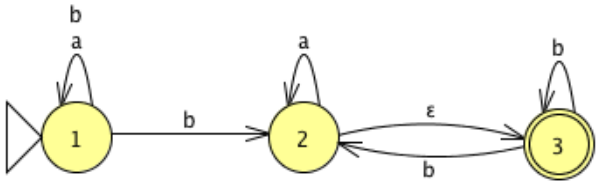
CS 361– Homework 3

Total possible points: 60

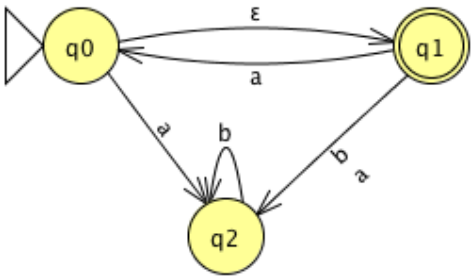
1. (15 points) Design an **NFA** that recognizes the language L_1 = {*x* over {0, 1}| *x* contains substring 010 or x contains substring 101}.

2. (15 points) Construct an **NFA with no more than 20 states** that recognizes language L_2 = {*x* over {0, 1}| *x* contains both substring 010 and substring 101}.

3. (10 points) Use **Theorem 1.39**, which we discussed in class, to **convert** the following **NFA M** into an equivalent **deterministic FA M'**.



4. (10 points) Use **Theorem 1.39**, which we discussed in class, to **convert** the following **NFA M** into an equivalent **deterministic FA M'**.



5. (10 points) Construct an **nondeterministic FA** that accepts the language described by the following regular expression: $(baUa^{+})^{*}b$ (For full credit show all your *intermediate steps*).