People I worked with and URL’s of sites I visited:

1. Show the following languages are regular by creating finite automata with L = L(M)
   a) Strings over \{a,b\} that contain 2 consecutive a’s
   b) Strings over \{a,b\} that do not contain 2 consecutive a’s
   c) The set of strings over \{0,1\} which contain the substring 00 and the substring 11
   d) The set of strings over \{a,b\} which do not contain the substring ab.
   Show your answers in both table and graph form.

#2. Describe L(M) for the following nfa’s: a) in words and b) as a regular expression

a)

b)

#3. Create an NFA (with \(\lambda\) transitions) for all strings over \{0, 1, 2\} that are missing at least one symbol. For example, 0010, 1221, and 222 are all in L while 221012 is not in L

#4. a) Given an NFA with several final states, show how to convert it into one with exactly one start state and exactly one final state.

b) Suppose an NFA with k states accepts at least one string. Show that it accepts a string of length k-1 or less.

#5. Let L be a regular language. Show that the language consisting of all strings not in L is also regular.