

SCRIBE

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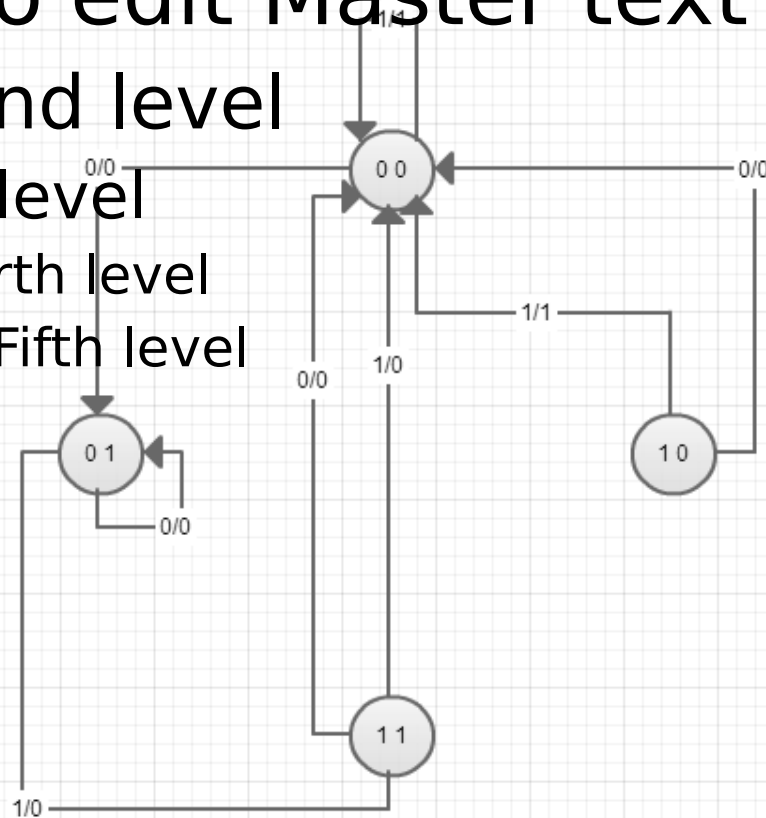
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Draw a circuit diagram
according to the given state
diagram

State diagram

Mealy machine


- Click to edit Master text styles
 - Second level
 - Third level
 - Fourth level
 - Fifth level



State Table

PS	I/P	NS	O/P	J _a	K _a	J _b	K _b
0 0	0	0 1	1	0	X	1	X
0 0	1	0 0	0	0	X	0	X
0 1	0	0 1	0	0	X	X	0
0 1	1	1 1	0	1	X	X	0
1 0	0	0 0	0	X	1	0	X
1 0	1	0 0	1	X	1	0	X
1 1	0	0 0	0	X	1	X	1
1 1	1	0 0	0	X	1	X	1

K-Map for J_a and K_a

	0 0	0 1	1 1	1 0
0	0 X	0 X	X 1	X 1
1	0 X	1 X	X 1	X 1

$J_a = Qb.$

a

$K_a = 1$

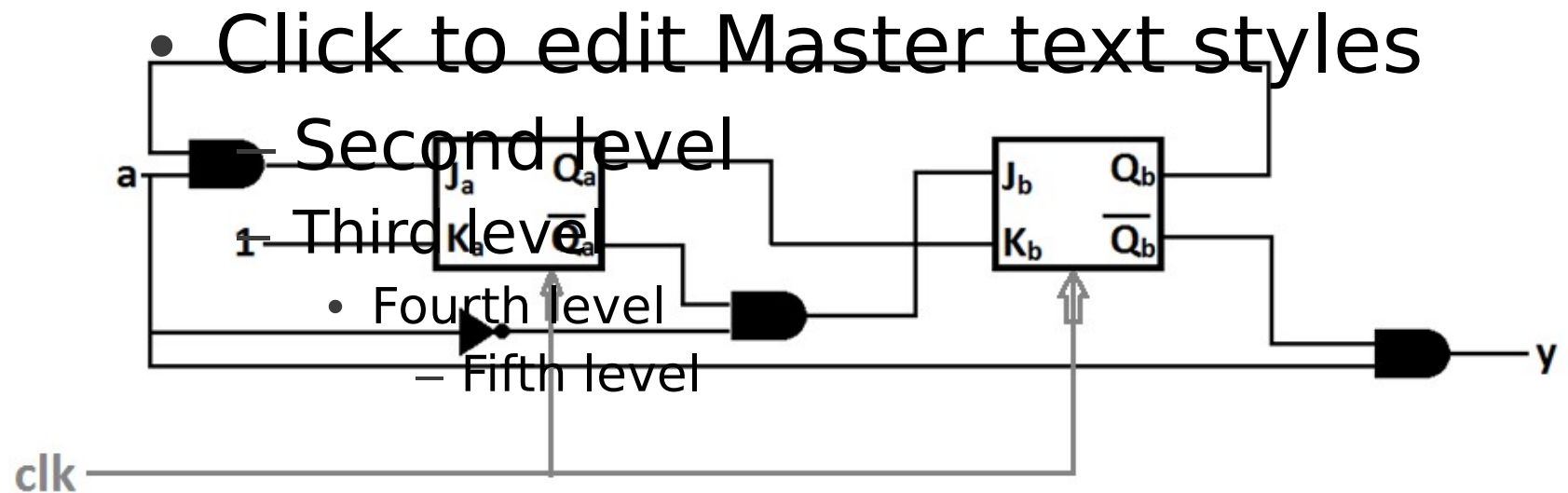
K-Map for J_b and K_b

	0 0	0 1	1 1	1 0
0	1 X	X 0	X 1	0 X
1	0 X	X 0	X 1	0 X

$$J_b = \overline{Q_a} \cdot a$$

$$K_a = Q_a$$

Circuit diagram



Design a circuit which
returns 1 when 3 or more
1s are detected in a string

State diagram

Moore Machine

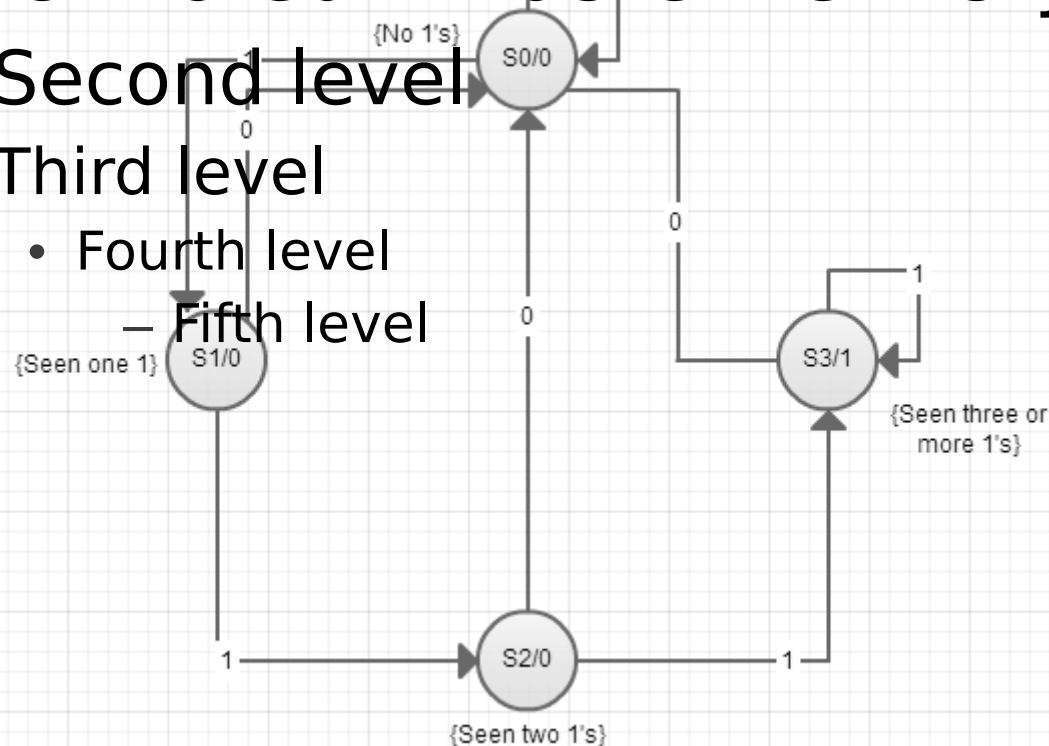
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- Second level

- Third level

- Fourth level

- Fifth level



State table

	PS Qa Qb	I/P	NS Qa Qb	O/P	Da	Db
S3	0 0	0	1 1	1	1	1
	0 0	1	0 0	1	0	0
S2	0 1	0	1 1	0	1	1
	0 1	1	0 0	0	0	0
S1	1 0	0	1 1	0	1	1
	1 0	1	0 1	0	0	1
S0	1 1	0	1 1	0	1	1
	1 1	1	1 0	0	1	0

K-Map for Da and Db

	0 0	0 1	1 1	1 0
0	1 1	1 1	1 1	1 1
1	0 0	0 0	1 0	0 1

$$D_a = a + \overline{Q_a} \cdot Q_b$$

$$D_b = a + \overline{Q_a} \cdot \overline{Q_b}$$

$$Y = \overline{Q_a} \cdot \overline{Q_b}$$

Circuit diagram

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