Homework 2 Programming

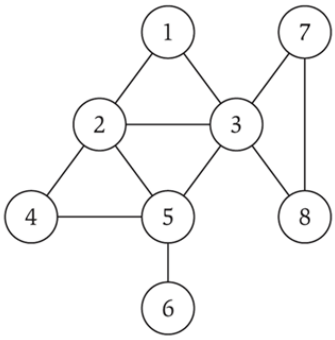
(Maximum 25 points)

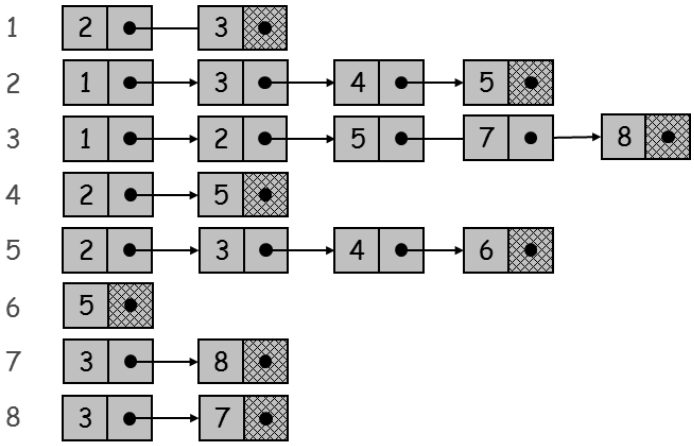
Due 11:59 pm Wednesday February 24, 2021

Submit your Java codes via Blackboard. Refer to the grading guidelines posted on Blackboard to understand how the submitted exercises will be graded.

1. (25) [Graph traversal: programming: queue-based implementations]

Implement two graph traversal algorithms, one using breadth-first search (BFS) order (with a FIFO queue) and one using depth-first search (DFS) order (with a LIFO queue). Feel free to use Java classes to implement the queues. Your program must prompt for the start node number, and once input, run against the adjacency list representation of the graph shown below. (This graph example is from the lecture slide.) When your program adds nodes to the queue, it must add them exactly in the order of appearance in the linked list (i.e., from left to right), or your program output will be incorrect. Your program code will be tested with different start nodes. At each run, the program should output (i.e., display on the terminal screen) the number of the vertex visited at each step of the graph traversal. Submit the source codes via Blackboard. Program codes should be working correctly and neatly organized and well commented. Those not working or hard to read will be subject to significant point deduction.





Last modified: February 12, 2021