Depth First Search(DFS)

Problem	Submissions	Leaderboard	Discussions

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
```

f   y   in

Contest ends in <u>9 days</u>

Submissions: 115
Max Score: 10
Difficulty: Medium

Rate This Challenge:
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More

| Java 7 | ⌄ |

```java
1 ▾ import java.io.*;
2   import java.util.*;
3   import java.text.*;
```

```java
    import java.math.*;
 5  import java.util.regex.*;
 6  class Gnode {
 7      Gnode next;
 8      int vertex;
 9
10  }
11  public class Solution {
12      Gnode graph[];
13      boolean visited[];
14      int numVertices;
15      public Solution(int n) {
16          this.numVertices = n;
17          visited = new boolean[n];
18          graph = new Gnode[n];
19
20      }
21      void Dfs(int i) {
22          Gnode p;
23          System.out.printf(" %d",i);
24          p = graph[i];
25          visited[i] = true;
26          while(p != null) {
27              i = p.vertex;
28              if(visited[i] == false)
29                  Dfs(i);
30              p = p.next;
31
32          }
33
34      }
35      public static void main(String []args) {
36          int n, e, i, s, d, v;
37          Gnode q, p;
38          Scanner sc = new Scanner(System.in);
39          //System.out.printf("Enter the number of vertices : ");
40          n = sc.nextInt();
41          //System.out.printf("Enter the number of edges : ");
42          e = sc.nextInt();
43          Solution g = new Solution(n);
44          for(i=1;i<=e;i++) {
45              //System.out.printf("Enter source : ");
46              s = sc.nextInt();
47              //System.out.printf("Enter destination : ");
48              d = sc.nextInt();
49              q = new Gnode();
50              q.vertex=d;
51              q.next=null;
52              if(g.graph[s]==null)
53                  g.graph[s]=q;
54              else {
55                  p=g.graph[s];
56                  while(p.next!=null)
57                      p=p.next;
58                  p.next=q;
59              }
60          }
61          for(i=0;i<n;i++)
62              g.visited[i] = false;
63          //System.out.printf("Enter Start Vertex for DFS : ");
64          v = sc.nextInt();
65          System.out.printf("DFS of graph :");
66          g.Dfs(v);
67          System.out.printf("\n");
68
69      }
70  }
71
```

☐ **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
```