

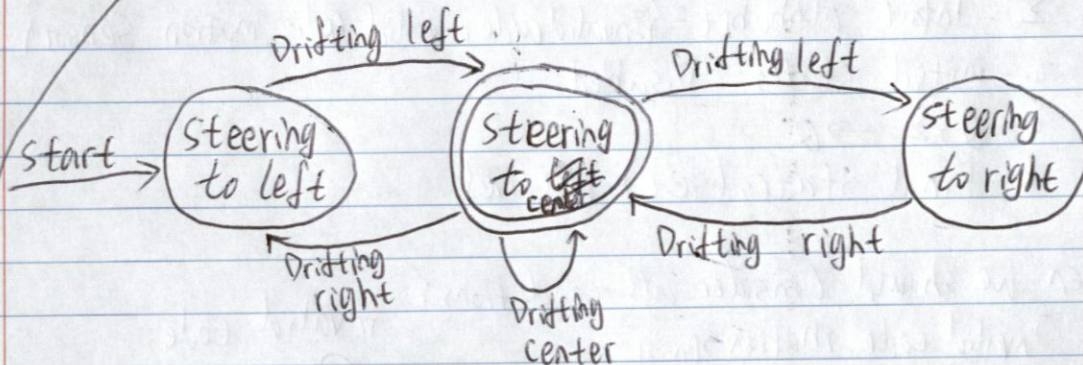
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CS 3810 Assignment 06

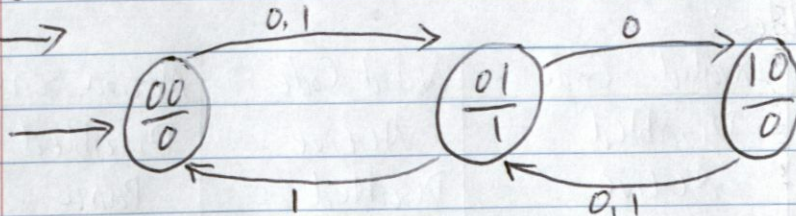
Question 1:

Answer: (Let Drifting left be 0
Let Drifting right be 1



↓state/Input →	Drifting right	Drifting left	Center
steering left		Center	left
steering right	Center		right
steering center	Center	Center	Center

Or we can do it another way.



Current State		Input	Next State		Output
A	B	C	A _N	B _N	Y
0	0	0	0	1	0
0	0	1	0	1	0
0	1	0	1	0	1
0	1	1	0	0	1
1	0	0	0	1	0
1	0	1	0	1	0
1	1	0	X	X	X

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Question 2:

So we can make a DFA for this scenario on home alarm circuit

DFA = $\{Q, \Sigma, q_0, \delta, F\}$

Q = set of states = {Active, Disabled, Panic}

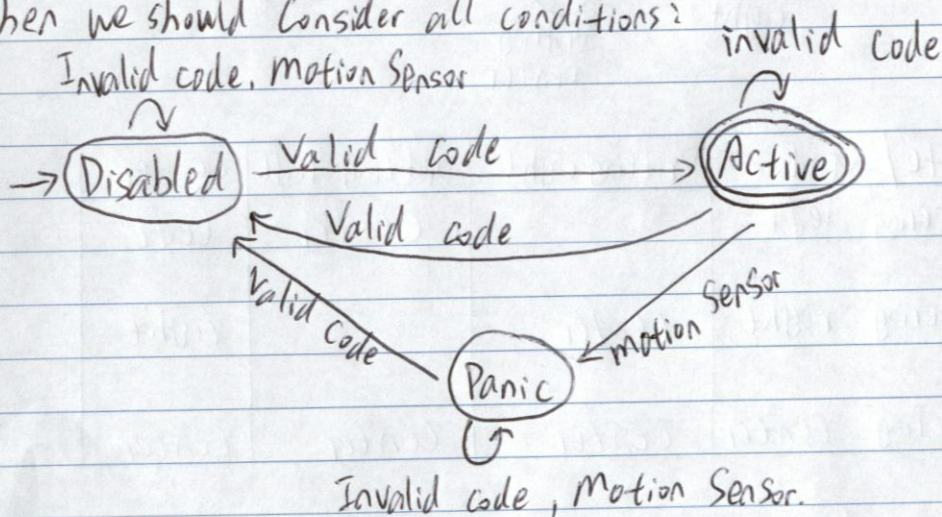
Σ = input alphabet = {Invalid code, valid code, motion sensor}

q_0 = initial states = Disabled

$\delta = Q \times \Sigma \rightarrow Q$

F = Final states (set) = {Active}

Then we should consider all conditions:



Finite State tables:

State \ Input	Invalid Code	Valid Code	Motion Sensor
Disabled	Disabled	Active	Disabled
Active	Active	Disabled	Panic
Panic	Panic	Disabled	Panic