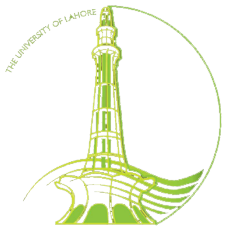

THE UNIVERSITY OF LAHORE
ISLAMABAD CAMPUS

Data Structure And Algorithum

Lab Report

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Experiment # 1
Breadth First Search Implementation

Objective
To understand and implement the BFS Problem.

Software Tool
1. DEV C++

1 Theory

Breadth First Traversal (or Search) for a graph is similar to Breadth First Traversal of a tree (See method 2 of this post). The only catch here is, unlike trees, graphs may contain cycles, so we may come to the same node again. To avoid processing a node more than once, we use a boolean visited array. For simplicity, it is assumed that all vertices are reachable from the starting vertex.

2 Task

2.1 Procedure: Task 1

```
#include<iostream>
#include<conio.h>
#include<stdlib.h>
using namespace std;
int cost[10][10],i,j,k,n,qu[10],front,rare,v,visit[10],visited[10];

main()
{
int m;
cout <<"enterno of vertices";
cin >> n;
```

```
cout <<"ente␣no␣of␣edges";
cin >> m;
cout <<"\nEDGES␣\n";
for(k=1;k<=m;k++)
{
cin >>i>>j;
cost[i][j]=1;
}

cout <<"enter␣initial␣vertex";
cin >>v;
cout <<"Visitied␣vertices\n";
cout << v;
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[rare++]=j;
}
v=qu[front++];
cout<<v << "␣";
k++;
visit[v]=0; visited[v]=1;
}
}
```