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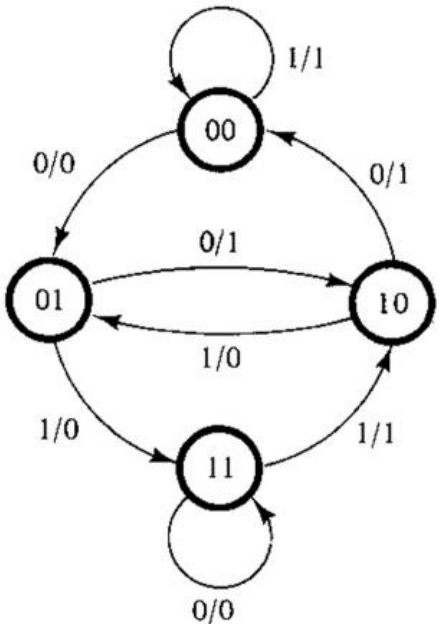
From the given STD, we will take inputs.

No of Flip-Flops to be used= ceil ($\log_2 n$) where n is no of states

We will understand further algorithm with the help of an example.

Given State Diagram



Here n=4, So no of flip-flop we will use is ceil ($\log_2 4$)=2

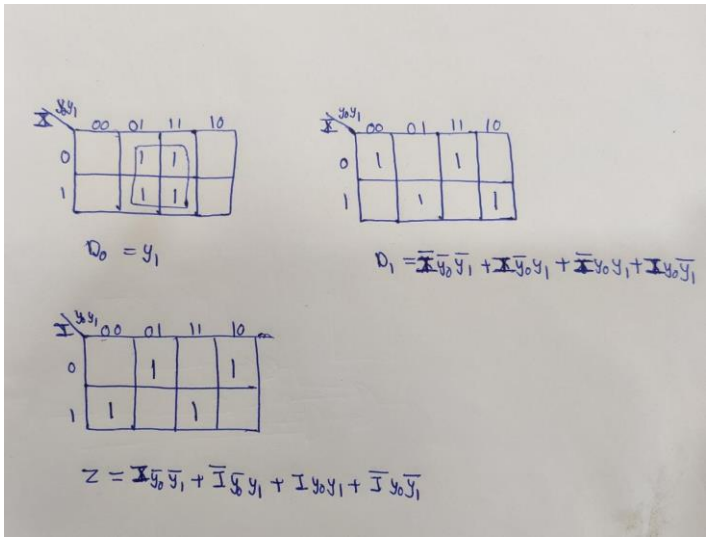
Let's say we use D-flip flop.

Excitation Table for D-flip-flop :-

Qn	Qn+1	D
0	0	0
0	1	1
1	0	0
1	1	1

I (Input)	Y0 (present state)	Y1 (present state)	X0 (next state)	X1 (next state)	Z (Output)	D0	D1
0	0	0	0	1	0	0	1
1	0	0	0	0	1	0	0
0	0	1	1	0	1	1	0
1	0	1	1	1	0	1	1
0	1	1	1	1	0	1	1
1	1	1	1	0	1	1	0
1	1	0	0	1	0	0	1
0	1	0	0	0	1	0	0

Now, We want Equation for Z, D0 and D1. We will use k-map.



Now, we will make the circuit using the above Equations.