University of Utah
School of Computing

CS 6170 Quiz #1   **Spring 2017**   **Lecturer: Prof. Bei Wang**

Name ———————————————

UID ———————————————

Due Jan 19, 2017 at the end of the class.

The quiz is open-book, open-notes, but close-internet. In particular, no laptops, calculators, cell phones, or other electronic devices are allowed.

The point value of each question is clearly marked, so allocate your time wisely. The quiz is worth a total of 10 points.
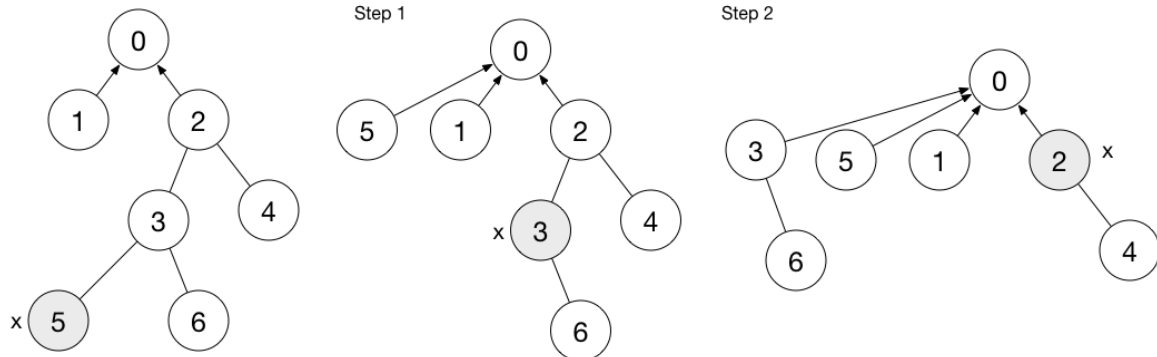
You must complete all work in 10 minutes, there are no exceptions.

This quiz constitutes 2% of your final grade.

Total ——————————————— (out of 10 points)

Question 1 (Pass Compression 10 points). Assuming we employ path compression during Find(x) operation in the Union-Find algorithm. Show the shape of the reversed tree during each step of the process. For a simple example, we have (ignoring the self-pointer at the root):

Please repeat the similar process for the following example. Hint: there are at 3 steps.