Depth First Search(DFS)

Write a Java program to print all the nodes reachable from a given starting node in a digraph using the DFS method.

Input Format

4 6 0 3 2 3 1 2 3 1 2 0 3 0 1

Constraints

number of vertices should be positive

Output Format

DFS of graph : 1 2 3 0

Sample Input 0

```
4
6
0
3
2
3
1
2
3
1
2
0
3
0
1
```

Sample Output 0

```
DFS of graph : 1 2 3 0
```

Java 7

```java
//224G1A0553
import java.io.*;
import java.util.*;
import java.text.*;
import java.math.*;
import java.util.regex.*;
class Gnode {
    Gnode next;
    int vertex;
    }
public class Solution {
    Gnode graph[];
    boolean visited[];
    int numVertices;
    public Solution(int n) {
        this.numVertices = n;
        visited = new boolean[n];
        graph = new Gnode[n];
        }
    void Dfs(int i) {
        Gnode p;
        System.out.printf(" %d",i);
        p = graph[i];
        visited[i] = true;
        while(p != null) {
            i = p.vertex;
            if(visited[i] == false)
                Dfs(i);
            p = p.next;
            } }
    public static void main(String []args) {
        int n, e, i, s, d, v;
        Gnode q, p;
        Scanner sc = new Scanner(System.in);
        //System.out.printf("Enter the number of vertices : ");
        n = sc.nextInt();
        //System.out.printf("Enter the number of edges : ");
        e = sc.nextInt();
        Solution g = new Solution(n);
        for(i=1;i<=e;i++) {
            //System.out.printf("Enter source : ");
            s = sc.nextInt();
            //System.out.printf("Enter destination : ");
            d = sc.nextInt();
            q = new Gnode();
            q.vertex=d;
            q.next=null;
            if(g.graph[s]==null)
                g.graph[s]=q;
            else {
                p=g.graph[s];
                while(p.next!=null)
                    p=p.next;
                p.next=q;
            }}
        for(i=0;i<n;i++)
            g.visited[i] = false;
        //System.out.printf("Enter Start Vertex for DFS : ");
        v = sc.nextInt();
        System.out.printf("DFS of graph :");
        g.Dfs(v);
        System.out.printf("\n");
```

```
63          }}
```

Line: 63 Col: 12

Upload Code as File Test against custom input Run Code Submit Code

Testcase 0 ✔

Congratulations, you passed the sample test case.

Click the **Submit Code** button to run your code against all the test cases.

Input (stdin)

```
4
6
0
3
2
3
1
2
3
1
2
0
3
0
1
```

Your Output (stdout)

```
DFS of graph : 1 2 3 0
```

Expected Output

```
DFS of graph : 1 2 3 0
```