

## Assignment : 1

**Name:** Shivraj Chaudar

**Div: A Class:** T.E

**Roll no. :** 3101018

**#Code :**

```
#include <iostream>
using namespace std;

class Graph
{
private:
    int adjMatrix[50][50];
    int vertices;

public:
    Graph(int v)
    {
        vertices = v;
        for (int i = 0; i < v; i++)
        {
            for (int j = 0; j < v; j++)
            {
                adjMatrix[i][j] = 0;
            }
        }
    }

    void addEdge(int u, int v)
    {
        adjMatrix[u][v] = 1;
        adjMatrix[v][u] = 1;
    }

    void DFS(int start, bool visited[])
    {
        visited[start] = true;
        cout << start << " ";

        for (int i = 0; i < vertices; i++)
        {
            if (adjMatrix[start][i] == 1 && !visited[i])
            {
                DFS(i, visited);
            }
        }
    }
}
```

```

void DFSUtil(int start)
{
    bool visited[50];
    for (int i = 0; i < vertices; i++)
    {
        visited[i] = false;
    }

    cout << "DFS Traversal: ";
    DFS(start, visited);
    cout << endl;
}

```

```

void BFS(int start)
{
    bool visited[50];
    int queue[50];
    int front = 0, rear = 0;

    for (int i = 0; i < vertices; i++)
    {
        visited[i] = false;
    }

    visited[start] = true;
    queue[rear++] = start;

    cout << "BFS Traversal: ";
    while (front < rear)
    {
        int current = queue[front++];
        cout << current << " ";

        for (int i = 0; i < vertices; i++)
        {
            if (adjMatrix[current][i] == 1 && !visited[i])
            {
                visited[i] = true;
                queue[rear++] = i;
            }
        }
    }
    cout << endl;
}
};

```

```

int main()
{

```

```
Graph g(7);

g.addEdge(1, 3);
g.addEdge(1, 5);
g.addEdge(1, 4);
g.addEdge(3, 5);
g.addEdge(2, 5);
g.addEdge(5, 6);

g.DFSUtil(1);
g.BFS(1);

return 0;
}
```

### **#Output :**

```
shivrajchaudar@Shivrajs-Macbook-Pro LP-II % cd "/Users/Shivrajchaudar/Desktop/LP-II/" && g++ A1.cpp -o A1 && "/Users/Shivrajchaudar/Desktop/LP-II/"A1
DFS Traversal: 1 3 5 2 6 4
BFS Traversal: 1 3 4 5 2 6
shivrajchaudar@Shivrajs-Macbook-Pro LP-II %
```