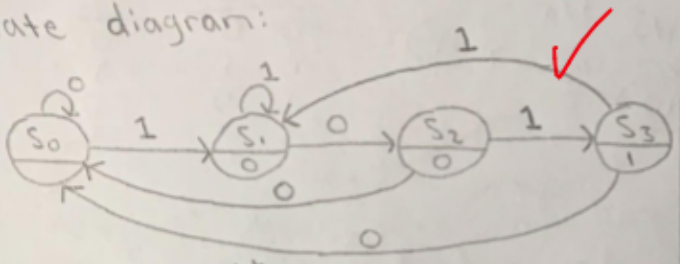
Brian Hert
10-28-23
CSC 137 HW#4

5.8

Moore Machine

State diagram:



State table:

Present State A B	Input X	Next State A^+ B^+	Output Z
0 0	0	0 0	0
0 0	1	0 1	0
0 1	0	1 0	0
0 1	1	0 1	0
1 0	0	0 0	0
1 0	1	1 1	0
1 1	0	0 0	1
1 1	1	0 1	1

Representation:

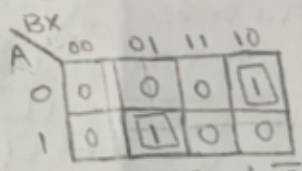
$S_0 \rightarrow 00$

$S_1 \rightarrow 01$

$S_2 \rightarrow 10$

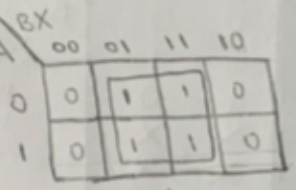
$S_3 \rightarrow 11$

A^+



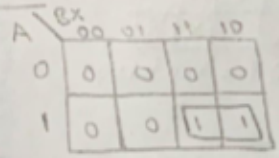
$A^+ = \bar{A}B\bar{X} + A\bar{B}X$

B^+



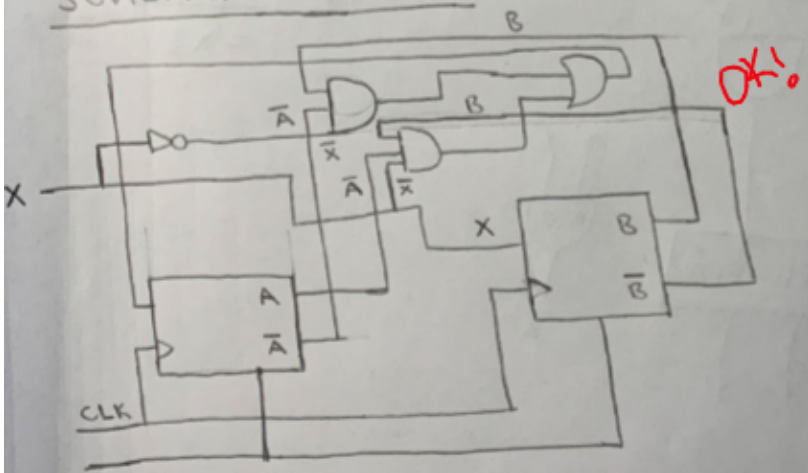
$B^+ = X$

Z:



$Z = AB$

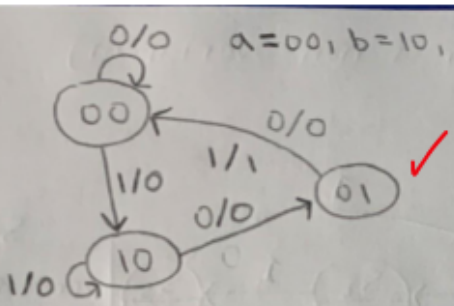
Schematic circuit:



OK!

5.9

Mealy Machine State diagram



Q	Q*	D
0	0	0
0	1	1 ✗
1	0	0
1	1	1

State table

Present State		Input	Next State		Output	Flip Flop Excitation	
X	Y	Z	X'	Y'	Z'	Dx	Dy
0	0	0	0	0	0	0	0
0	0	1	1	0	0	1	0
0	1	0	0	0	0	0	0
0	1	1	0	0	1	0	0
1	0	0	0	1	0	0	1
1	0	1	1	0	0	1	0
1	1	0	X	X	X	X	X
1	1	1	X	X	X	X	X

Dx

X \ Y	00	01	11	10
0		1		
1		1	X	X

$Dx = (001 + 101) = Yz'$

Dy

X \ Y	00	01	11	10
0				
1	1		X	X

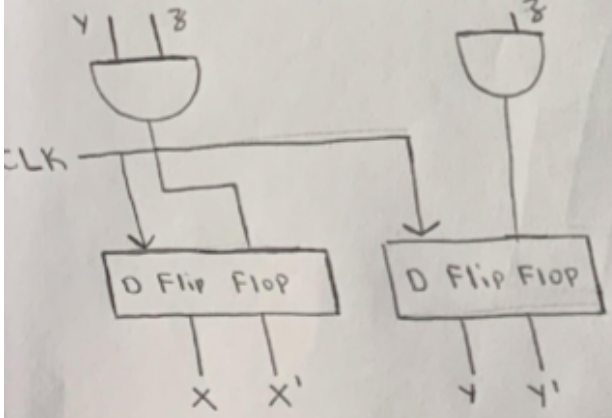
$Dy = 100 + 110 = Xz'$

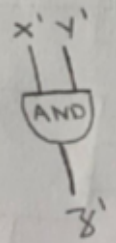
z

	00	01	11	10
0			X	
1		1	X	

$= Xz'$

Schematic Circuit:





5.10

Given a Sequence is "1001" by using Moore machine