

# FSM for Q1

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$$M = \{ I, 0, 1, s_0, s_1, s_2 \}$$

$$0 \rightarrow 1 \rightarrow 2 \rightarrow 3 \rightarrow 2 \rightarrow 1 \rightarrow 0$$

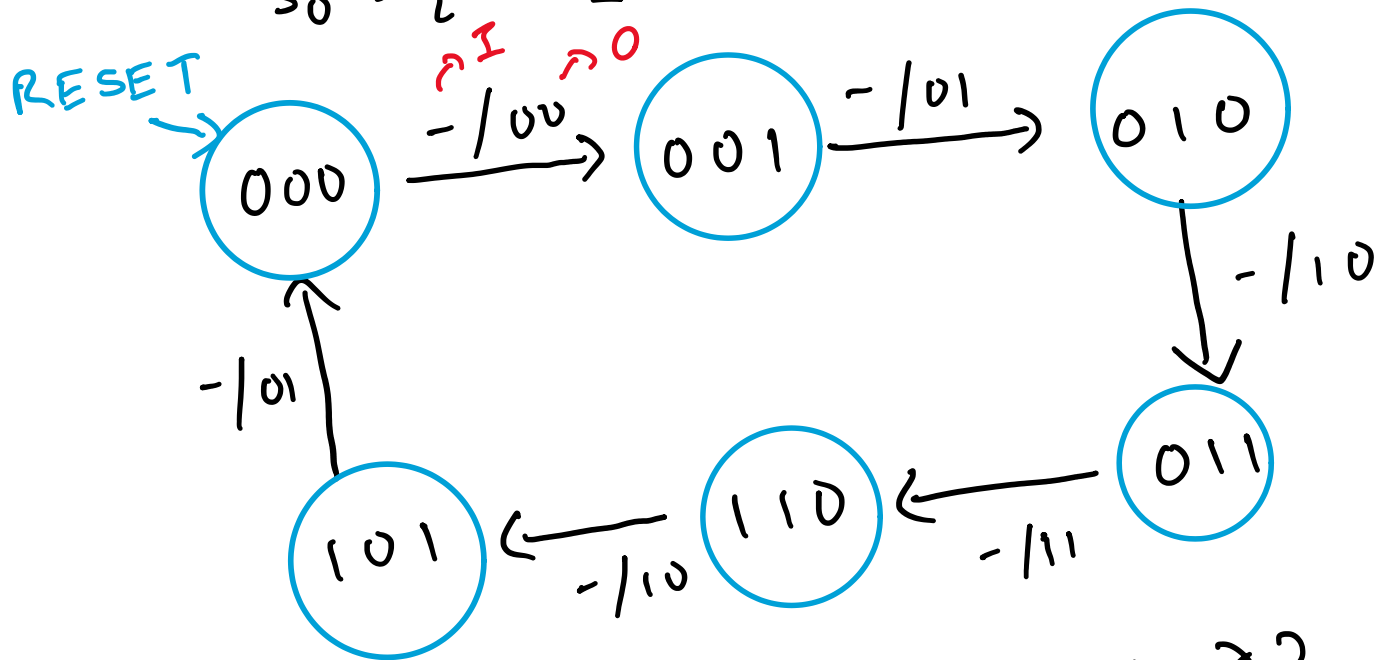
We use 3 bits to represent the states

$$I = \emptyset$$

$$0 = \{00, 01, 10, 11\}$$

$$s = \{000, 001, 010, 011, 110, 101\}$$

$$s_0 = \{000\}$$



To find equations for  $\partial_0, \partial_1, \partial_2$  in terms of  $s_0, s_1, s_2$   
KMAPS

$\partial_0$ :

$s_2 \backslash s_1 s_0$	00	01	11	10
0	1	0	0	1
1	-	0	-	1

$$\partial_0 = \bar{s}_0$$

$\partial_1$ :

$s_2 \backslash s_1 s_0$	00	01	11	10
0	0	1	1	1
1	-	0	-	0

$$\begin{aligned} \partial_1 &= \bar{s}_2 s_0 + \bar{s}_2 s_1 \\ &= \bar{s}_2 (s_0 + s_1) \end{aligned}$$

$\partial_2$ :

$s_2 \backslash s_1 s_0$	00	01	11	10
0	0	0	1	0
1	-	0	-	1

$$\begin{aligned} \partial_2 &= s_1 s_0 + s_2 s_1 \\ &= s_1 (s_0 + s_2) \end{aligned}$$

Output:  $\lambda_1 = s_1$   
 $\lambda_0 = s_0$

