k++)

{

cin >> i >> j;

cost[i][j] = 1;

cost[j][i] = 1;

}

//display function

cout << "The adjacency matrix of the graph is : " << endl;

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

{

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

{

cout << " " << cost[i][j];

}

cout << endl;

}

cout << "Enter initial vertex : ";

cin >> v;

cout << "The BFS of the Graph is\n";

cout << v<<endl;

visited[v] = 1;

k = 1;

while (k < n)

{

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

if (cost[v][j] != 0 && visited[j] != 1 && visit[j] != 1)

{

visit[j] = 1;

qu[rear++] = j;

}

v = qu[front++];

cout << v << " ";

k++;

visit[v] = 0;

visited[v] = 1;

}

cout <<endl<<"Enter initial vertex : ";

cin >> v;

cout << "The DFS of the Graph is\n";

cout << v<<endl;

visited[v] = 1;

k = 1;

while (k < n)

{

for (j = n; j >= 1; j--)

if (cost[v][j] != 0 && visited1[j] != 1 && visit1[j] != 1)

{

visit1[j] = 1;

stk[top] = j;

top++;

}

v = stk[--top];

cout << v << " ";

k++;

visit1[v] = 0;

visited1[v] = 1;

}

return 0;

}