

Assignment 1

Automata & Theory of Computation

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1-1. Draw the transition graph that represents the following dfa

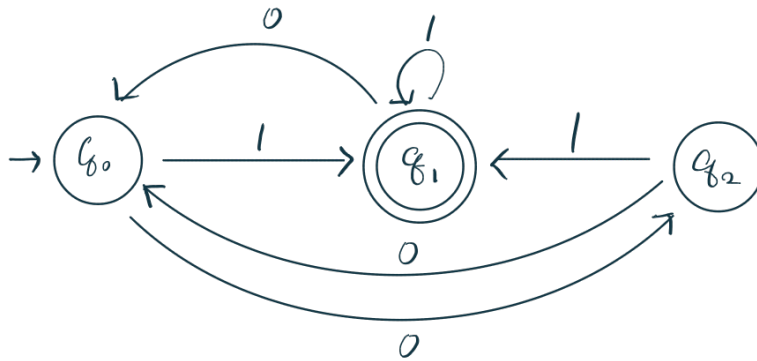
$$M = (\{q_0, q_1, q_2\}, \{0, 1\}, \delta, q_0, \{q_1\}),$$

where δ is given by

$$\delta(q_0, 0) = q_2, \quad \delta(q_0, 1) = q_1,$$

$$\delta(q_1, 0) = q_0, \quad \delta(q_1, 1) = q_1,$$

$$\delta(q_2, 0) = q_0, \quad \delta(q_2, 1) = q_1.$$



1-2. Show the accepted strings among 00, 01, 10, 11.

$$\delta^*(q_0, 00) = q_0 \quad (\text{unaccepted})$$

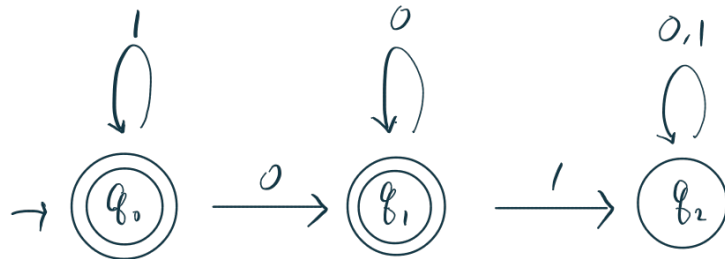
$$\delta^*(q_0, 01) = q_1 \quad (\text{accepted})$$

$$\delta^*(q_0, 10) = q_0 \quad (\text{unaccepted})$$

$$\delta^*(q_0, 11) = q_1 \quad (\text{accepted})$$

\therefore 01, 11

2. Find a dfa that accepts all the strings on $\{0, 1\}$, except those containing the substring 01.



조건을 만족하는 DFA M 에 대하여,

$$M = (\{q_0, q_1, q_2\}, \{0, 1\}, \delta, q_0, \{q_0, q_1\})$$

$$\delta(q_0, 0) = q_1 \quad \delta(q_0, 1) = q_0$$

$$\delta(q_1, 0) = q_1 \quad \delta(q_1, 1) = q_2$$

$$\delta(q_2, 0) = q_2 \quad \delta(q_2, 1) = q_2$$