1. (4 pts) What is the output (if any) of the following Ruby program? Write FAIL if code does not execute.

   a. (2 pts)
      
      ```ruby
      if "Teach the Terrapin" =~ /([a-z]+)/
        puts $1
      end
      ```
      
      Output = each

   b. (2 pts)
      
      ```ruby
      if "Drill the Diamondback" =~ /([^aeiou]+)/
        puts $1
        puts $2
      end
      ```
      
      Output = Dr nil

2. (8 pts) Create a NFA for a*a, using the algorithm discussed in class.

   ![NFA Diagram]

3. (18 pts) Consider the following NFA.

   a. (3 pts) Does it accept the string “aa”? List a possible sequence of state transitions (e.g., 1,2,3) leading to acceptance / rejection of “aa”.
      
      Yes: 1,3,4,2

   b. (15 pts) Convert the NFA to a DFA using the subset construction algorithm discussed in class. Be sure to label each state in the DFA with the corresponding state(s) in the NFA.

   ![DFA Diagram]