

```
#include<iostream.h>
```

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

```
int adj_mat[50][50] = {0,0};
int visited[50] = {0};
```

```
void dfs(int s,int n,string arr[])
{
    visited[s] = 1;
    cout<< arr[s]<<" ";
    for(int i = 0;i<n;i++)
    {
        if(adj_mat[s][i] && !visited[i])
            dfs(i,n,arr);
    }
}
```

```
void bfs(int s,int n,string arr[])
{
    bool visited[n];
    for(int i = 0;i<n;i++)
        visited[i] = false;
    int v;
    queue<int> bfsq;
    if(!visited[s])
    {
        cout<< arr[s]<<" ";
        bfsq.push(s);
        visited[s] = true;
        while(!bfsq.empty())
        {
            v = bfsq.front();
            for(int i = 0;i<n;i++)
            {
                if(adj_mat[v][i] && !visited[i])
                {
                    cout<< arr[i]<<" ";
                    visited[i] = true;
                    bfsq.push(i);
                }
            }
            bfsq.pop();
        }
    }
}
```

```
}
```

```
int main()
```

```
{
```

```
    cout<< "Enter no. of cities: ";
```

```
    int n,u;
```

```
    cin>> n;
```

```
    string cities[n];
```

```
    for(int i = 0; i < n; i++)
```

```
    {
```

```
        cout<< "Enter city #" << i << " (Airport Code): ";
```

```
        cin>> cities[i];
```

```
    }
```

```
    cout<< "\nYour cities are: " << endl;
```

```
    for(int i = 0; i < n; i++)
```

```
        cout<< "city #" << i << ": " << cities[i] << endl;
```

```
    for(int i = 0; i < n; i++)
```

```
    {
```

```
        for(int j = i + 1; j < n; j++)
```

```
        {
```

```
            cout<< "Enter distance between " << cities[i] << " and " << cities[j] << ": ";
```

```
            cin>> adj_mat[i][j];
```

```
            adj_mat[j][i] = adj_mat[i][j];
```

```
        }
```

```
    }
```

```
    cout<< endl;
```

```
    for(int i = 0; i < n; i++)
```

```
        cout<< "\t" << cities[i] << "\t";
```

```
    for(int i = 0; i < n; i++)
```

```
    {
```

```
        cout<< "\n"
```

```
            << cities[i];
```

```
        for(int j = 0; j < n; j++)
```

```
            cout<< "\t" << adj_mat[i][j] << "\t";
```

```
        cout<< endl;
```

```
    }
```

```
    cout<< "Enter Starting Vertex: ";
```

```
    cin>> u;
```

```
    cout<< "DFS: ";
```

```
    dfs(u, n, cities);
```

```
    cout<< endl;
```

```
    cout<< "BFS: ";
```

```
    bfs(u, n, cities);
```

```
    return 0;
```

```
}
```

