To Implement the methods of Graph like BFS DFS etc

Name :- SUJAL NIMJE

Roll no :- 64

Subject :- DS, practical no : - 7

Code :-

```c
#include <stdio.h>
#include <stdlib.h>
#include "../queue/circular.h"

int size = 3;
int graph[3][3] = {
    {0, 1, 1},
    {0, 0, 1},
    {1, 1, 0}};
int vis[3];

void dfs(int curr)
{
    printf("%d ", curr);
    vis[curr] = 1;
    for (int j = 0; j < size; j++)
    {
        int edge = j;
        if (vis[edge] == 0 && graph[curr][j] == 1)
        {
            dfs(edge);
        }
    }
}

void isUniversalNode(int node)
{
    for (int i = 0; i < size; i++)
    {
        if ((graph[node][i] == 0 || graph[i][node] == 0) && i != node)
        {
            printf("%d is not a universal node\n", node);
            return;
        }
    }
    printf("%d is a universal node \n");
}

void outerDegOfNode(int node)
{
    int count = 0;
        for (int j = 0; j < size; j++)
        {
            if (graph[node][j] == 1)
```

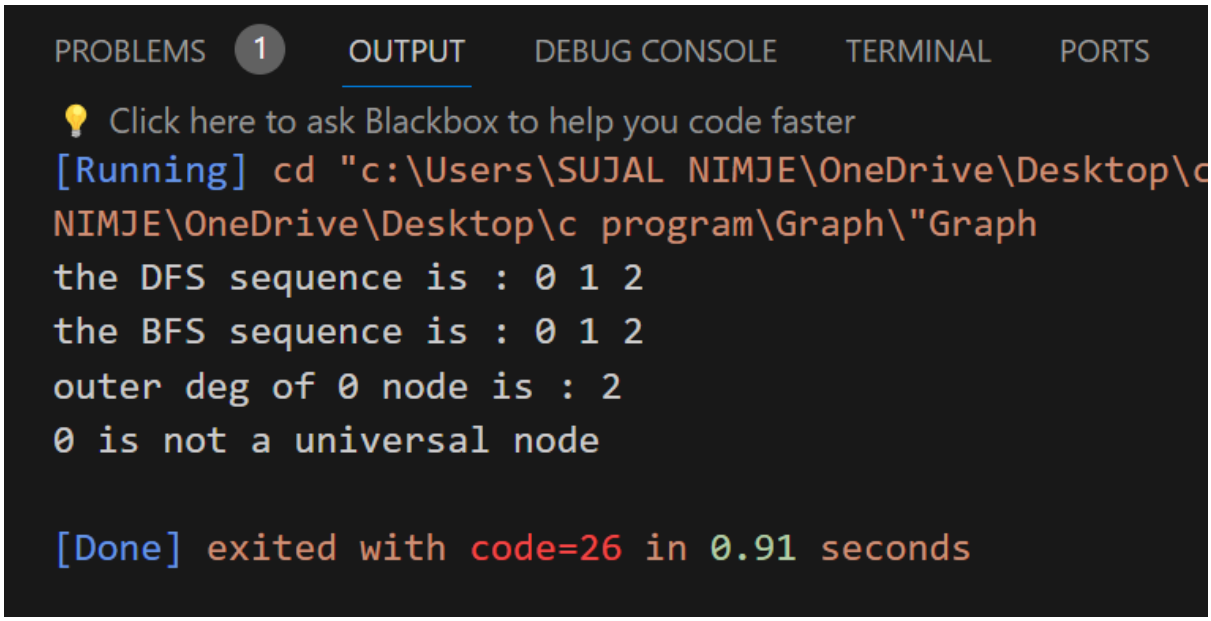
```
            {
                count++;
            }
        }
        printf("outer deg of %d node is : %d\n", node, count);
}

void bfs(int start)
{
    struct Queue *q = (struct Queue *)malloc(sizeof(struct Queue));
    allocateMemory(q, 10);
    enqueue(q, start);
    while (!isEmpty(q))
    {
        int curr = dqueue(q);
        if (vis[curr] == 0)
        {
            printf("%d ", curr);
            vis[curr] = 1;
            for (int i = 0; i < size; i++)
            {
                if (graph[curr][i] == 1)
                {
                    enqueue(q, i);
                }
            }
        }
    }
}

void main()
{
    for (int i = 0; i < size; i++)
    {
        vis[i] = 0;
    }
    printf("the DFS sequence is : ");
    dfs(0);

    for (int i = 0; i < size; i++)
    {
        vis[i] = 0;
    }
    printf("\n");
    printf("the BFS sequence is : ");
    bfs(0);
    printf("\n");
    outerDegOfNode(0);
    isUniversalNode(0);
}
```

Output


PROBLEMS 1
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Click here to ask Blackbox to help you code faster
[Running] cd "c:\Users\SUJAL NIMJE\OneDrive\Desktop\c
NIMJE\OneDrive\Desktop\c program\Graph\"Graph
the DFS sequence is : 0 1 2
the BFS sequence is : 0 1 2
outer deg of 0 node is : 2
0 is not a universal node
[Done] exited with code=26 in 0.91 seconds