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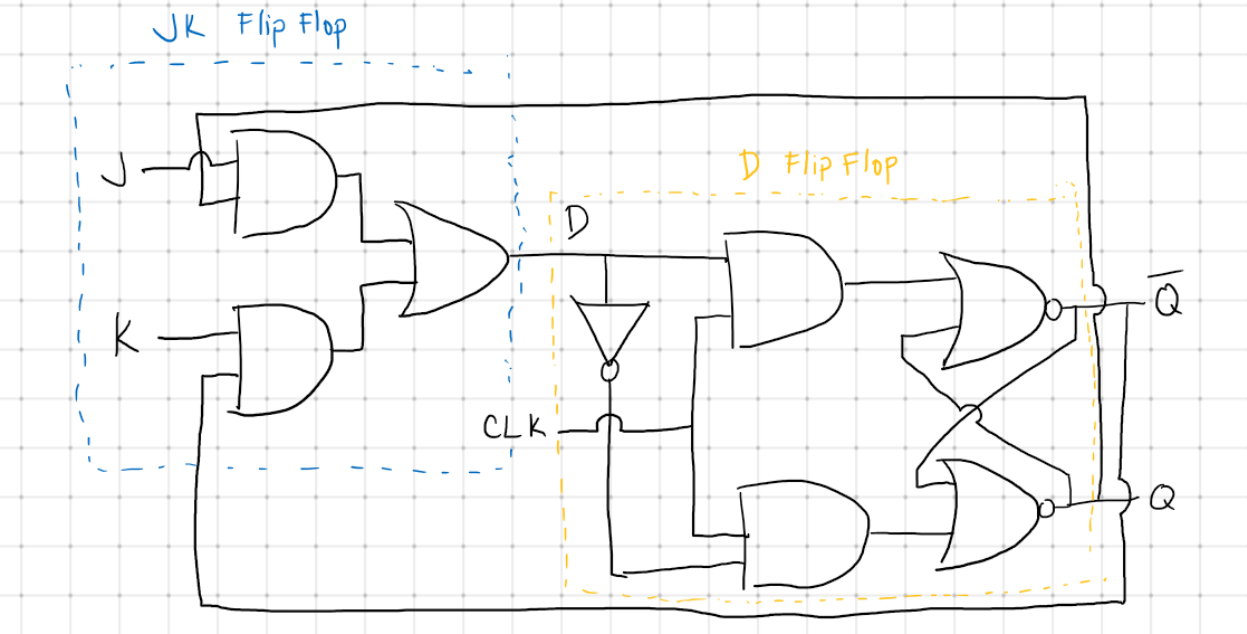
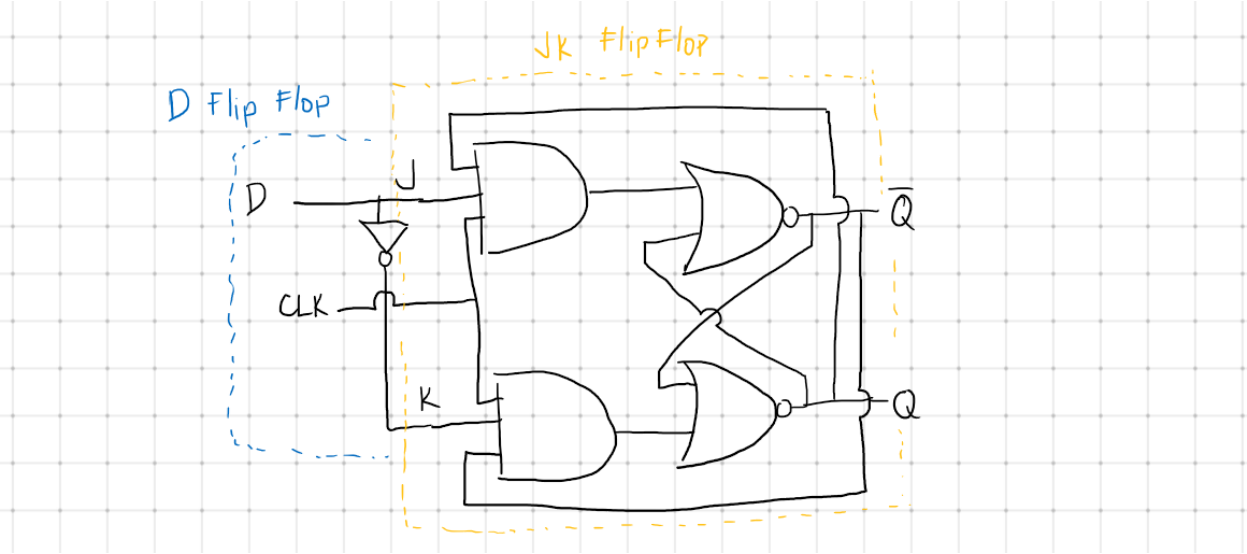
CISC 211
November 07, 2020

3.10a



3.10b



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3.20

FSM States = $5^4 = 625$. Requires 2^{10} or 10 bits to represent all 625 states.

3.22

This Moore FSM asserts the output Q every clock cycle if A is TRUE followed by B being TRUE.

State Encoding Table

State	Encoding $S_{1:0}$
S0	00
S1	01
S2	10

State Transition Table with Binary Encodings

Current State S_1	Current State S_0	Inputs a	Inputs b	Next State S'_1	Next State S'_0	
0	0	0	X	0	0	
0	0	1	X	0	1	$= S'_0$
0	1	X	0	0	0	
0	1	X	1	1	0	$= S'_1$
1	0	X	X	0	0	

Output Table with Binary Encodings

Current State S_1	Current State S_0	Output Q	
0	0	0	
0	1	0	
1	0	1	$= Q$

$$S'_1 = S_0 B \qquad Q = S_1$$

$$S'_0 = \overline{S_1}\,\overline{S_0} A$$