Batch: A2 **Experiment Number: 2**

Roll Number: 16010421063 **Name: Arya Nair**

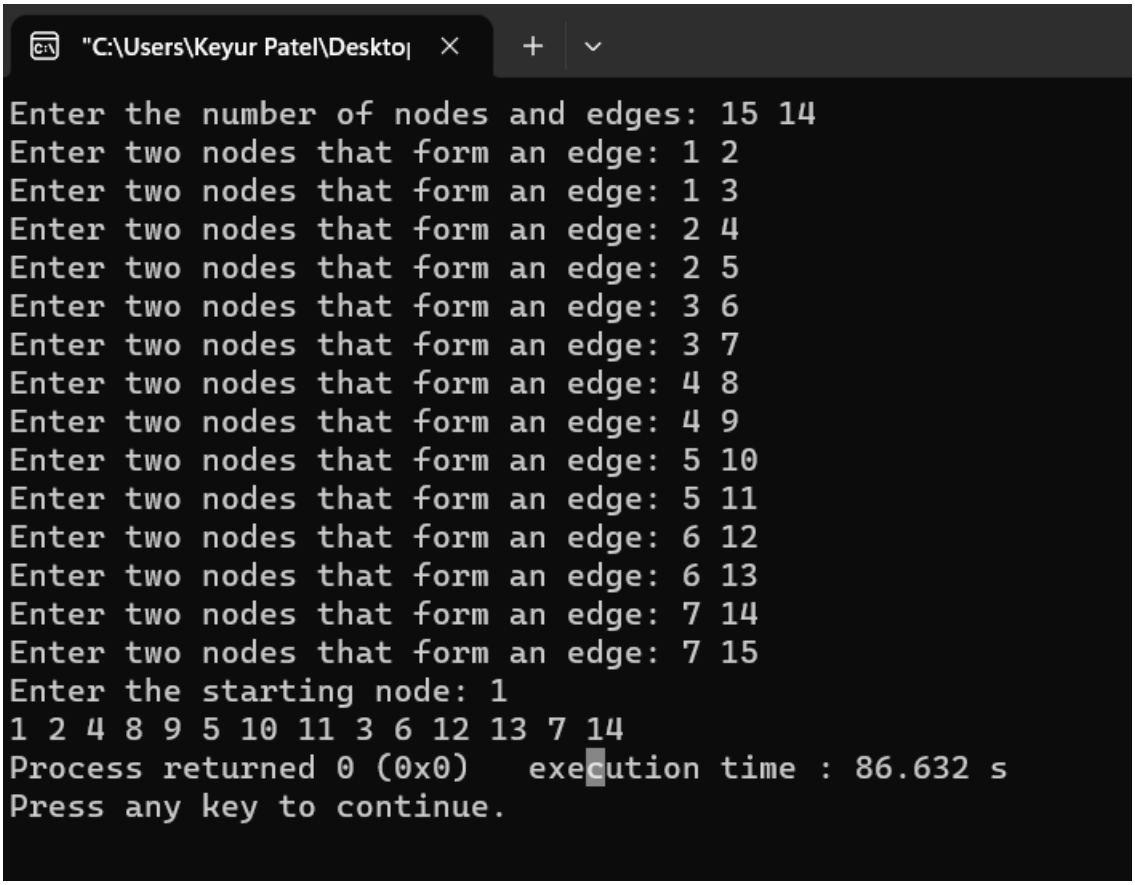
Aim of the Experiment: To implement DFS - Uninformed search algorithm in state space

Program/ Steps:

```
#include <stdio.h>
#include <stdlib.h>
//defining size of max nodes as 200
#define MAX_NODES 200

int graph[MAX_NODES][MAX_NODES];
int visited[MAX_NODES];
int num_nodes, num_edges;

void dfs(int node) {
    int i;
    printf("%d ", node);
    visited[node] = 1;
    for (i = 0; i < num_nodes; i++)
      {
        if (graph[node][i] == 1 && visited[i] == 0) {
            dfs(i);
        }
    }
}

int main() {
    int i, j, node1, node2;

    printf("Enter the number of nodes and edges: ");
    scanf("%d%d", &num_nodes, &num_edges);


    for (i = 0; i < num_nodes; i++) {
        for (j = 0; j < num_nodes; j++) {
            graph[i][j] = 0;
        }
        visited[i] = 0;
    }


    for (i = 0; i < num_edges; i++) {
        printf("Enter two nodes that form an edge: ");
        scanf("%d%d", &node1, &node2);
        graph[node1][node2] = 1;
        graph[node2][node1] = 1;
    }


    int start_node;
    printf("Enter the starting node: ");
    scanf("%d", &start_node);
```

```
    dfs(start_node);

    return 0;
}
```

Output/Result:



Outcomes:

CO2 : Analyze and formalize the problem (as a state space, graph, etc.) and select the appropriate search method and write the algorithm.

Conclusion (based on the Results and outcomes achieved):

Hence we learned about the implementation of DFS using Uninformed search algorithm in state space.

References:

1. Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach, Second Edition,

Pearson Publication

2. Luger, George F. Artificial Intelligence : Structures and strategies for complex problem solving , 2009 ,6th Edition, Pearson Education