DFAs
In Class Examples and Extra Problems

1. Given the following language L, construct a DFA that accepts all members.

$$L = \{w \in \{a, b\}^* : \ w \text{ has the suffix } aba\}$$

2. Given the following language L, construct a DFA that accepts all members.
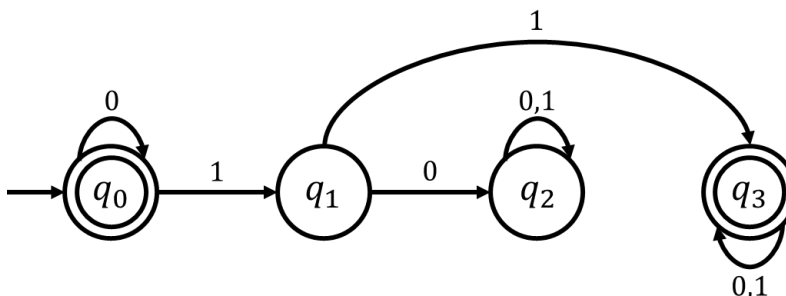
$$L = \{a^n b : n \geq 0\}$$

3. Given the following language L, construct a DFA that accepts all members.

$$L = \{w \in \{a, b\}^* : \ w \text{ has the prefix } aa\}$$

4. Given the following language L, construct a DFA that accepts all members.

$$L = \{awa : w \in \{a, b\}^*\}$$

5. Given $\Sigma = \{0, 1\}$, describe the language recognized by the following DFA.

6. Given $\Sigma = \{a, b\}$, construct a DFA that accepts all members of the following language L.

$$L = \{w : |w| \bmod 3 \neq 0\}$$

7. Given the following language L, construct a DFA that accepts all members.

$$L = \{ba^n : n \geq 1, n \neq 4\}$$

8. Given $\Sigma = \{a, b\}$, construct a DFA that accepts all strings with at least one b and exactly two a's.

9. Given $\Sigma = \{a, b\}$, construct a DFA that accepts all strings with an even number of a's and an odd number of b's.