# Lecture #5: Introduction to Finite Automata

# What Will Happen During the Lecture

## Review

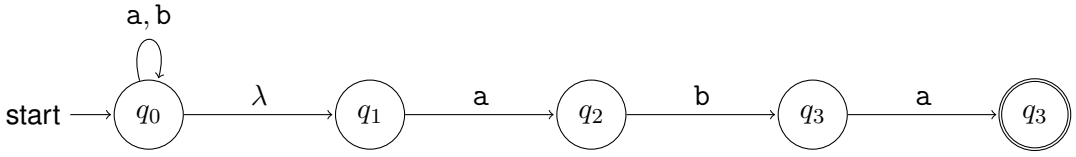
The lecture presentation will begin with a ***brief*** review of the material in the preparatory videos and documents for this lecture — and students will have the chance to ask questions about this.

## Problem To Be Solved

Let $\Sigma = \{\mathtt{a}, \mathtt{b}\}$ and let $L \subseteq \Sigma^\star$ be the following language:

$$L = \{w \in \Sigma^\star \mid \omega \text{ ends with } \mathtt{aba}\}.$$

Consider the following ***nondeterministic*** finite automaton $M = (Q, \Sigma, \delta, q_0, F)$ with the above alphabet $\Sigma$ and the following transition diagram.




The goal for this presentation will be to use the above language, and nondeterministic finite automaton, to learn about nondeterministic finite automata, and to understand how it can proved that a nondeterministic finite automaton, like the above one, has a given language.

## If You Want To Get Started. . .

An outline for notes, to be used during the lecture presentation, is also available. If you have time then you should try to solve the problems in the outline ahead of time. Then you can compare your work to what the instructor is presenting.