Homework 3: assigned 10/21, due 10/27 at 9 am Pacific time

1. Exercise 9 Page 110 "There is a natural intuition …."

2. Exercise 6 on page 108 "We have a connected graph G …."

3. Exercise 11 on page 111 "You are helping some security analysts…"

4. Exercise 2 on page 189 "For each of the following two statements …"

5. You have been commissioned to write a program for the next version of electronic voting software . The input will be the number of candidates, d, and an array votes of size v holding the votes in the order they were cast where each vote is an integer from 1 to d. The goal is to determine if there is a candidate with a majority of the votes (more than half the votes) . You can use only a constant number of extra storage (note that v and d are not constants).Prove the correctness of your algorithm and analyze its time complexity.

6. a. Can you design an algorithm that finds the longest path in a directed graph (DG) (you can use an edge at most once)? If yes, describe the algorithm and analyze its time complexity.

b. Can you design an algorithm that finds the longest path in a directed acyclic graph (DAG)? (you can use an edge at most once)? If yes, describe the algorithm and analyze its time complexity.