

Introduction to Algorithms

Module 7.5: Practice Day 02

(Practice Questions)

Topics:

- 1. Graph
- 2. BFS
- 3. Cycle Detection

Question: You will be given an undirected graph. Print its BFS traversal in reverse order. Consider root as 1.

<u>Note</u>: In the explanation video there was a mistake, the explanation was for DFS traversal, but you have to do it using BFS traversal.

Sample Input	Sample Output
4 4 12 34 13 24	4 3 2 1 (4 2 3 1 is also valid ans)

Question: You will be given an undirected graph as input. This graph will contain only one connected component. The edge number will be exactly node-1. Then take a node from the input and print its level. Consider root as 1.

Sample Input	Sample Output
7 6 12 24 25 13 36 17	Level of 7 = 1
8 7 12 24 25 13 36 17 48	Level of 8 = 3

Question: You will be given an undirected graph as input. Now print "YES" if there is a cycle and print "NO" if there isn't any cycle. Consider root as 1.

Sample Input	Sample Output
4	YES
4	
12	
2 3	
3 4	
4 2	
6	NO
4	
12	
2 3	
3 4	
5 6	

Question: You will be given an undirected graph as input. Now count its connected components and print it.

Sample Input	Sample Output
6 4 12 23 34 56	2
7 4 12 23 34 56	3

Question: You will be given an undirected graph as input. Now count its connected components and print it. Then print All the nodes in a connected component. See the sample output for more clarification.

Sample Input	Sample Output
6 4 12 23 34 56	2 Component 1 : 1 2 3 4 Component 2 : 5 6
8 4 12 23 34 56	4 Component 1: 1 2 3 4 Component 2: 5 6 Component 3: 7 Component 4: 8