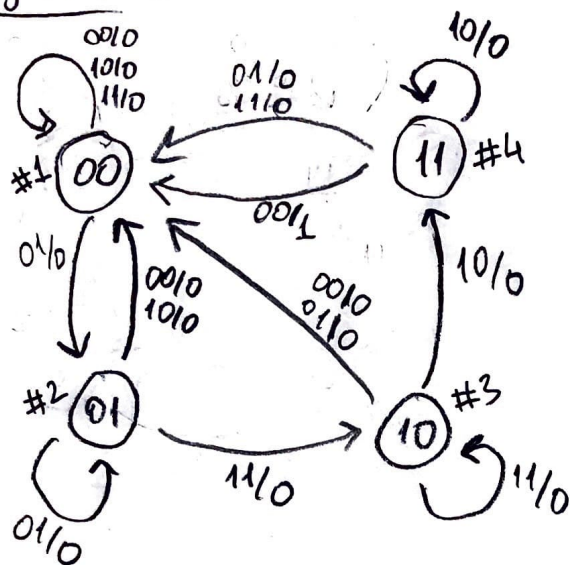


Inputs = A, B

States = There will be 4 states in total.
So, 2 bit of memory is enough to store state values.

$S_1 S_0$

Diagram



Transition Table

$S_1 S_0$	A B	$S_{1(+1)}$	$S_{0(+1)}$	y
0 0	0 0	0	0	0
0 0	0 1	0	1	0
0 0	1 0	0	0	0
0 0	1 1	0	0	0
0 1	0 0	0	0	0
0 1	0 1	0	1	0
0 1	1 0	0	0	0
0 1	1 1	1	0	0
1 0	0 0	0	0	0
1 0	0 1	0	0	0
1 0	1 0	1	1	0
1 0	1 1	1	0	0
1 1	0 0	0	0	1
1 1	0 1	0	0	0
1 1	1 0	1	1	0
1 1	1 1	0	0	0

K-Maps

$S_{1(+1)}$

AB \ $S_1 S_0$	00	01	11	10
00	0	0	0	0
01	0	0	0	0
11	0	1	0	1
10	0	0	1	1

$$S_{1(+1)} = AB\bar{S}_1 S_0 + A\bar{B}S_1 + AS_1\bar{S}_0$$

y

AB \ $S_1 S_0$	00	01	11	10
00	0	0	1	0
01	0	0	0	0
11	0	0	0	0
10	0	0	0	0

$$y = \bar{A}\bar{B}S_1 S_0$$

$S_{0(+1)}$

AB \ $S_1 S_0$	00	01	11	10
00	0	0	0	0
01	1	1	0	0
11	0	0	0	0
10	0	0	1	1

$$S_{0(+1)} = \bar{A}B\bar{S}_1 + A\bar{B}S_1$$