COS 350 Spring 2017 Class Exercise $8 \quad 5$ questions; 2 pgs. 2017-03-21

Today: Elementary graph algorithms, continued: DFS, topological sort, strongly connected components. $\S \S 22$.*.
Next class: Minimum Spanning Trees. $\S \S$ 23.*.
Reminders: Read material before and after class. Use the class newsgroup.

1. List the members of your group below. Underline your name.
2. Trace the operation of $\operatorname{DFS}-\operatorname{Visit}(G, A)$, for the following directed graph $G$ using the conventions of Figure 22.4 (p. 605) of the textbook. In particular:

- Depict the state of the graph after each iteration of the for loop.
- Annotate each vertex with its color: White, Gray, Black.
- Record the discovery and finishing times in the format d/f.
- Highlight tree edges using double lines, and annotate Forward, Backward, and Cross edges.

[additional space for answering the earlier question]

3. Outline the operation of Topological-Sort on the graph of Question 2.
4. Depict the strongly connected components of the graph of Question 2.
5. (self study) Trace the operation of Strongly-Connected-Components (p. 617) on the graph of Question 2.
