CPSC 351 — Tutorial Exercise #6
## Additional Practice Problems

About These Problems

These problems will not be discussed during the tutorial, and solutions for these problems will not be made available. They can be used as "practice" problems that can help you practice skills considered in the lecture presentation for Lecture #6, or in Tutorial Exercise #6.
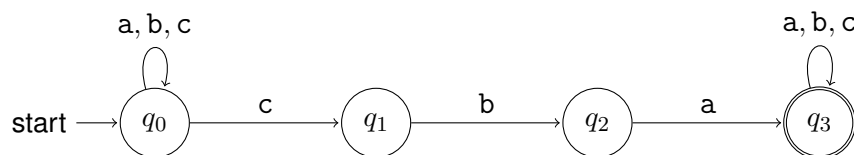
Practice Problems

1. Design a deterministic finite automaton with the same language as each of the following nondeterministic finite automata.
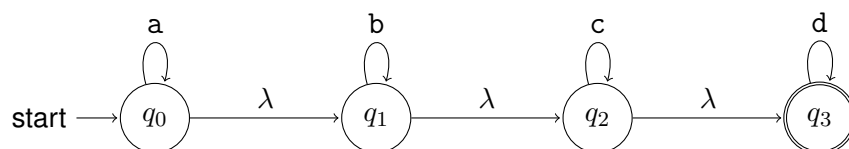
    (a) $\Sigma_1 = \{a, b, c\}$ and the nondeterministic finite automaton $M_1 = (Q_1, \Sigma_1, \delta_1, q_{0,1}, F_1)$ is as follows.
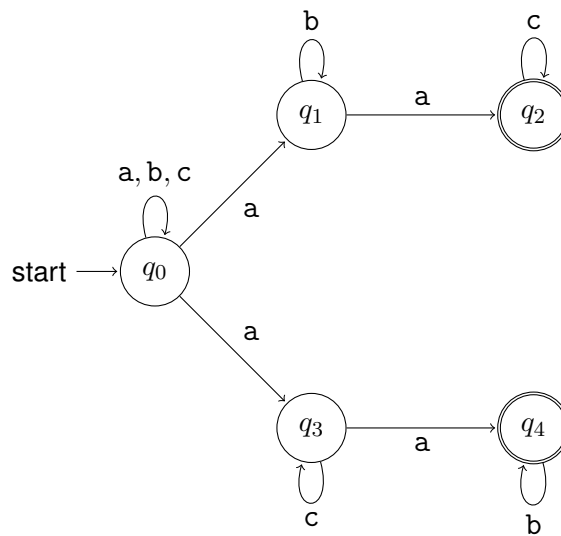
(b) $\Sigma_2 = \{a, b, c\}$ and the nondeterministic finite automaton $M_2 = (Q_2, \Sigma_2, \delta_2, q_{0,2}, F_2)$
is as follows.

a, b, c   a, b, c

start $\longrightarrow$ q_0 $\xrightarrow{\text{c}}$ q_1 $\xrightarrow{\text{b}}$ q_2 $\xrightarrow{\text{a}}$ q_3

(c) $\Sigma_3 = \{a, b, c, d\}$ and the nondeterministic finite automaton $M_3 = (Q_3, \Sigma_3, \delta_3, q_{0,3}, F_3)$
is as follows.

a   b   c   d

start $\longrightarrow$ q_0 $\xrightarrow{\lambda}$ q_1 $\xrightarrow{\lambda}$ q_2 $\xrightarrow{\lambda}$ q_3

(d) $\Sigma_4 = \{a, b, c\}$ and the nondeterministic finite automaton $M_4 = (Q_4, \Sigma_4, \delta_4, q_{0,4}, F_4)$
is as follows.

a   b

start $\longrightarrow$ q_0 $\xrightarrow{\lambda}$ q_1

λ λ

q_2

c

2