UE20CS207 - DATA STRUCTURES AND ITS APPLICATIONS LABORATORY

Week 10 : 18 Nov 2021

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Code:

```c
#include<stdio.h>
#define max 10

void read_graph(int a[max][max], int n)
{
    for (int i=0; i<n; i++)
        for(int j=0; j<n;j++)
            scanf("%d", &a[i][j]);

}

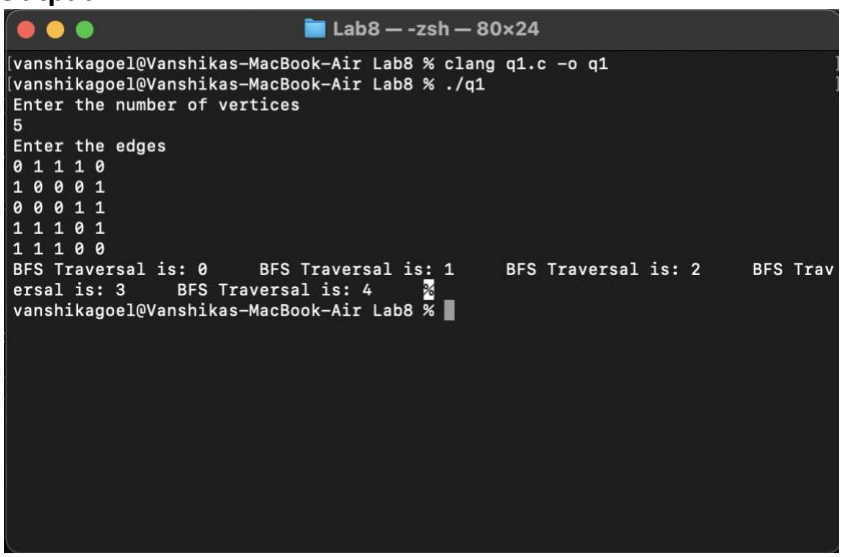
void bfs(int a[max][max], int q[max], int v[max], int n, int f, int r)
{
    int x;
    while(f<=r)
    {
        x=q[f++];
        printf("BFS Traversal is: ");
        printf("%d \t", x);
        for(int i=0; i<n; i++)
            if(a[x][i] && !v[i])
            {
                q[++r]=i;
                v[i]=1;
            }
    }
}

int main()
{
    int a[max][max]={0}, visited[max]={0}, q[max], n, f=0, r=-1;
    printf("Enter the number of vertices\n");
    scanf("%d", &n);
    printf("Enter the edges\n");
    read_graph(a,n);

    q[++r]=0;
    visited[0]=1;
    bfs(a,q,visited,n, f,r);

}
```

Output:



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#define max 10

void read_graph(int a[max][max], int n)
{
    for (int i=0; i<n; i++)
        for(int j=0; j<n;j++)
            scanf("%d", &a[i][j]);

}

void dfs(int src, int a[max][max], int v[max], int n)
{
   printf("DFS Traversal: ");
   printf("%d\t", src);
   v[src]=1;
   for (int i=0; i<n; i++)
        if(a[src][i] && !v[i])
                dfs(i,a,v,n);
   }

int main()
{
    int a[max][max]={0}, visited[max]={0}, n;
    printf("Enter the number of vertices\n");
    scanf("%d", &n);
    printf("Enter edges:\n");
    read_graph(a,n);


    int i;
    dfs(0, a, visited, n);

    for(i=0; i<n; i++)
        if(!visited[i])
            break;
    if(i<n)
        printf("Unconnected\n");
    else
        printf("Connected\n");


}
```

Output:

```
Lab8 — -zsh — 80×24
vanshikagoel@Vanshikas-MacBook-Air Lab8 % clang q2.c -o q2
vanshikagoel@Vanshikas-MacBook-Air Lab8 % ./q2
Enter the number of vertices
5
Enter edges:
0 1 1 0 1
1 0 1 1 0
1 1 0 0 0
1 1 0 0 1
0 0 1 0 0
DFS Traversal: 0        DFS Traversal: 1        DFS Traversal: 2        DFS Trav
ersal: 3        DFS Traversal: 4        Connected
vanshikagoel@Vanshikas-MacBook-Air Lab8 %
```