Assignment-11
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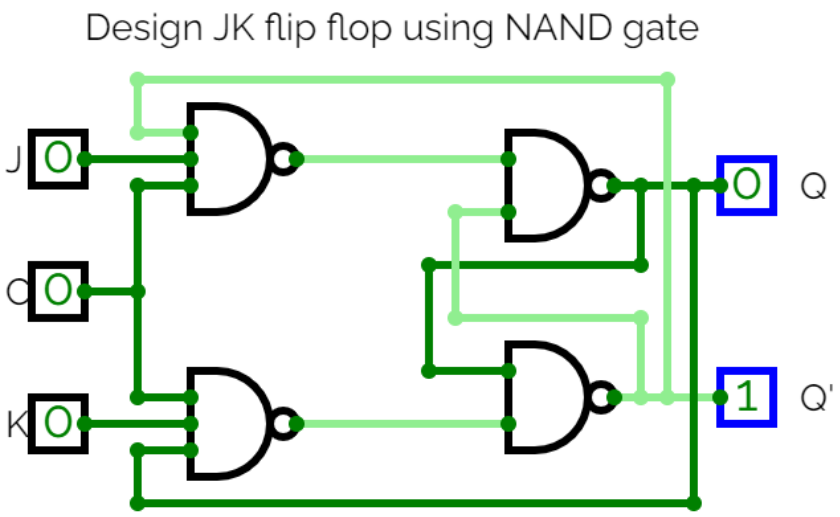
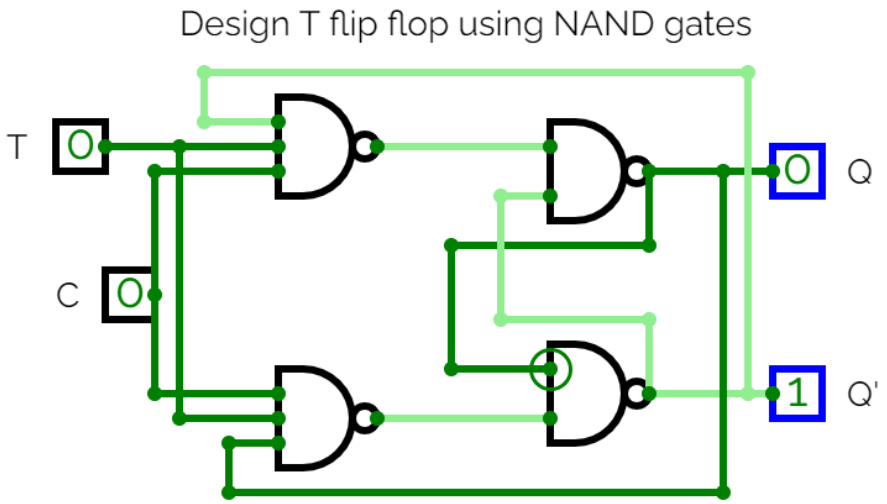
- **Problem 1:** Design JK flip flop using NAND gate.

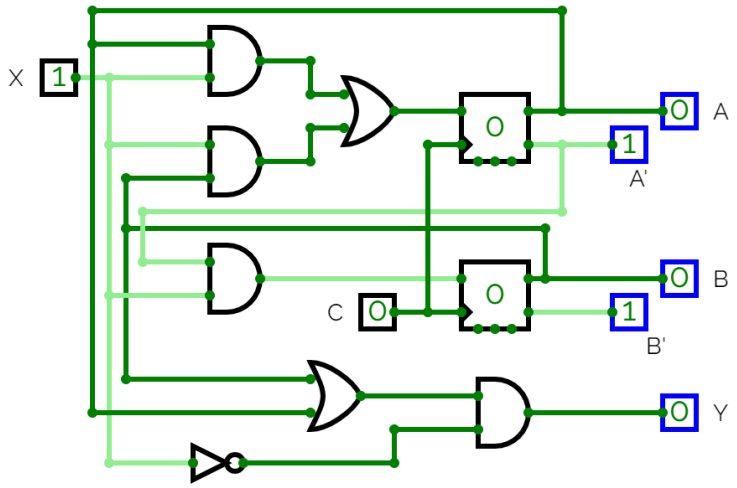


- **Problem 2:** Design T flip flop using NAND gates.



- **problem 3:** Consider the sequential circuit using D flip flop discussed in the class. Analyse the circuit behaviour for the given inputs.

Consider the sequential circuit using D flip flop discussed in the class



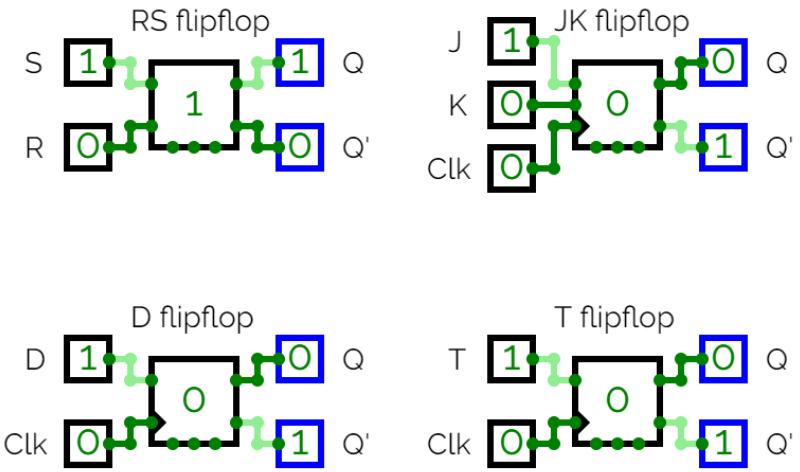
State Table:

Present cell		Next state		Output (Y)	
A	B	AB (X=0)	AB (X=1)	X=0	X=1
0	0	00	01	0	0
0	1	00	11	1	0
1	0	00	10	1	0
1	1	00	10	1	0

State Functions:

1. A(t+1) = A(t).X(t) + B(t).X(t)
2. B(t+1) = A'(t).X(t)
3. Y(t) = X'.(A(t) + B(t))

- **problem 4:** Verify the circuit excitation table for:
  i. RS flipflop
  ii J-K flipflop
  iii. D flipflop
  iv. T flipflop



SR flipflop Excitation Table:

Q(n)	Q(n+1)	S	R
0	0	0	X
1	0	X	1
0	1	1	X
1	1	X	0

JK flipflop Excitation Table:

Q(n)	Q(n+1)	J	K
0	0	0	X
0	1	1	X
1	0	X	1
1	1	X	0

D flipflop Excitation Table:

Q(n)	Q(n+1)	D
0	0	0
0	1	1
1	0	0
1	1	1

T flipflop Excitation Table:

Q(n)	Q(n+1)	T
0	0	0
0	1	1
1	0	1
1	1	0