

Lecture 12

CSE 331

Sep 26, 2016

Mini Project group due TODAY!

note ☆

0 views

Actions ▾

Mini project needs groups of size EXACTLY 3

A gentle reminder that your group composition is due in just over a week (11:59pm on Monday, Sep 26).

The important thing to note is that you need to send me groups of size EXACTLY three. This means you are responsible for finding two other students in 331 to form your group. I will **not** make any group assignments.

Feel free to use the comments on this post to try and find others who are still looking to form a group.

mini_project

good note | 0

Updated Just now by Airt Ruidra

Connectivity Problem

Input: Graph $G = (V, E)$ and s in V

Output: All t connected to s in G

Breadth First Search (BFS)

Build layers of vertices connected to s

$$L_0 = \{s\}$$

Assume L_0, \dots, L_j have been constructed

L_{j+1} set of vertices not chosen yet but are connected to L_j

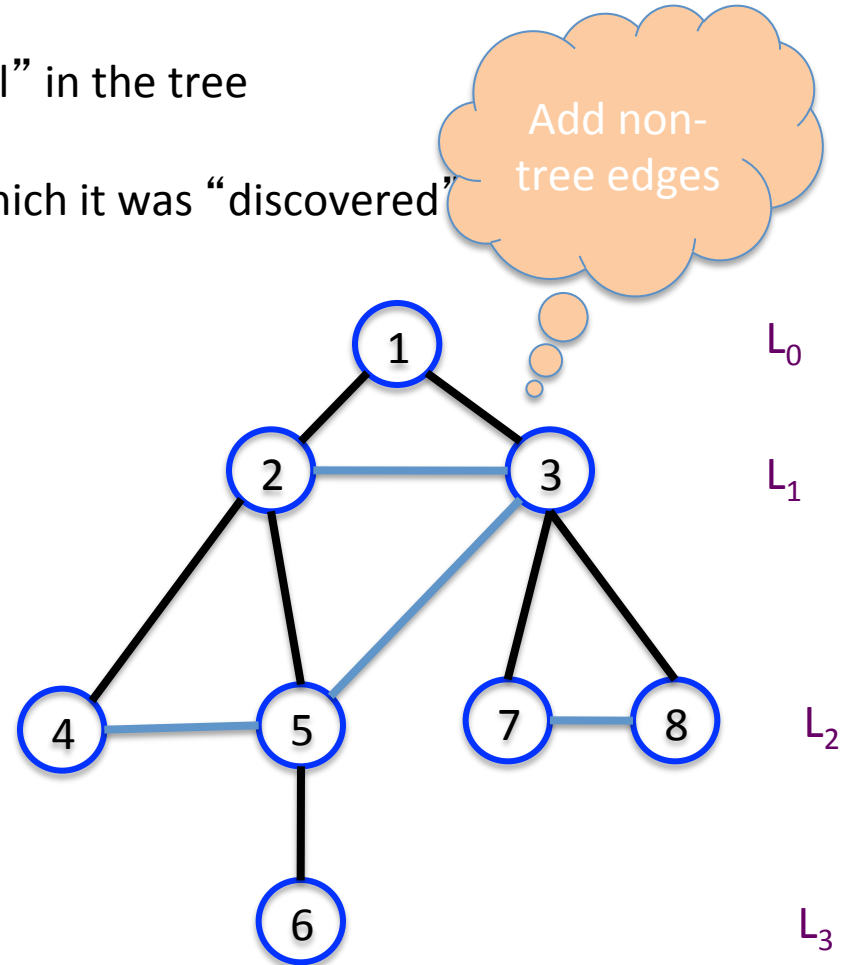
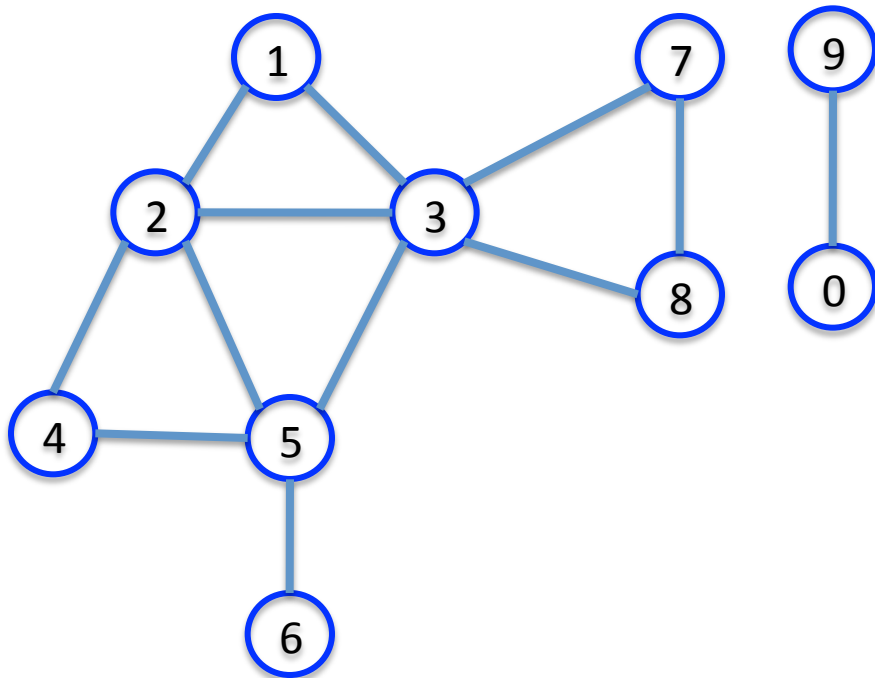
Stop when new layer is empty

BFS Tree

BFS naturally defines a tree rooted at s

L_j forms the j th “level” in the tree

u in L_{j+1} is child of v in L_j from which it was “discovered”

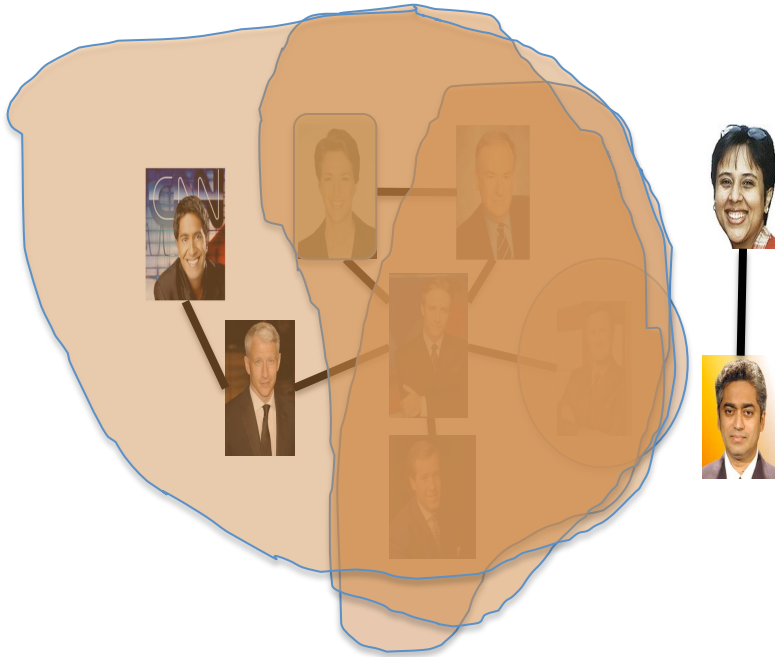


Today's agenda

Every edge in is between consecutive layers

Computing Connected component

Computing Connected Component



Explore(s)

Start with $R = \{s\}$

While exists (u,v) edge v not in R and u in R

Add v to R

Output $R^* = R$

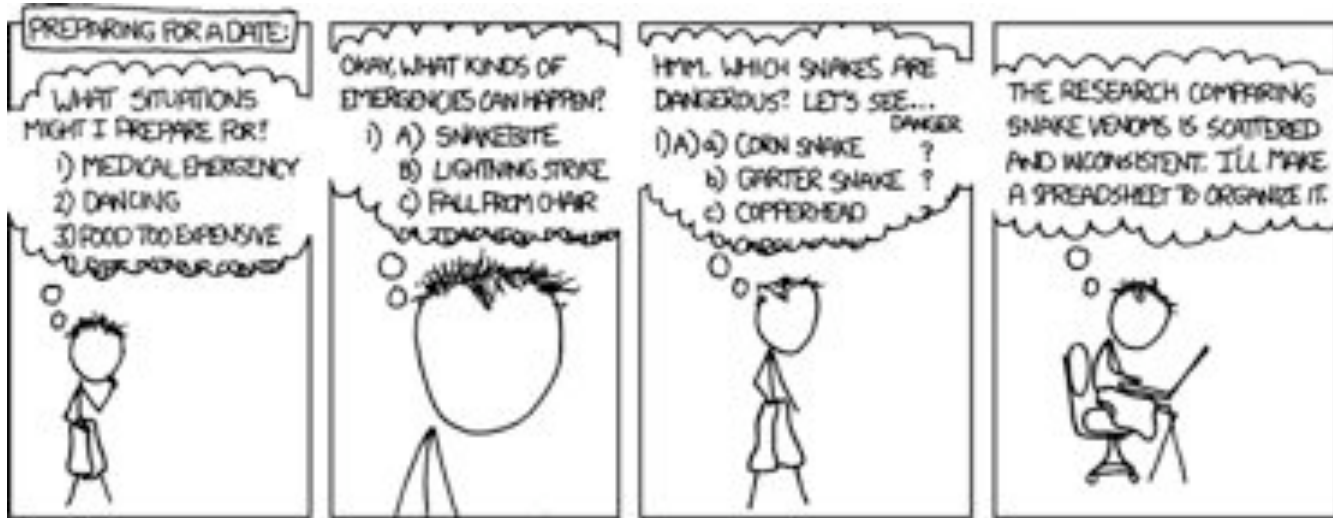
Questions?



BFS



Depth First Search (DFS)



I REALLY NEED TO STOP USING DEPTH-FIRST SEARCHES.

<http://xkcd.com/761/>

DFS(**u**)

Mark **u** as explored and add **u** to **R**

For each edge (**u**,**v**)

 If **v** is not explored then DFS(**v**)