

Exp: 11

Date:

Aim: To construct 4 bit Johnson counter or twisted counter.

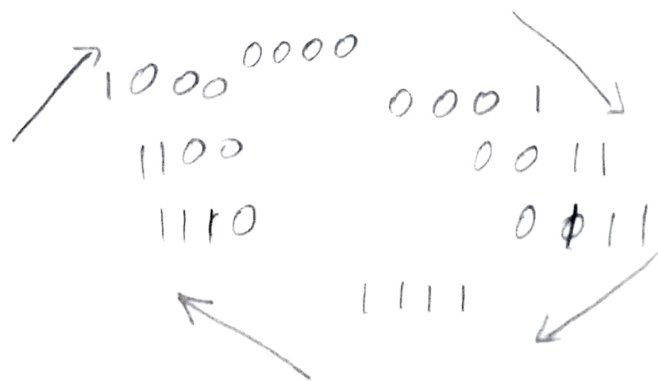
Aparatus: - J K flip flop

- Connecting wire

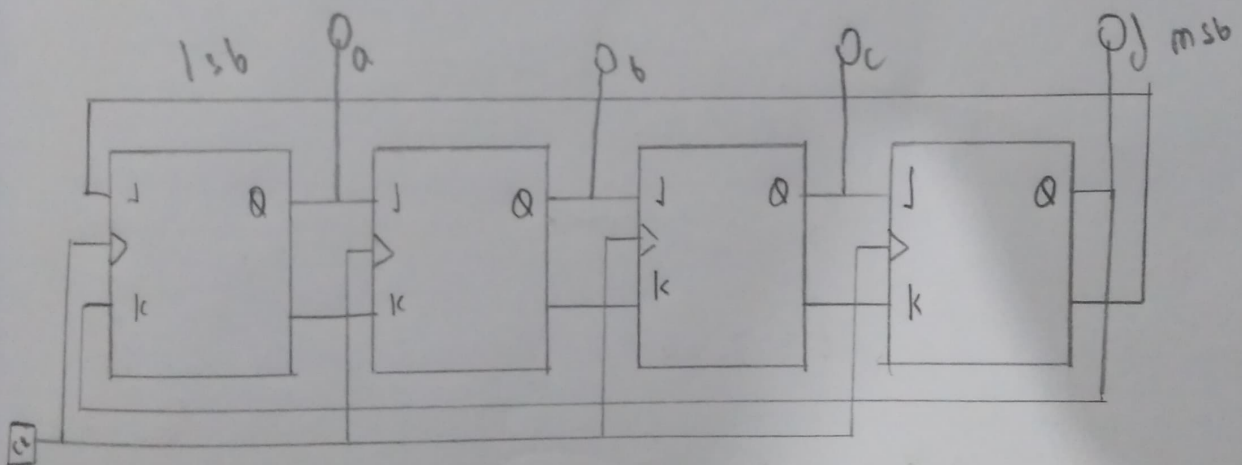
- Power Supply.

Theory: Johnson Counter or twisted counter is another

Shift register with a feedback exactly same as ring counter. Except for this the the last inverted output is connected back to the first flip flop.



Present state $Q_A Q_B Q_C Q_D$	Next state $Q_A Q_B Q_C Q_D$	excitation table. $J_A K_A J_B K_B J_C K_C J_D K_D$
0000	0001	0x 0x 0x 1x
0001	0011	0x 0x 1x x0
0011	0111	0x 1x x0 x0
0111	1111	1x x0 x0 x0
1111	1110	x0 x0 x0 x1
1110	1100	x0 x0 x1 0x
1100	1000	x0 x1 0x 0x
1000	0000	x1 0x 0x 0x
0010	xx xx	
0100	xx xx	

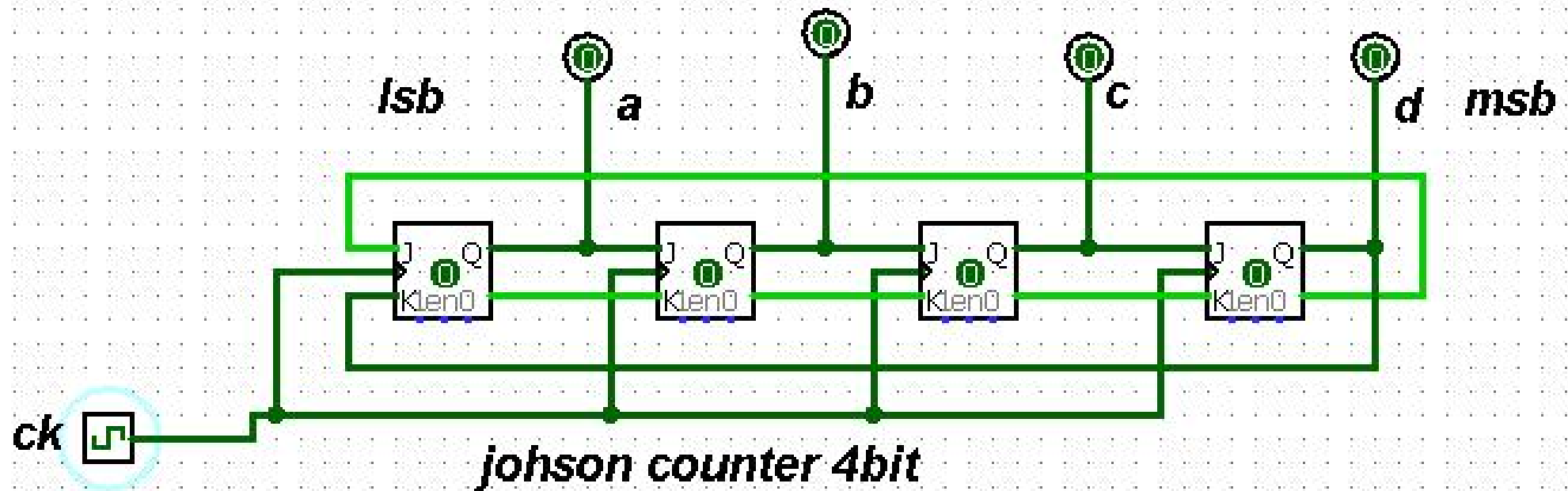


Practical procedure:

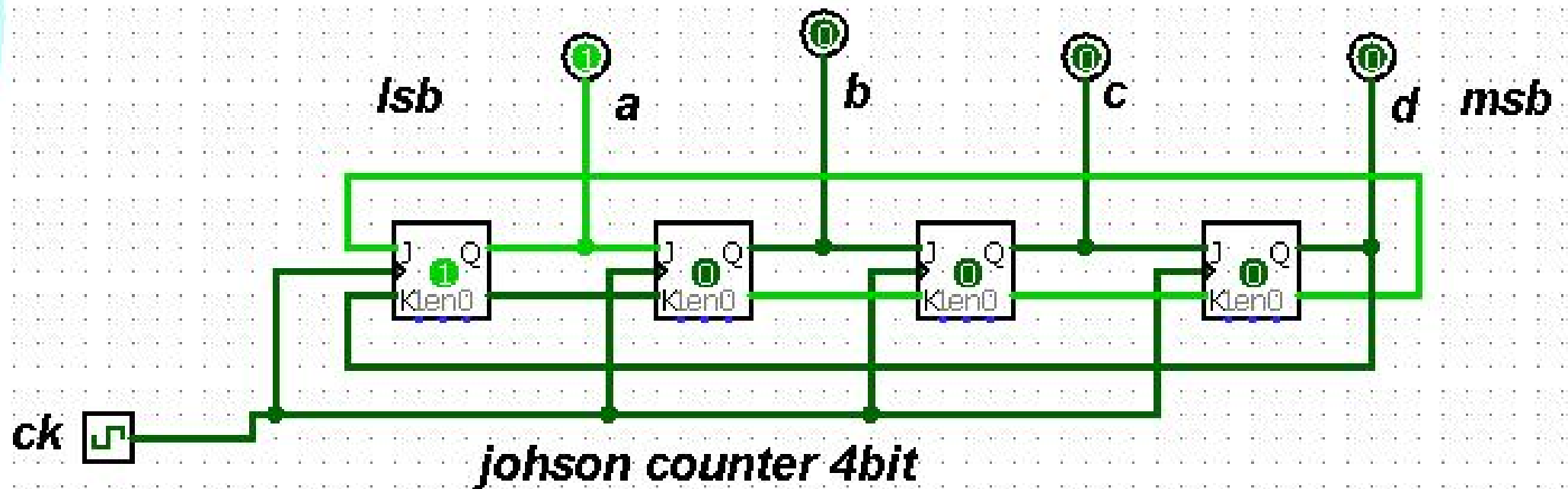
1) Ic's are placed on bread board.

2) make proper connections & make sure of a bigent Power supply.

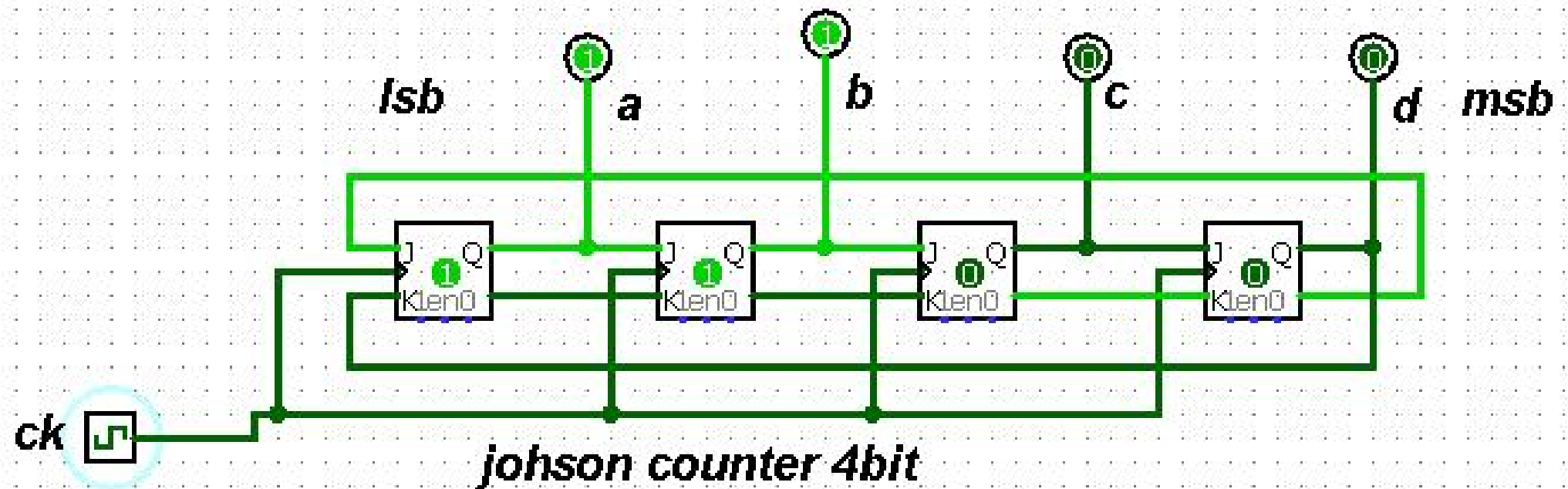
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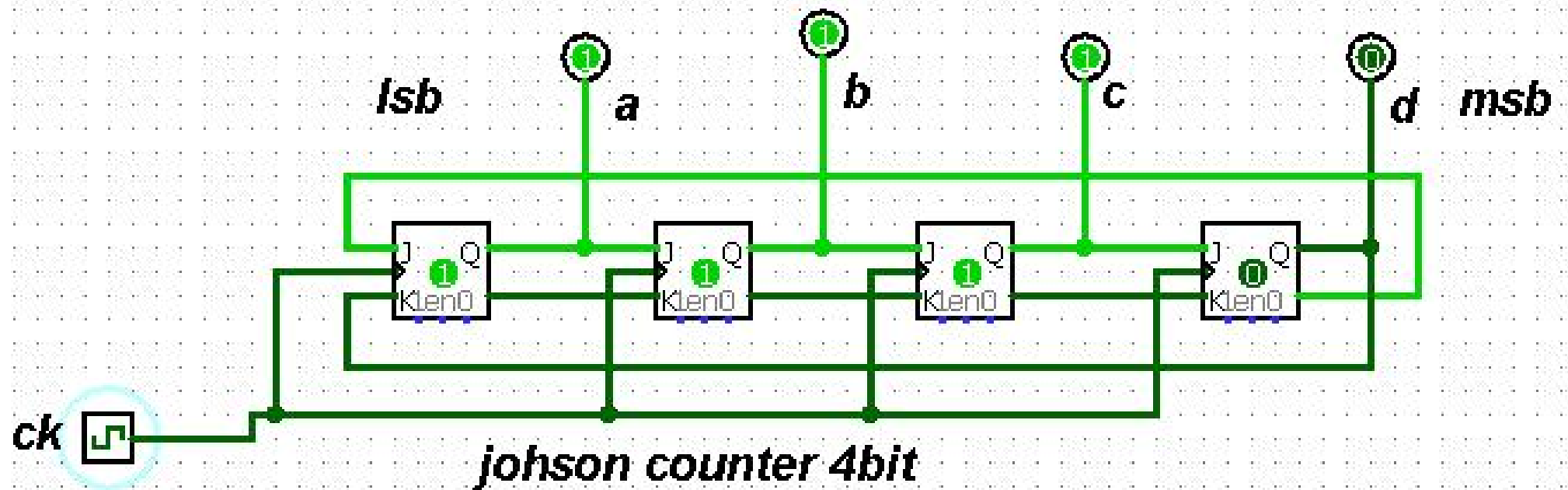
*kaushik gupta-201900318*



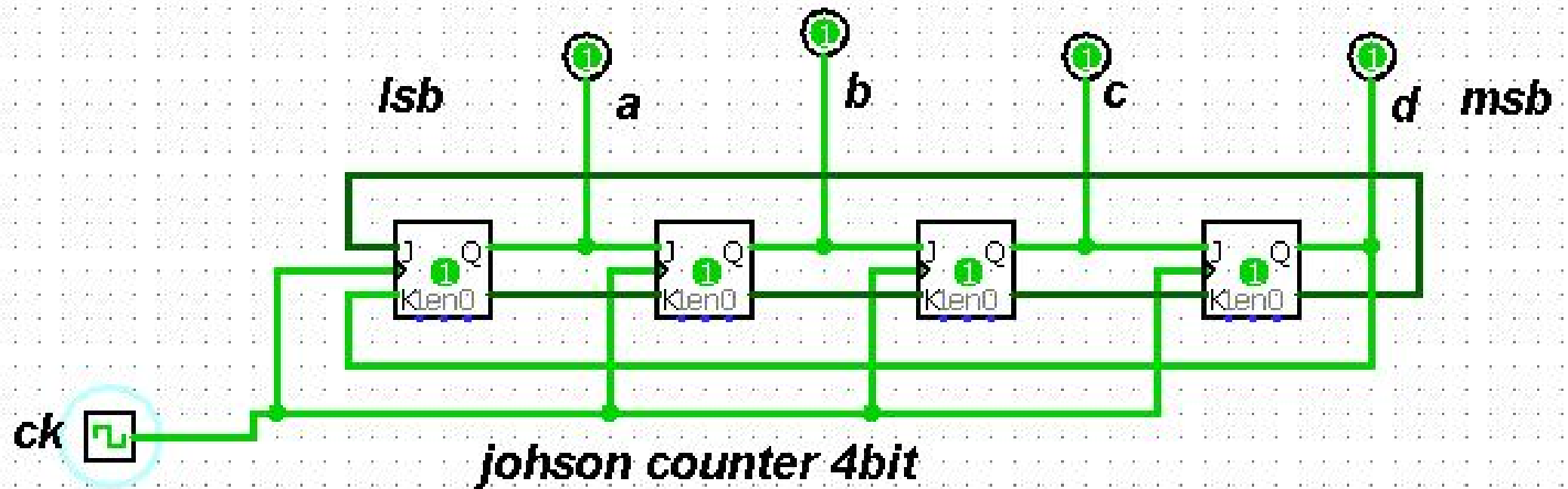
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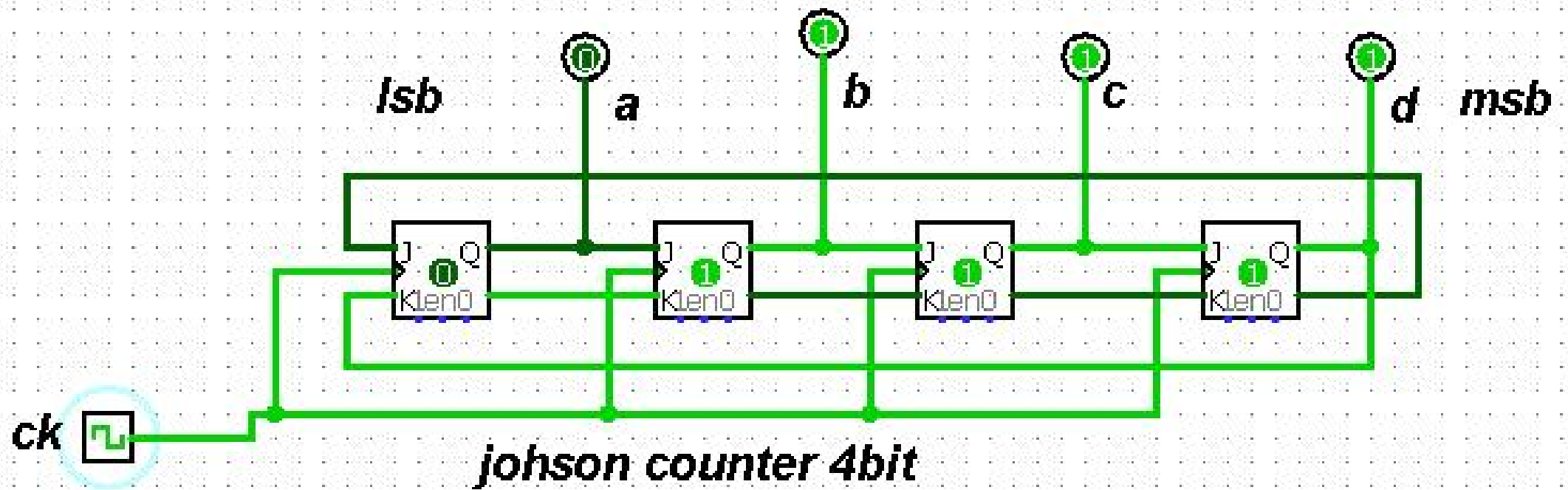
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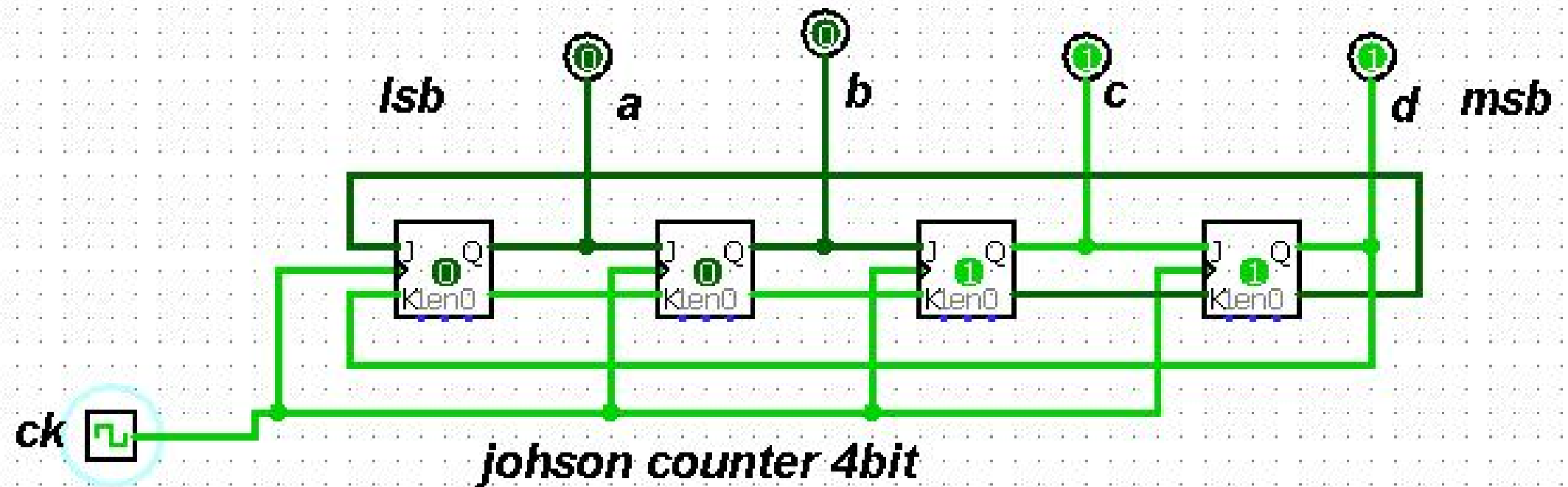


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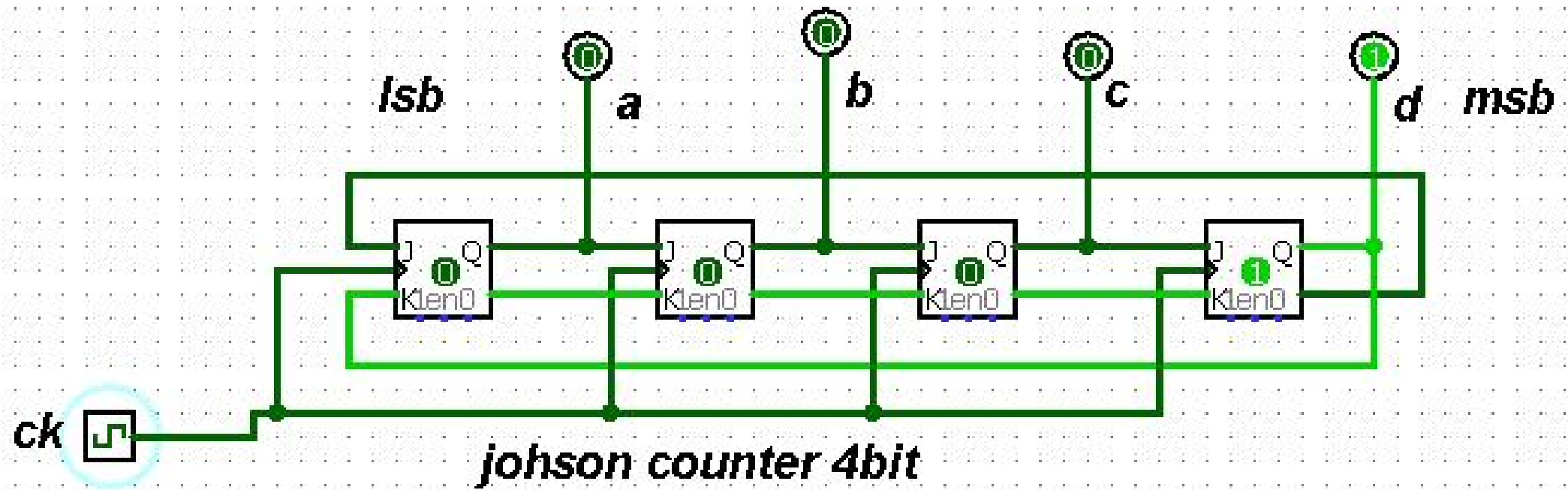




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### Student's Conclusion:

- Counter is a device which stores (and sometimes displays) the number of times a particular event or process has occurred, often in relationship to a clock signal. Counter are used in digital electronics for counting purpose, they can count specific event happening in the circuit.
- Initially, all the flip flops in ring counter are reset to 0 by applying CLEAR signal. Before applying the clock pulse, we apply the PRESET pulse to the flip flops which assigns the value '1' to the ring counter circuit. For each clock signal, the data circulates among all the 4 flip flop stages of ring counter.
- These 4 staged ring counters is called Mod 4 ring counter or 4-bit ring counter. To circulate the data correctly in the ring counter, we must load the counter with required values like all 0's or all 1's.

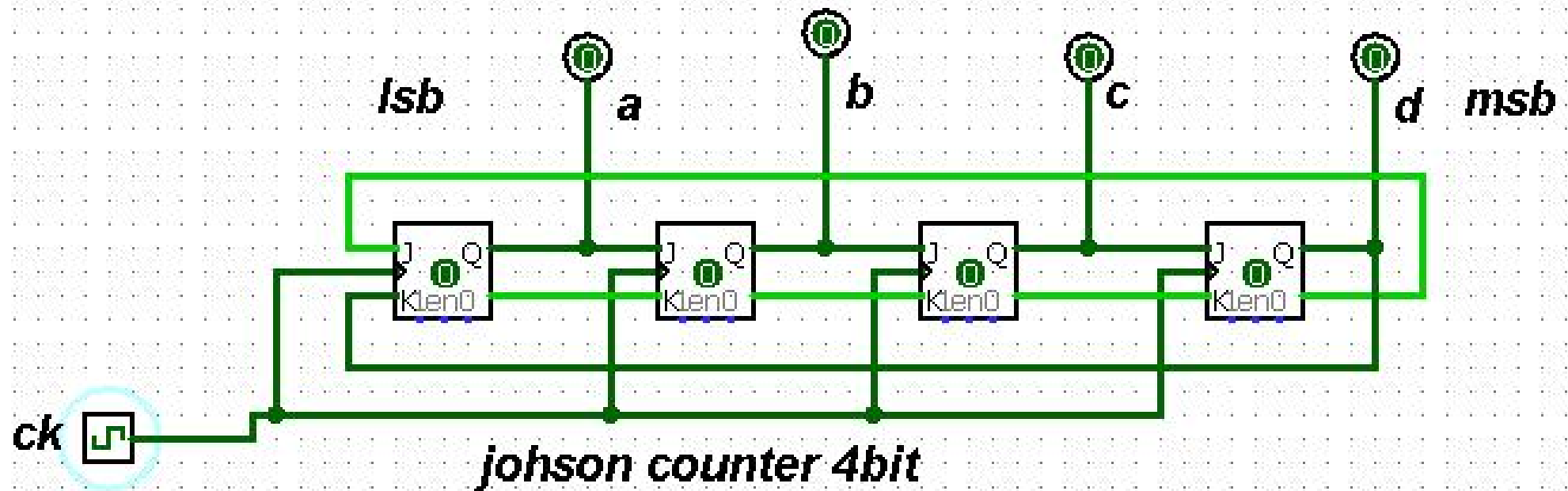
Name:Kaushik Gupta

Date:6/5/21

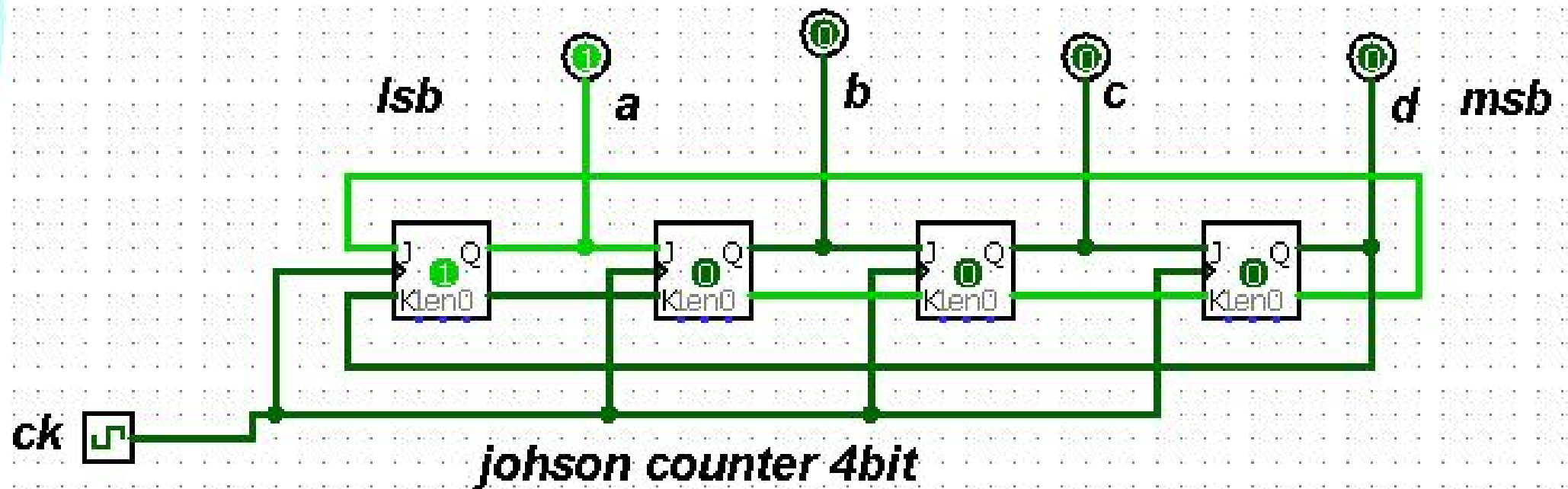
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Sign:kaushik

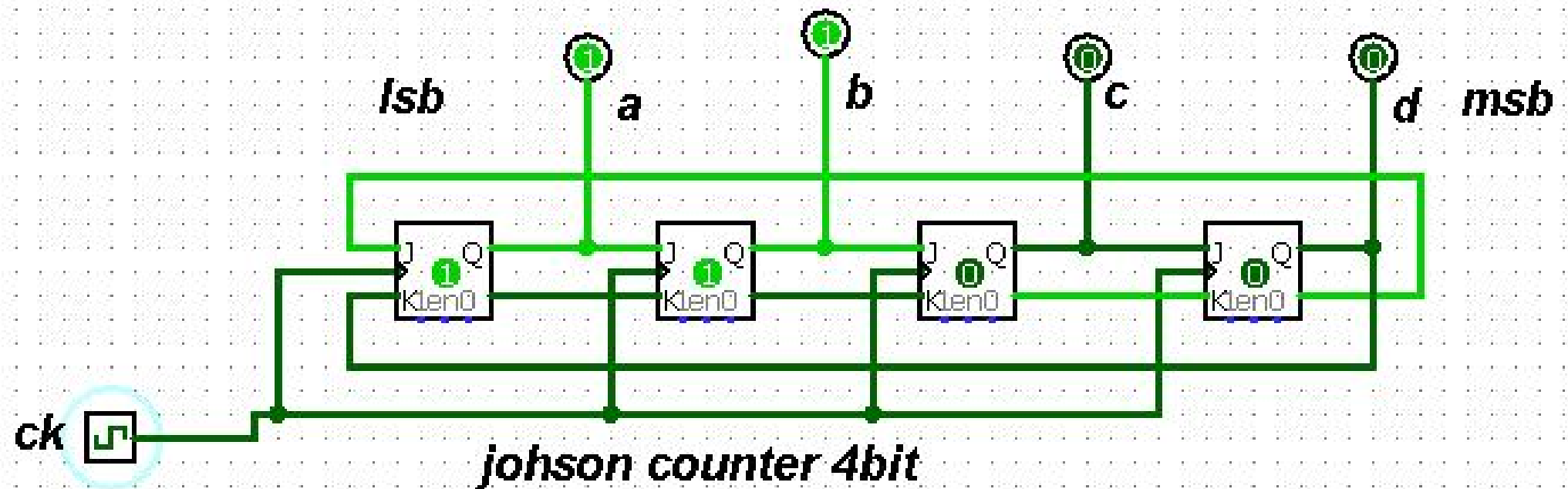
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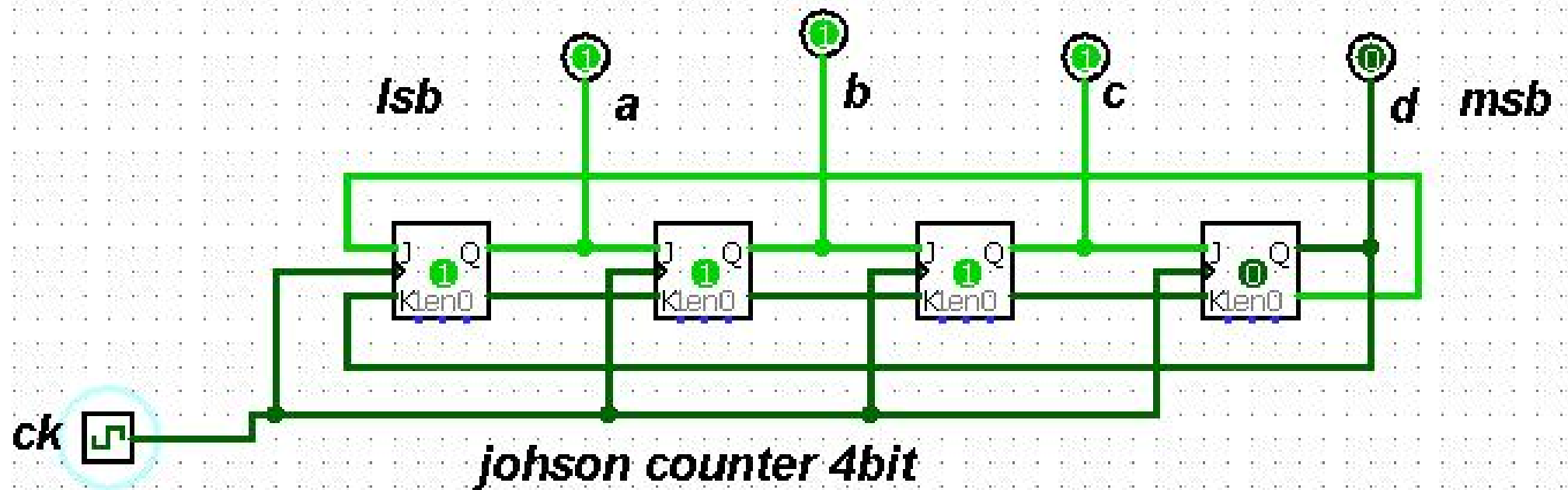
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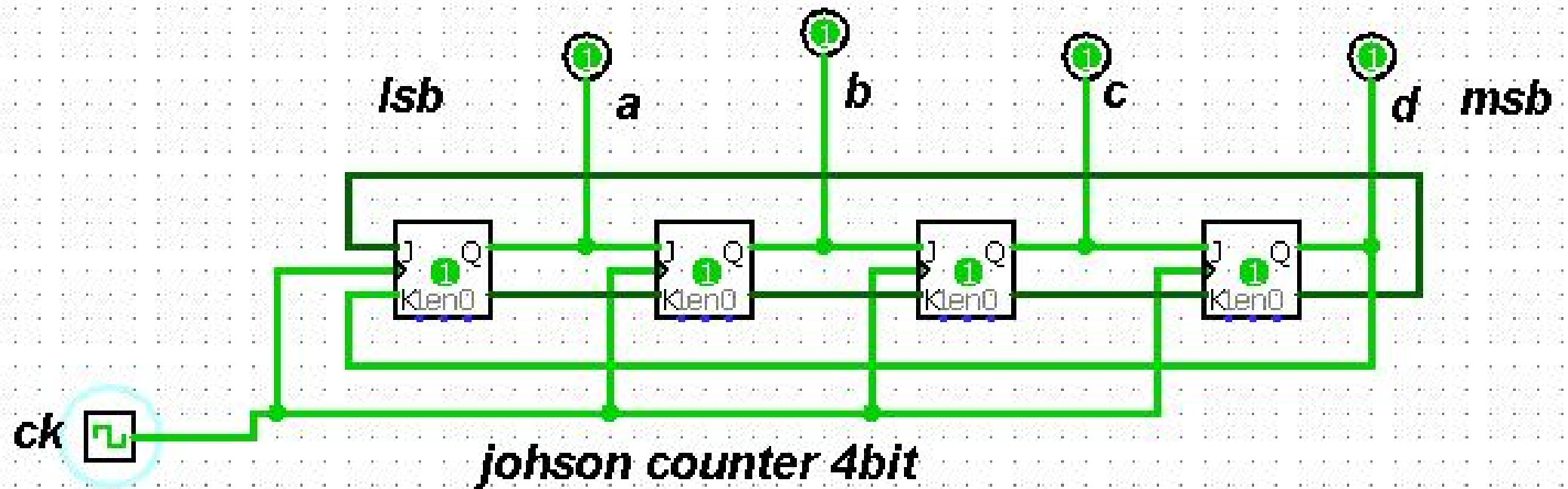
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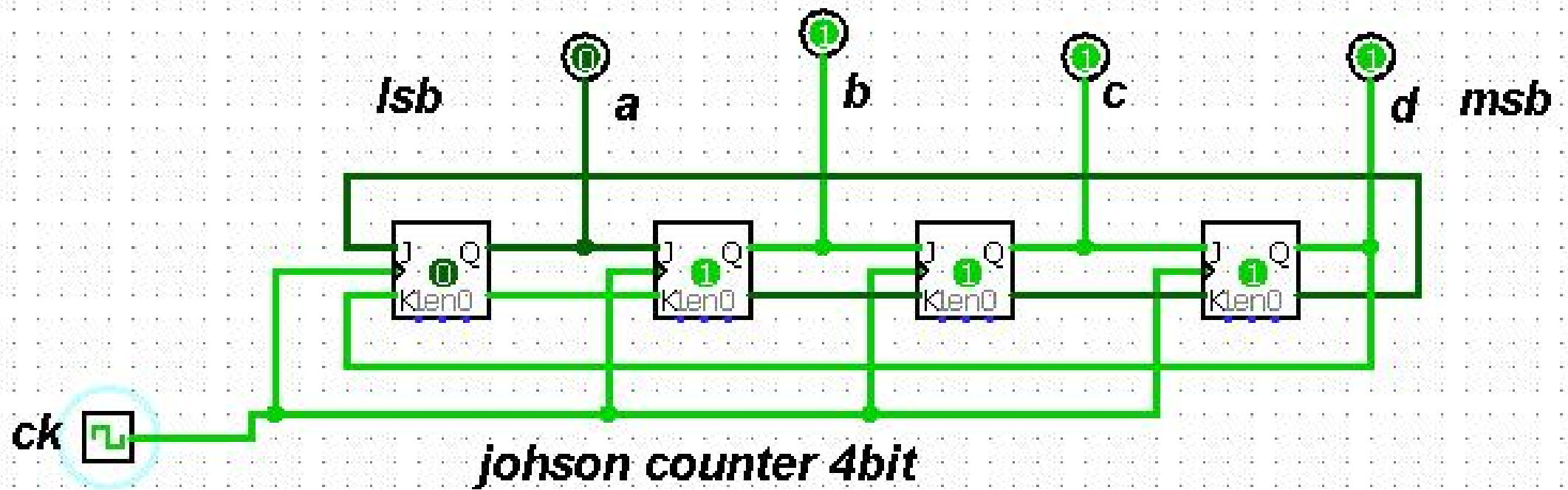


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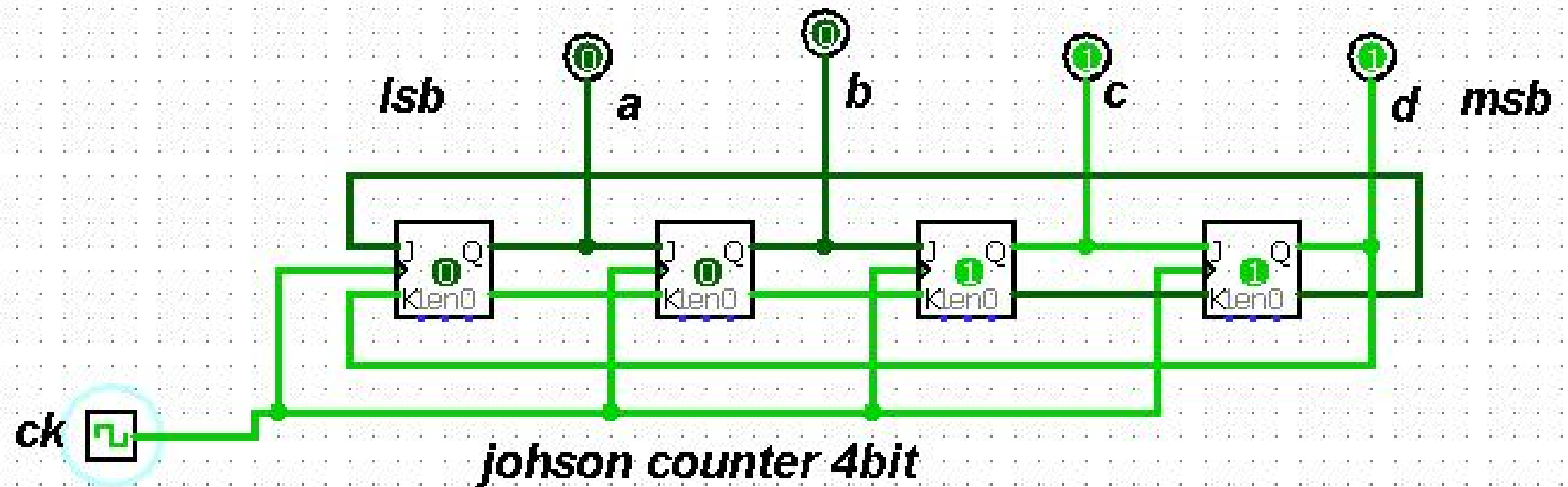




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