Assignment 4: CSCI 6339

Instructor: Dr. Bin Fu.

Due Dec 6, 2020(Sunday).

Please type your solutions in Microsoft WORD.

- **Problem 1.** Show that if P=NP, then you can factor integers in polynomial time.

- **Problem 2.** Show that $A_{DFA} \in L$, where $A_{DFA} = \{< B, w > | B$ is a DFA that accepts input string $w\}$.

- **Problem 3.** Define $UCYCLE = \{< G > | G$ is an undirected graph that contains a simple cycle $\}$. Show that $UCYCLE$ is in L. (Note: G may be a graph that is not connected.)

- **Problem 4.** Show that A_{NFA} is NL-complete, where $A_{NFA} = \{< B, w > | B$ is an NFA that accepts input string $w\}$.