LAB 5 – Sequential Project 1

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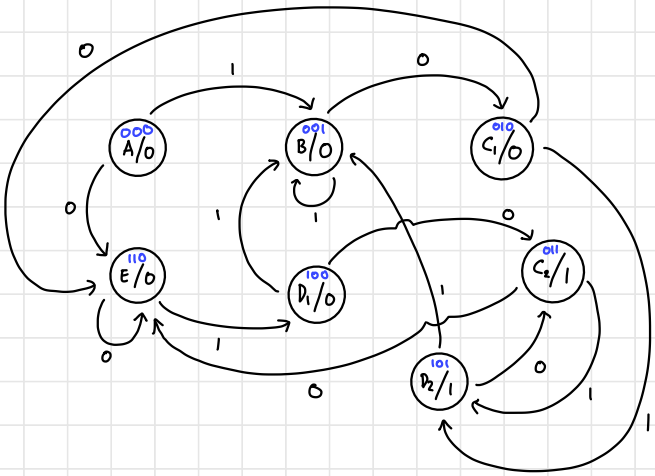
1. Moore state diagram



A = 000
B = 001
C_1 = 010
C_2 = 011
D_1 = 100
D_2 = 101
E = 110

2. Moore state table

Present state	next state x=0	next state x=1	output
A	E	B	0
B	C_1	B	0
C_1	E	D_2	0
C_2	E	D_2	1
D_1	C_2	B	0
D_2	C_2	B	1
E	E	D_1	0

State assigment → (using binary counting order assigment)

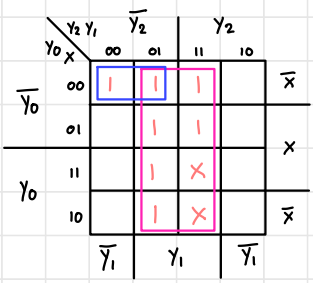
Present state	next state x=0	next state x=1	output
000	110	001	0
001	010	001	0
010	110	101	0
011	110	101	1
100	011	001	0
101	011	001	1
110	110	100	0

3. Flip-Flop input determination table

Present State			Next State						Output (Y)
			x=0			x=1			
Y_2	Y_1	Y_0	D_2	D_1	D_0	D_2	D_1	D_0	
0	0	0	1	1	0	0	0	1	0
0	0	1	0	1	0	0	0	1	0
0	1	0	1	1	0	1	0	1	0
0	1	1	1	1	0	1	0	1	1
1	0	0	0	1	1	0	0	1	0
1	0	1	0	1	1	0	0	1	1
1	1	0	1	1	0	1	0	0	0

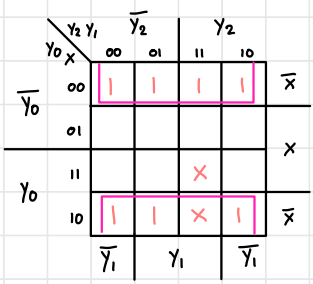
4.

D_2



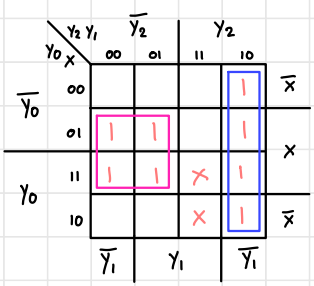
$D_2 = Y_1 + \bar{Y}_2 \bar{Y}_0 \bar{x}$

D_1



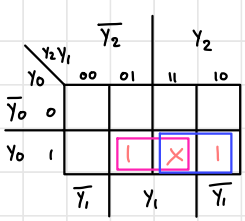
$D_1 = \bar{x}$

D_0



$D_0 = \bar{Y}_2 x + Y_2 \bar{Y}_1$

Y



$Y = Y_1 Y_0 + Y_2 Y_0$

$= Y_0 (Y_1 + Y_2)$