CSCI 230 -- Lab 10

Graph Traversals

Due:_____

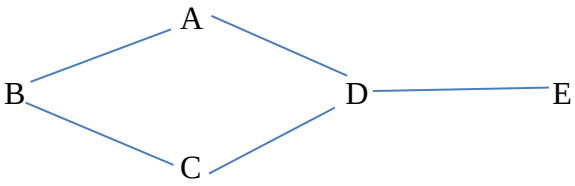
Feel free to discuss and help each other out but does not imply that you can give away your code or your answers! Make sure to read all instructions before attempting this lab. You can work with a lab partner and submit one lab package for your group.

You must use an appropriate provided template from Canvas or my website (zeus.mtsac.edu/~tvo) and output "Author: Your Name(s)" for all your programs. If you are modifying an existing program, use "Modified by: Your Name(s)".

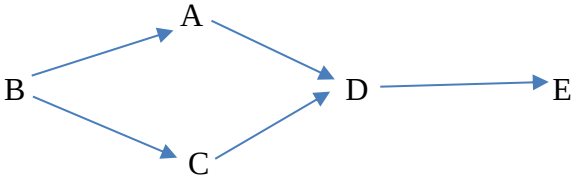
Lab question 1: Does DFS or BFS guarantee to visit the vertices in a certain order? Why or why not?

Lab question 2: What is a DAG? Give an example of a real-life DAG.

Implement either **DFS** or **BFS** using your graph class from previous lab. You can set up DFS(G, v) like the book (perform DFS on a graph) or G.DFS(v) where DFS() is a member of Graph class (use similar set up for BFS). For C++, you can use Decorator.h and DFS.h and use GaphAlgorithms.java for Java. Print out the vertices and discovery/forward edges in the order that they were visited (should be vertex, discovery edge, vertex, etc.). Try the following graph and start out with vertex A:



Implement **Topological Ordering** on a DAG. Test it out on the following DAG:



Extra Credit: Implement the other graph traversal (either DFS or BFS that is not done for regular assignment).

Online Submission: Submit one PDF file via Canvas includes status, answers to lab questions, output and source code for all required programs.