CSCI 48400
Assignment 2

Due 09/12/2016

Again, there are three types of problems. Please remember to collect all your JFLAP files, appropriately named, into a single zip file and submit it via Canvas.

I. Pencil and paper work from the textbook (for instructor)
Section 2.3 #7, 8

Section 2.4, do the Exercise given in Commentary 0, Section 2.4 algorithm.pdf (you can do this in JFLAP but you won't have the benefit of JFLAP on a test, so do this by hand)

Extra Credit (5 points). Perhaps the dfa of Figure 2.16, which was obtained from the nfa of Figure 2.14, could be reduced. Use the dfa minimization algorithm to reduce the dfa in Figure 2.16 or to prove that it is irreducible.

I. Pencil and paper work from the textbook (for TA)

Section 2.1 #10, 19

Section 2.2 #14 ($\Sigma = \{a\}$)

Section 2.3 #4 (Probably easiest to draw a graph of the original nfa first. Then use the nfa-to-dfa algorithm; you can do this in JFLAP by just entering the nfa and using the Convert to DFA, but you won't have the benefit of JFLAP on a test, so do this by hand), #14

II. Submit JFLAP files for the following problems from the textbook. Be sure to test your solutions to make sure they are correct. Along with the JFLAP files, please include one Word document with "snapshots" of all the JFLAP results, clearly labeled by problem number. (You can use PrintScreen, the Snipping Tool under Accessories in Windows, or any other screen capture software you may have.)

Section 2.2 in the JFLAP Activities.pdf describes how to use JFLAP to construct a dfa or nfa. (Also see the sequence of three short videos posted on Canvas.)

JFLAP does not distinguish whether you want to create a dfa or an nfa, so be very careful if you want a dfa that you supply transitions for every state-input combination. Try to lay out your states in a nice way; you may have to move states around a little (select the Attribute editor, then drag states), to make all the transition labels readable. Also use state labels when needed for clarification (in the Attribute Editor, right-click on a state and use Change Label).

Section 2.1: #4 b, d [Note that #4b corresponds to #14b in Section 1.2.]
Hint for part (d) – put a label on each state representing input to this point, for example [1 a, 2 b] meaning you have read, in some order, a single a and 2 b's.

#7c, #8b, #11f, #15

Section 2.2: #8, 11 a, b

III. Problems from the JFLAP Activities.pdf. Turn in the modified .jff files as part of your zip file.

Exercise 2.2 #1(a). Modify the Jexample2.5.jff file. [*Hint: this problem is a lot simpler than it first appears.*]

Exercise 2.2 #6. Modify the Jexercise2.6.jff file.