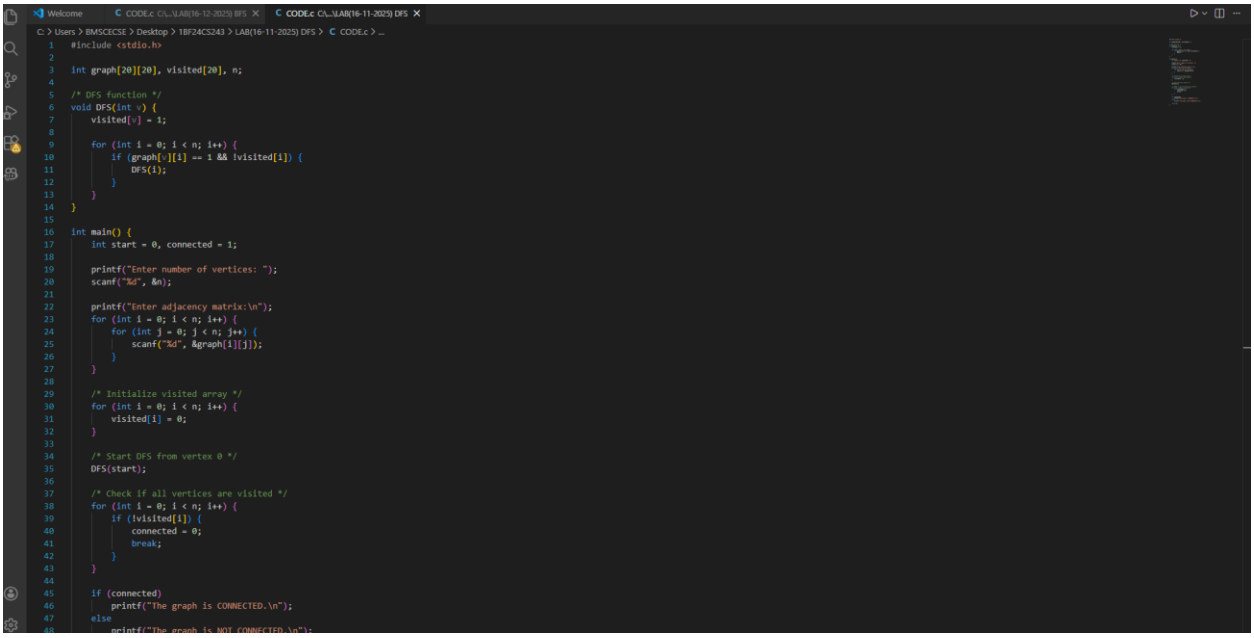
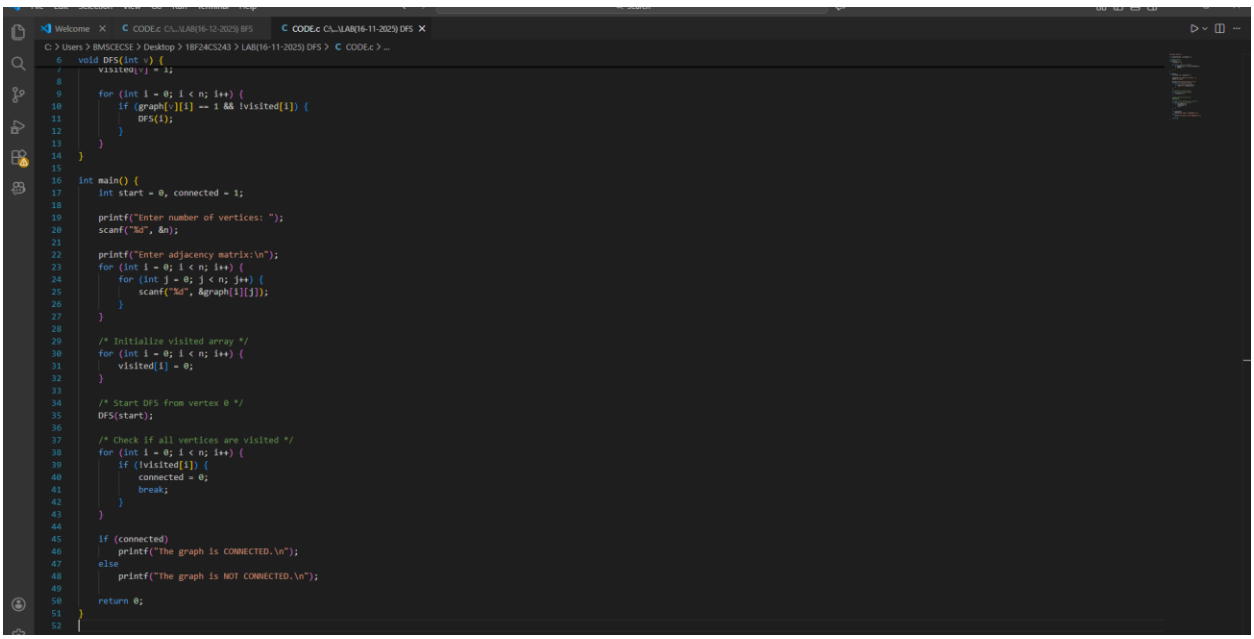
LAB(16-12-2025)

DFS

INPUT

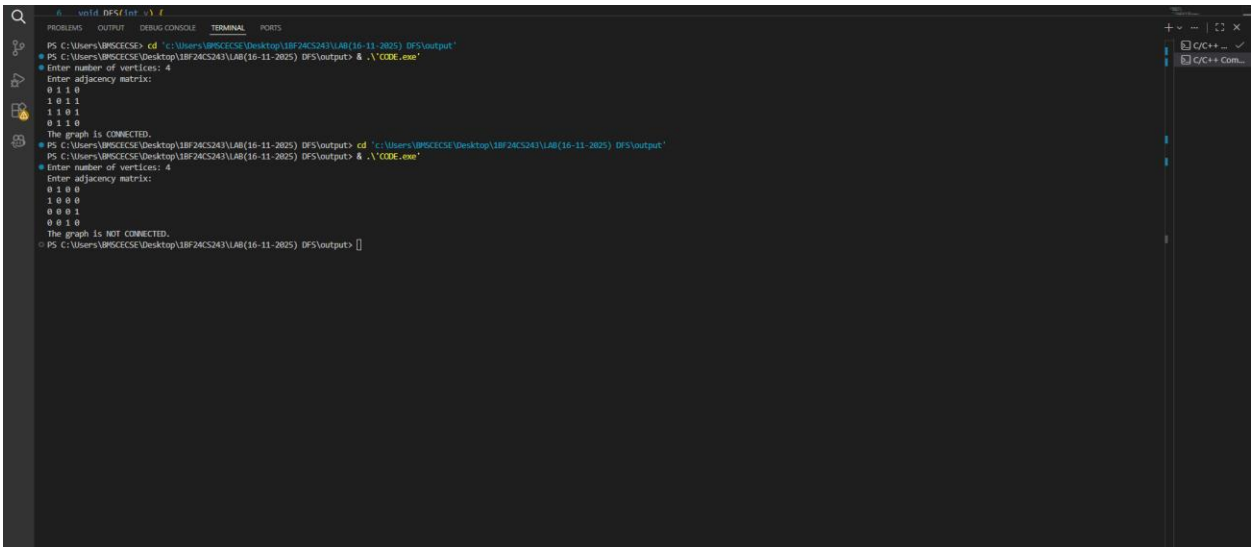


```c
#include <stdio.h>

int graph[20][20], visited[20], n;

/* DFS function */
void DFS(int v) {
    visited[v] = 1;

    for (int i = 0; i < n; i++) {
        if (graph[v][i] == 1 && !visited[i]) {
            DFS(i);
        }
    }
}

int main() {
    int start = 0, connected = 1;

    printf("Enter number of vertices: ");
    scanf("%d", &n);

    printf("Enter adjacency matrix:\n");
    for (int i = 0; i < n; i++) {
        for (int j = 0; j < n; j++) {
            scanf("%d", &graph[i][j]);
        }
    }

    /* Initialize visited array */
    for (int i = 0; i < n; i++) {
        visited[i] = 0;
    }

    /* Start DFS from vertex 0 */
    DFS(start);

    /* Check if all vertices are visited */
    for (int i = 0; i < n; i++) {
        if (!visited[i]) {
            connected = 0;
            break;
        }
    }

    if (connected)
        printf("The graph is CONNECTED.\n");
    else
```



```c
void DFS(int v) {
    visited[v] = 1;

    for (int i = 0; i < n; i++) {
        if (graph[v][i] == 1 && !visited[i]) {
            DFS(i);
        }
    }
}

int main() {
    int start = 0, connected = 1;

    printf("Enter number of vertices: ");
    scanf("%d", &n);

    printf("Enter adjacency matrix:\n");
    for (int i = 0; i < n; i++) {
        for (int j = 0; j < n; j++) {
            scanf("%d", &graph[i][j]);
        }
    }

    /* Initialize visited array */
    for (int i = 0; i < n; i++) {
        visited[i] = 0;
    }

    /* Start DFS from vertex 0 */
    DFS(start);

    /* Check if all vertices are visited */
    for (int i = 0; i < n; i++) {
        if (!visited[i]) {
            connected = 0;
            break;
        }
    }

    if (connected)
        printf("The graph is CONNECTED.\n");
    else
        printf("The graph is NOT CONNECTED.\n");

    return 0;
}
```

OUTPUT


void DFS(int v) {
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS C:\Users\BMSCECSE> cd 'c:\Users\BMSCECSE\Desktop\1BF24CS243\LAB(16-11-2025) DFS\output'
PS C:\Users\BMSCECSE\Desktop\1BF24CS243\LAB(16-11-2025) DFS\output> & .\'CODE.exe'
Enter number of vertices: 4
Enter adjacency matrix:
0 1 1 0
1 0 1 1
1 1 0 1
0 1 1 0
The graph is CONNECTED.
PS C:\Users\BMSCECSE\Desktop\1BF24CS243\LAB(16-11-2025) DFS\output> cd 'c:\Users\BMSCECSE\Desktop\1BF24CS243\LAB(16-11-2025) DFS\output'
PS C:\Users\BMSCECSE\Desktop\1BF24CS243\LAB(16-11-2025) DFS\output> & .\'CODE.exe'
Enter number of vertices: 4
Enter adjacency matrix:
0 1 0 0
1 0 0 0
0 0 0 1
0 0 1 0
The graph is NOT CONNECTED.
PS C:\Users\BMSCECSE\Desktop\1BF24CS243\LAB(16-11-2025) DFS\output>
C/C++ ...
C/C++ Com...