Experiment 1(b)

Title: Parallel Depth First Search based on existing algorithms using OpenMP

```
#include <iostream>
#include <vector>
#include <stack>
#include <omp.h>

using namespace std;

const int MAX = 100000;
vector<int> graph[MAX];
bool visited[MAX];

void dfs(int node) {
        stack<int> s;
        s.push(node);

        while (!s.empty()) {
        int curr_node = s.top();
        s.pop();

        if (!visited[curr_node]) {
        visited[curr_node] = true;

        if (visited[curr_node]) {
        cout << curr_node << " ";
        }

        #pragma omp parallel for
        for (int i = 0; i < graph[curr_node].size(); i++) {
                int adj_node = graph[curr_node][i];
                if (!visited[adj_node]) {
                s.push(adj_node);
                }
        }
        }
        }
}

int main() {
        int n, m, start_node;
```

```
        cout << "Enter No of Node,Edges,and start node:" ;
        cin >> n >> m >> start_node;
      //n: node,m:edges

cout << "Enter Pair of edges:" ;
        for (int i = 0; i < m; i++) {
        int u, v;

        cin >> u >> v;
//u and v: Pair of edges
        graph[u].push_back(v);
        graph[v].push_back(u);
        }

        #pragma omp parallel for
        for (int i = 0; i < n; i++) {
        visited[i] = false;
        }

        dfs(start_node);

/*      for (int i = 0; i < n; i++) {
        if (visited[i]) {
        cout << i << " ";
        }
        }*/

        return 0;
}
```

Output :