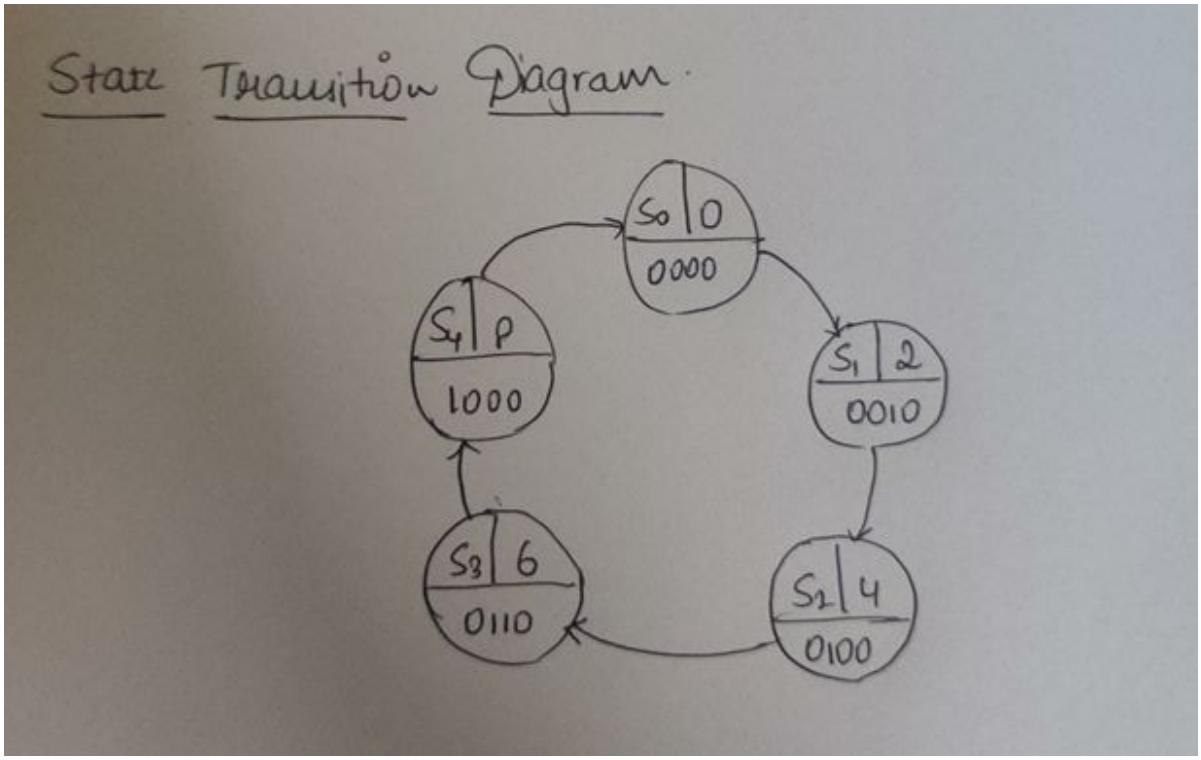
Problem Statement: Design & implement a sequence generator.(Even number generator- 0,2,4,6,8)

State Transition Diagram:



Since the Least Significant Bit in all the states is zero because the numbers are even, we eliminate the need for a flip flop for the LSB bit of each number generated.

State Transition Table:

Present State	Next State
S_0	S_1

S_1	S_2
S_2	S_3
S_3	S_4
S_4	S_0

State Encodings:

State	S0	S1	S2
S_0	0	0	0
S_1	0	0	1
S_2	0	1	0
S_3	0	1	1
S_4	1	0	0

State Transition Table(with Encodings):

S0	S1	S2	S0’	S1’	S2’
0	0	0	0	0	1
0	0	1	0	1	0
0	1	0	0	1	1
0	1	1	1	0	0
1	0	0	0	0	0

Solving for S0’,S1’,S2’, we get:

S0’ = $\overline{S0}$ S1S2

S1’ = $\overline{S0}$ (S1$\oplus$S2)

S2’ = $\overline{S0}$ $\overline{S2}$