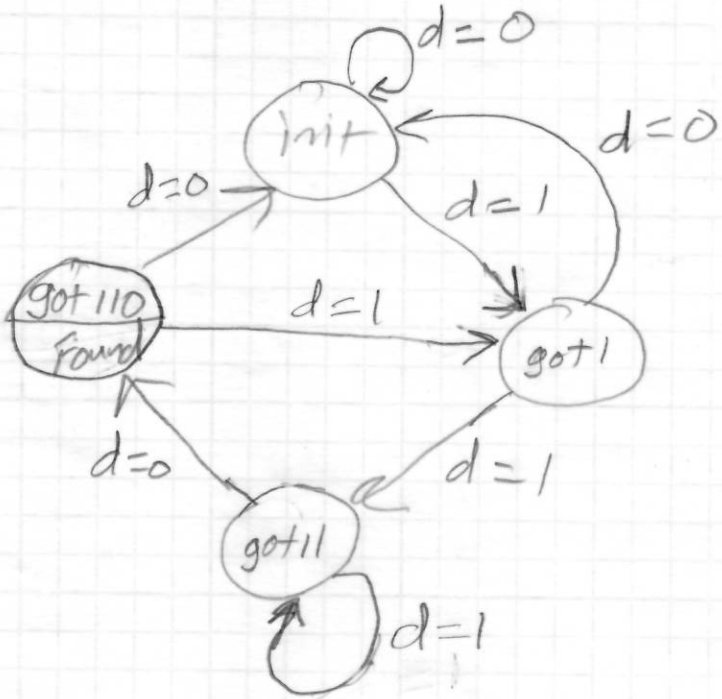
ECEN 340 Supplemental

Example state machine to detect sequence, "110".

MOORE Machine State Graph:



MOORE Transition Table:

Inputs d	Current state	Next state	Outputs Found
0	INIT	INIT	0
1	INIT	Got 1	0
0	Got 1	INIT	0
1	Got 1	Got 11	0
0	Got 11	Got 110	0
1	Got 11	Got 11	0
0	Got 110	INIT	1
1	Got 110	Got 1	1

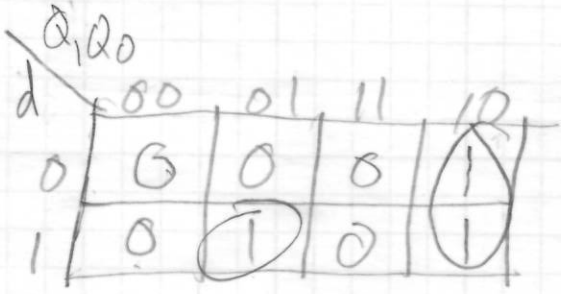
State Assignments:

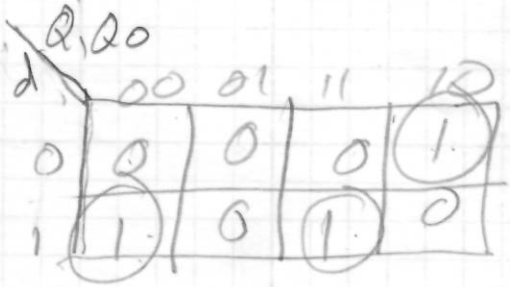
INIT = 00
Got 1 = 01
Got 11 = 10
Got 110 = 11

New transition table:

Current state Q_1	Q_0	Inputs d	Next State N_1	N_0	outputs Found
0	0	0	0	0	0
0	0	1	0	1	0
0	1	0	0	0	0
0	1	1	1	0	0
1	0	0	1	1	0
1	0	1	1	0	0
1	1	0	0	0	1
1	1	1	0	1	1

Design Input Forming Logic (Next State)

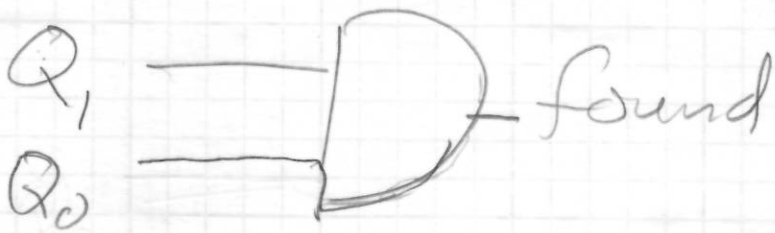




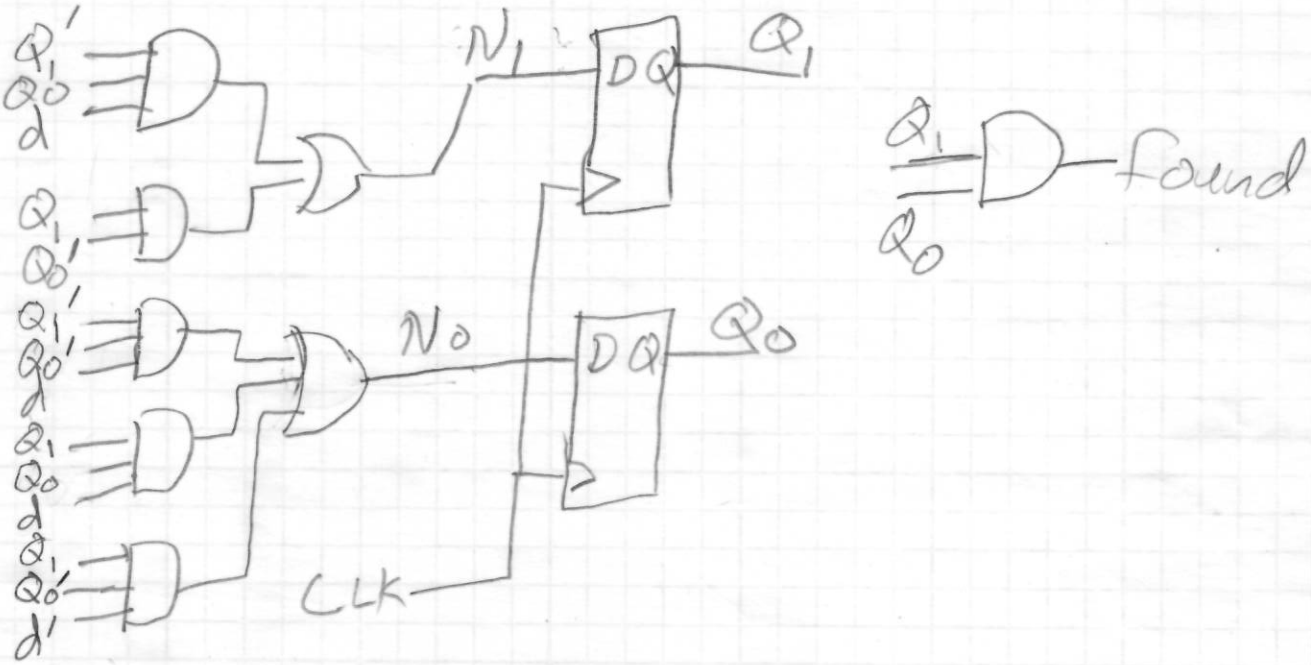
$N_1 = Q_1' Q_0 d + Q_1 Q_0'$

$N_0 = Q_1' Q_0' d + Q_1 Q_0 d + Q_1 Q_0' d'$

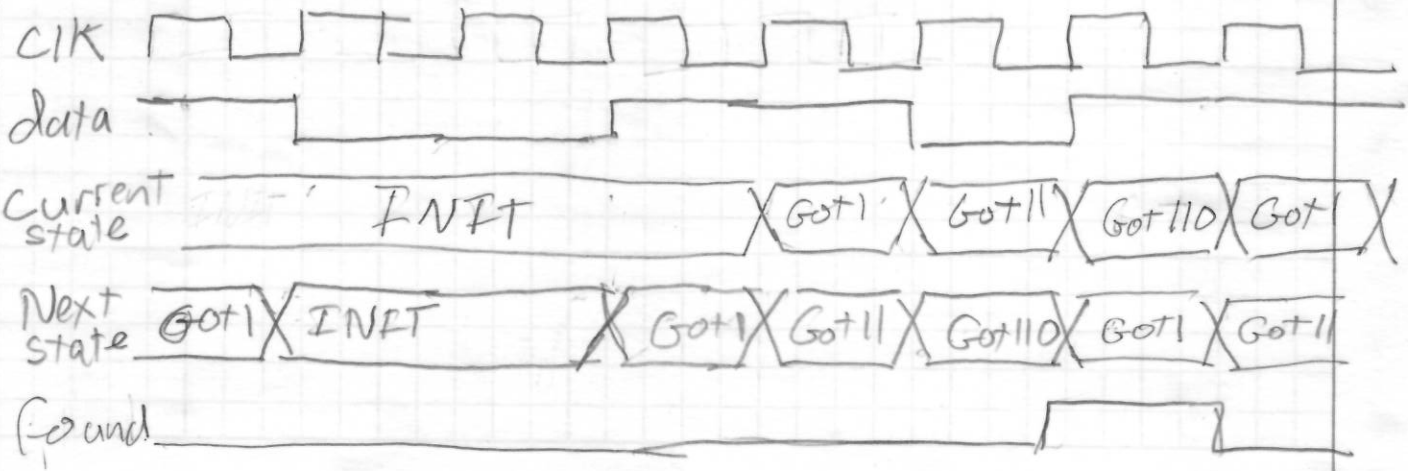
Design output logic:



Draw circuit:



Timing Diagram for Input = 10011011



Design a Moaly State Graph For the Same Application