

CS 3100 / In-class Activity 2, Graphs

Name	Computing ID
Your Name:	

**In class:** You must work in teams of 2, 3 or 4. Each person writes answers and turns in sheet at end of class..

**Missed class?** Work alone and answer to the best of your ability. Submit to GradeScope by 9am on the 2nd day after in-class activity.

1. For the digraph shown, do a dfs\_sweep with the first search starting at A. Write the seen and done “times” in the table given below. (Note: when processing a node’s neighbors, consider them in alphabetic order so we can all have similar results. DFS is valid no matter what order it processes neighbors, of course.) When doing this, keep track of back edges, cross edges, and forward edges – you’ll list those in later questions on this page.

	A	B	C	D	E	F	G	H
<b>Seen / Discovered</b>	1							
<b>Done / Finished</b>								

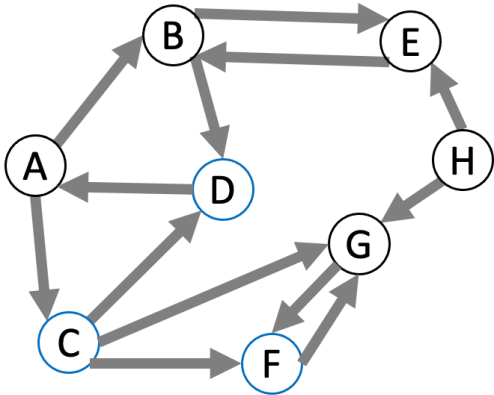
2. List any **back edges** you found in the box below:

3. List any **cross edges** you found in the box below:

4. List any **forward edges** you found in the box below:

5. List the nodes from the graph in topological sorted order, or explain why that's not possible.

6. Here's the graph again. Let's think about strongly connected components. First, without running any kind of algorithm, draw a circle around the nodes that you think are in each strongly connected component.



7. You won't have time to run the algorithm we learned in class to find the SCCs, but try to answer the following using what you have answered for other questions

What would be the first two nodes that you run DFS on in the transpose graph?

(You do NOT have to do this in class, but later it might be good to practice the SCC algorithm we learned in class on this graph.)