EXERCISE 1
Give a DFA accepting the following language over the alphabet \{a, b\}: the set of all strings such that the second last symbol is b.

EXERCISE 2
Give a DFA accepting the following language over the alphabet \{x, y\}: the set of strings that either begin or end (or both) with yx.

EXERCISE 3
Give a DFA accepting the following language over the alphabet \{0, 1\}: the set of strings such that the number of 0’s is divisible by five and the number of 1’s is divisible by three.

EXERCISE 4
Give a DFA accepting the following language over the alphabet \{a, b, c, d\}: the set of strings consisting of zero or more a’s followed by zero or more b’s, followed by zero or more c’s.
1) The DFA looks as follows:

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We show that it accepts bbaaba but not abbbbaa
- (q0, b) → q1, (q1, b) → q2, (q2, a) → q3, (q3, a) → q0
  (q0, b) → q1, (q1, a) → q2  q2 is a final state
- (q0, a) → q0, (q0, b) → q1, (q1, b) → q2, (q2, b) → q2
  (q2, a) → q3, (q3, a) → q0  q0 is not a final state
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2) The DFA looks as follows:
3) The DFA looks as follows:

![DFA Diagram 1](image1)

4) The DFA looks as follows:

![DFA Diagram 2](image2)