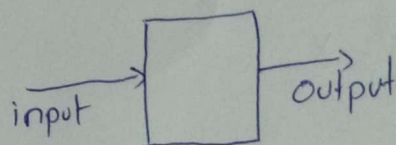


14-3-19

Digital systemsSequence Detector:-

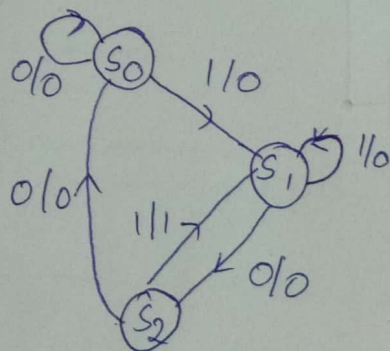
→ The FSM doesn't reset

→ Outputs '1' at the same time, the last bit of the sequence

Example:- "101" occurs, output is '1'

Sample Input: 00100110100101010

Sample output :- 00000000100001010

Melay Machine Design:-

Present state		next state		output (y)	
		x=0	x=1	x=0	x=1
S ₀	AB	A'B'	A'B		
	00	S ₀ 00	S ₁ 01	0	0
S ₁	01	S ₂ 10	S ₁ 01	0	0
	10	S ₀ 00	S ₁ 01	0	1
S ₂	11	xx	xx		

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

A^+

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

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

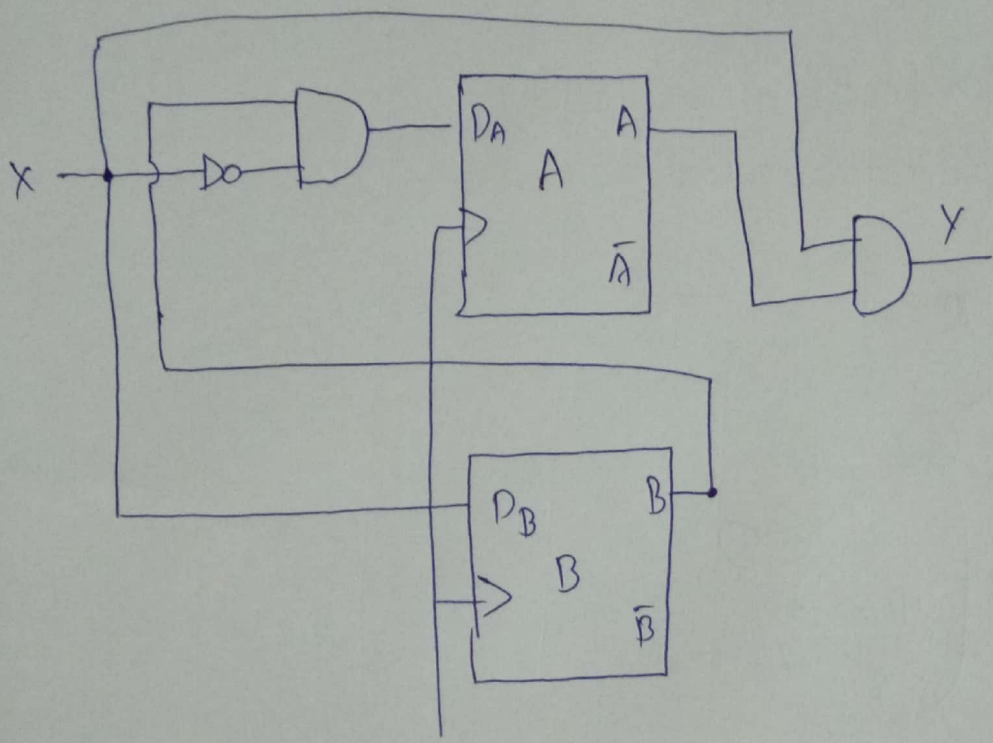
B^+

$$B^+ = X$$

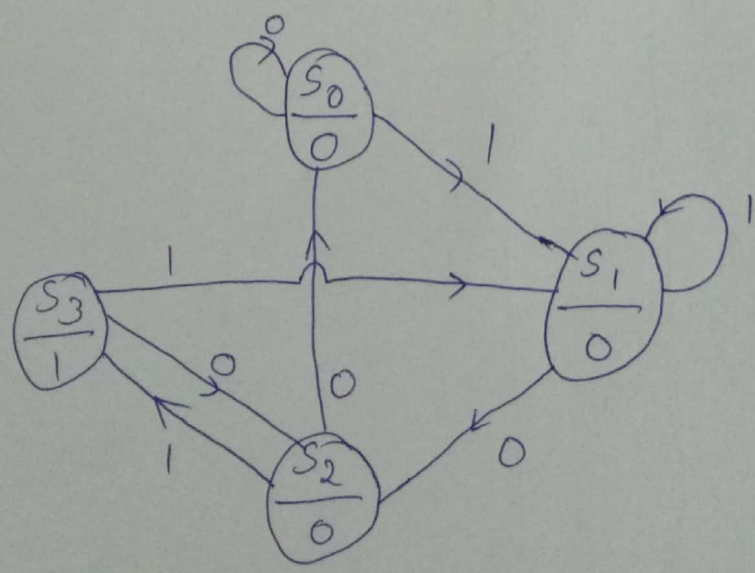
AB \ X	0	1
00	0	0
01	0	0
11	X	X
10	0	1

Y

$$Y = AX$$



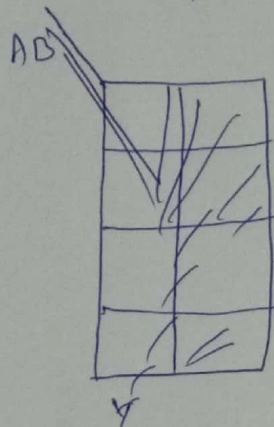
Moore machine Design



P.S	N.S		Y	
	X=0	X=1	X=0	X=1
A	B	C	0	0
B	D	E	0	0
C	F	G	0	0
D	H	I	0	0
E	J	K	0	0
F	L	M	0	0
G	N	P	0	0
H	A	A	0	0
(H) I(H)	A	A	0	0
J	A	A	0	1
(H) K(H)	A	A	0	0
(J) L	A	A	0	1
(H) M	A	A	0	0
(H) N	A	A	0	0
(H) P	A	A	0	0

H and I are equivalent states

Present state	Next state		Y
	X=0	X=1	
S ₀ 0 0	^{A'B'} S ₀ 0 0	^{A'B'} S ₁ 0 1	0
S ₁ 0 1	S ₂ 1 0	S ₁ 0 1	0
S ₂ 1 0	S ₀ 0 0	S ₃ 1 1	0
S ₃ 1 1	S ₂ 1 0	S ₁ 0 1	1



$$Y = AB$$

Machine that outputs '1' if either "0101" or "1001" is encountered

0010 0100 1001
0000 0000 0001

