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ADS LAB 10 : DFS (Depth First Search) Graph

SOURCE CODE :

```
#include <iostream>
#include <bits/stdc++.h>
using namespace std;
class Graph {
    int Vertices;
    list<int> *adjLists;
    bool *visited;
    public:
    Graph(int V);
    void addEdge(int src, int dest);
    void DFS(int vertex);
};
Graph::Graph(int vertices) {
    Vertices = vertices;
    adjLists = new list<int>[vertices];
    visited = new bool[vertices];
}
void Graph::addEdge(int src, int dest) {
    adjLists[src].push_front(dest);
}
void Graph::DFS(int vertex) {
    visited[vertex] = true;
    list<int> adjList = adjLists[vertex];
    cout << vertex << " ";
    list<int>::iterator i;
    for (i = adjList.begin(); i != adjList.end(); ++i)
        if (!visited[*i])
            DFS(*i);
}
int main() {
    int nn,i,no,dr;
    cout<<"Enter the number of nodes in the graph : "<<endl;
    cin>>nn;
    Graph g(nn);
    for(i=0;i<nn;i++)
    {
        cout<<"Enter the values for the node with its directed node : "<<endl;
        cin>>no;
        cin>>dr;
        g.addEdge(no, dr);
    }
}
```

```
g.DFS(5);  
return 0;  
}
```

OUTPUT :

```
Enter the number of nodes in the graph :  
6  
Enter the values for the node with its directed node :  
5  
2  
Enter the values for the node with its directed node :  
5  
0  
Enter the values for the node with its directed node :  
4  
0  
Enter the values for the node with its directed node :  
4  
1  
Enter the values for the node with its directed node :  
2  
3  
Enter the values for the node with its directed node :  
3  
1  
5 0 2 3 1
```