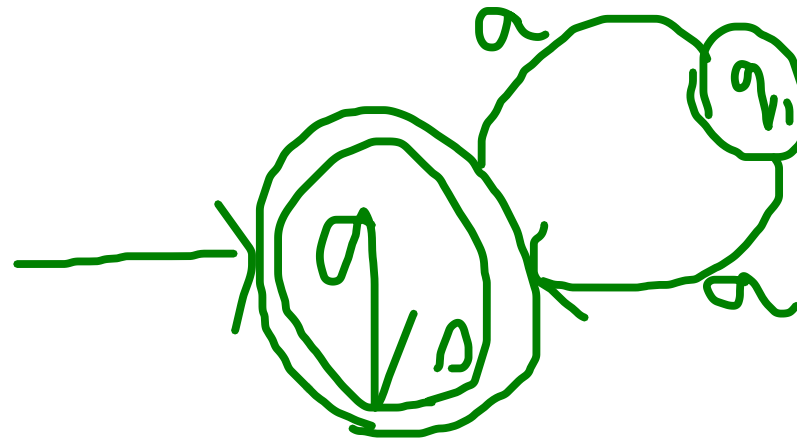


All strings of 0's and 1's containing an even number of 0's

$L = \{\text{null}, aa, aaaa, aaaaaa, \dots\}$

Take aa every time while entering the loop

$(aa)^*$



Binary String

Any = including null

All strings of 0's and 1's

0 followed by any number 1's

All strings of 0's and 1's, beginning with a 0

All strings of 0's and 1's, ending with a 1

All strings of 0's and 1's containing at least one 0

All strings of 0's and 1's containing at least two 0's

$(0+1)^*$



$L = \{\text{null}, 0, 00, 000, \dots$

$1, 11, 111, \dots\}$

$01011, 111001 \}$

If loop not taken = null

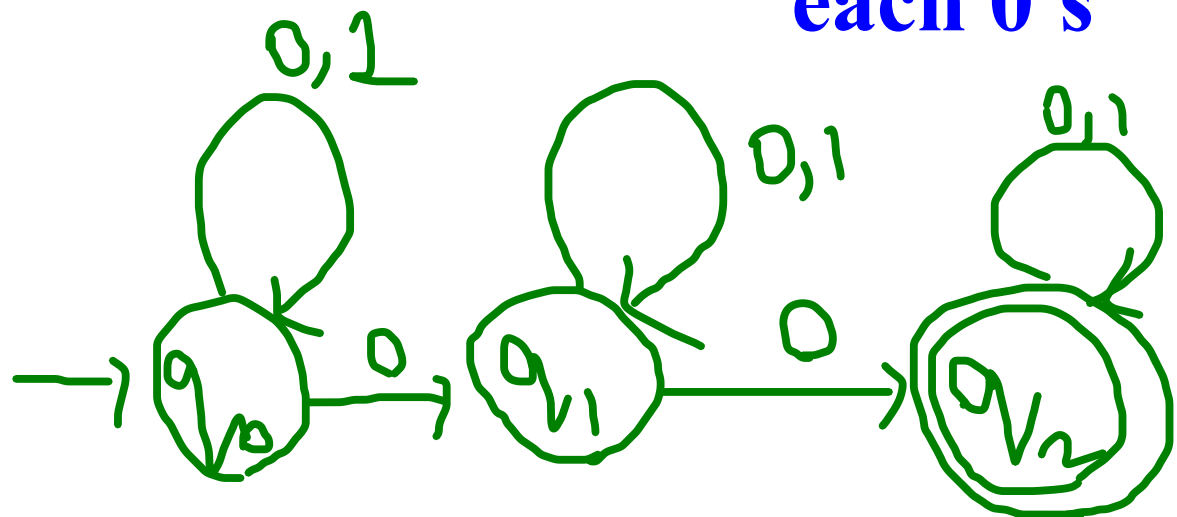
If $*$ = 5, there is option to pass through the loop five times, with each time having option to choose either 0 or 1

For example: 1 time 0, 2nd time 1, 3rd time 0, 4th-1, 5th-1
This generates the string 01011.

All strings of 0's and 1's containing at least two 0's

Constraint = atleast two 0's

So take two zeros some where in the middle of the string as they are not consecutive ,can appear anywhere. Place the possibe strings before and after each 0's



$$(0+1)^*0(0+1)^*0(0+1)^*$$

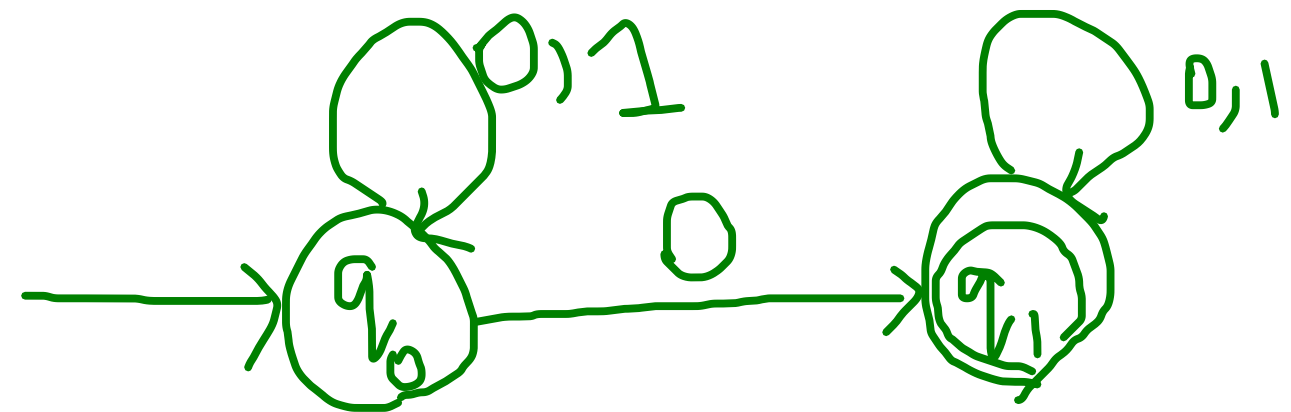
All strings of 0's and 1's containing at least one 0

Minimum constraint = at least one 0

So take single 0 in the middle

Fill up the possible strings before and after .

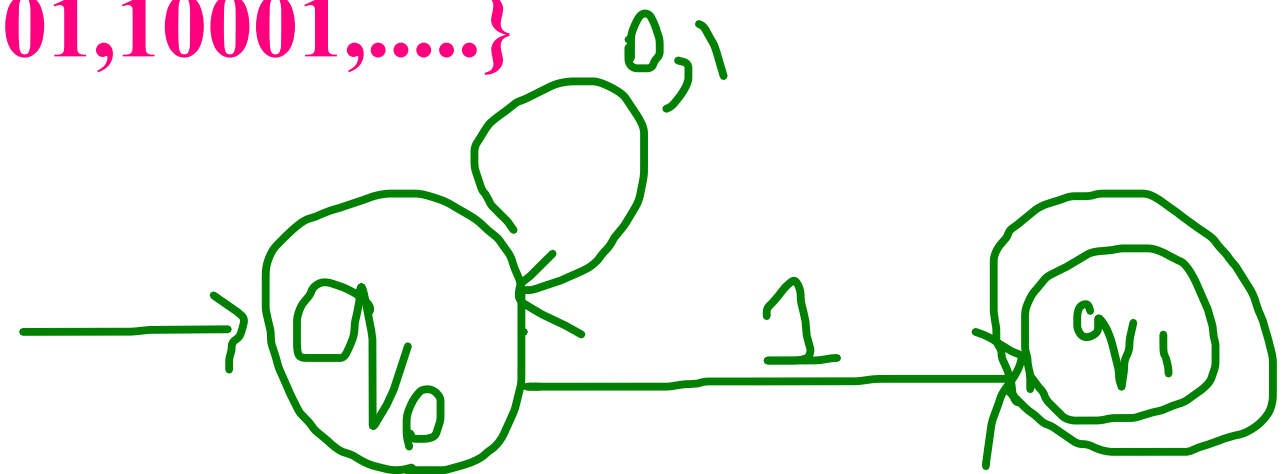
$(0+1)^*0(0+1)^*$



All strings of 0's and 1's, ending with a 1

$L = \{1, 01, 001, 0001, \dots$
 $11, 111, 1111, \dots$
 $01011, 10101, 10001, \dots\}$

$(0+1)^*1$



All strings of 0's and 1's, beginning with a 0

$L = \{0, 00, 000, \dots$
 $01, 011, 0111, \dots$
 $0110, 010101, \text{Combination} \dots\}$

$0(0+1)^*$

