

## Implementation of DFS

```
1 import java.util.*;
2
3 class MyGraph {
4     Map<Integer, HashSet<Integer>> mp;
5     public MyGraph() {
6         mp = new HashMap<>();
7     }
8     public void addEdge(int v1, int v2, boolean isBiDir) {
9         HashSet<Integer> v1Neighbor = mp.getOrDefault(v1, new HashSet<>());
10        v1Neighbor.add(v2);
11        mp.put(v1, v1Neighbor);
12        if(isBiDir) addEdge(v2, v1, false);
13    }
14    public void display() {
15        for(Map.Entry<Integer, HashSet<Integer>> res : mp.entrySet()) {
16            System.out.println(res.getKey() + " -> " + res.getValue());
17        }
18    }
19    public void dfs(int src) {
20        Stack<Integer> DFS = new Stack<>();
21        DFS.push(src);
22        HashSet<Integer> vis = new HashSet<>();
23        vis.add(src);
24        while (!DFS.isEmpty()) {
25            int temp = DFS.pop();
26            System.out.print(temp + " ");
27            HashSet<Integer> child = mp.get(temp);
28            for(int tem : child) {
29                if(!vis.contains(tem)) {
30                    vis.add(tem);
31                    DFS.push(tem);
32                }
33            }
34        }
35        System.out.println();
36    }
37 }
38
39 public class Graph_with_Map {
40     public static void main(String[] args) {
41         MyGraph obj = new MyGraph();
42         obj.addEdge(1, 2, true);
43         obj.addEdge(1, 3, true);
44         obj.addEdge(3, 4, false);
45         obj.addEdge(3, 5, true);
46         obj.addEdge(5, 6, true);
47         obj.addEdge(2, 4, true);
48         obj.display();
49         obj.dfs(1);
50     }
51 }
```