COS 10004 COMPUTER SYSTEMS

(HA NOI)

LAB 3

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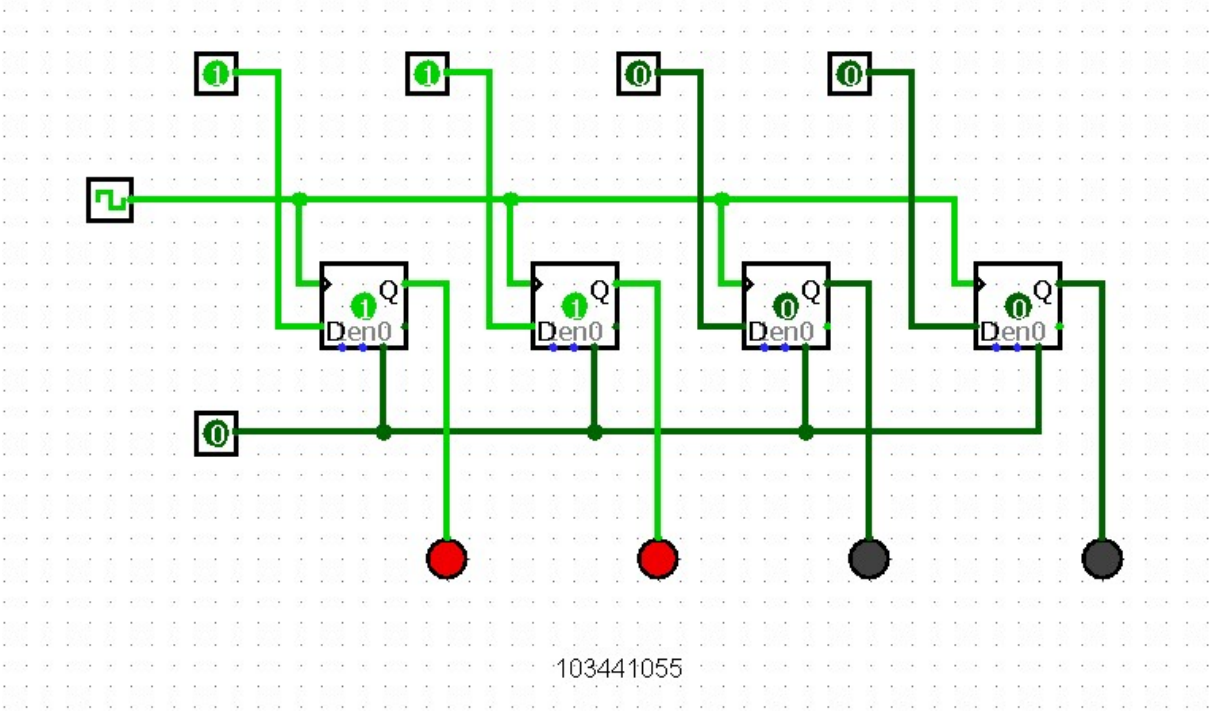
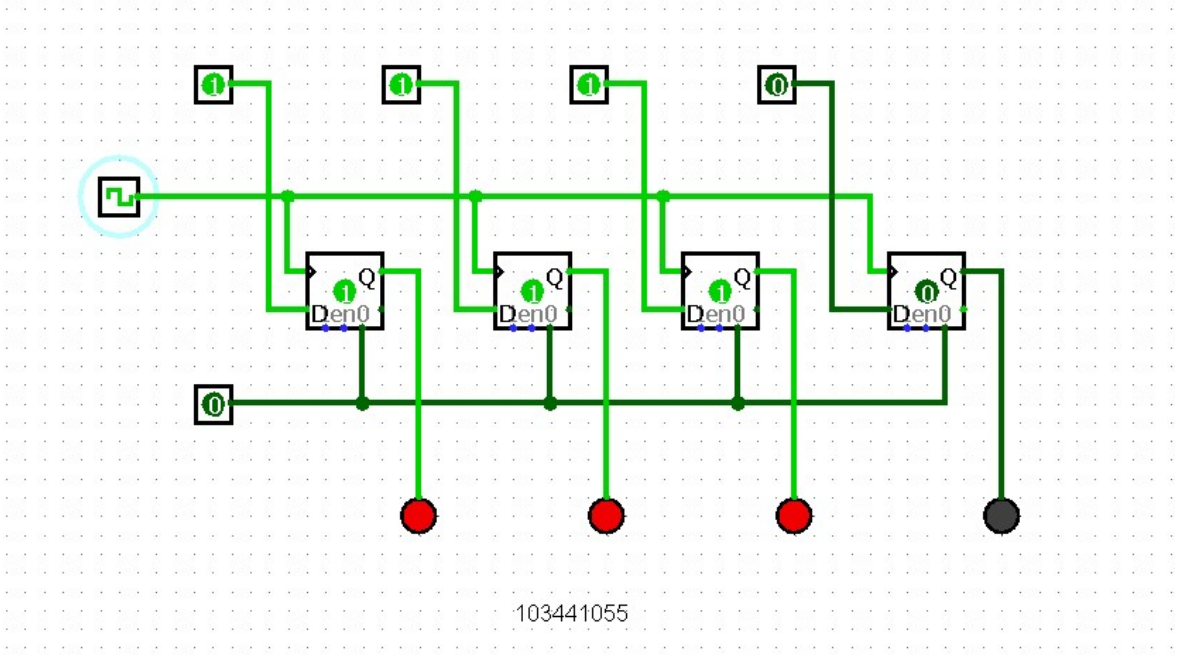
4 Bits Registers

Ox	Input	Output
0	0000	0000
1	0001	0001
2	0010	0010
3	0011	0011
4	0100	0100
5	0101	0101
A	1010	1010
B	1011	1011
C	1100	1100
D	1101	1101
E	1110	1110
F	1111	1111





7.1 Name one crucial role (hardware) counters play in modern computing architectures?

Answer:

• The decimal number that the counter uses to present information for counting activities can be shown.

• The user may see how many people have been counted in total.

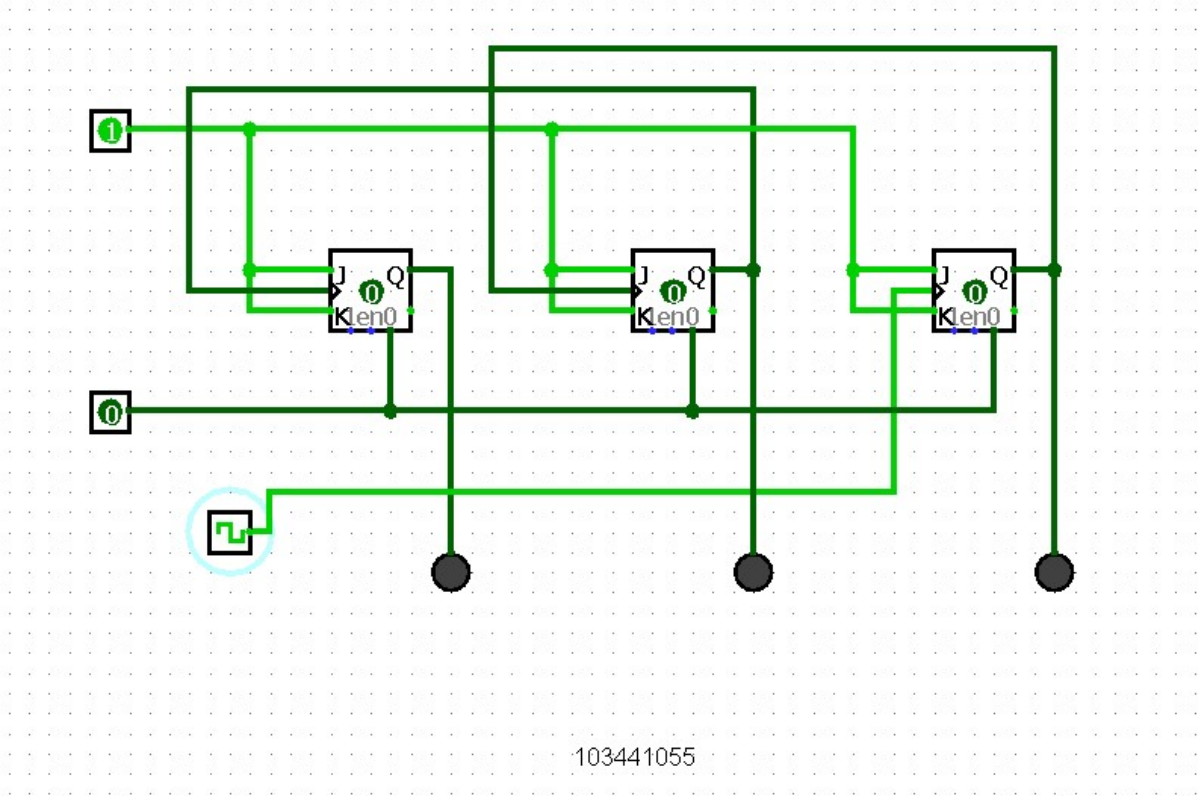
• One of the most prevalent is clock pulses.

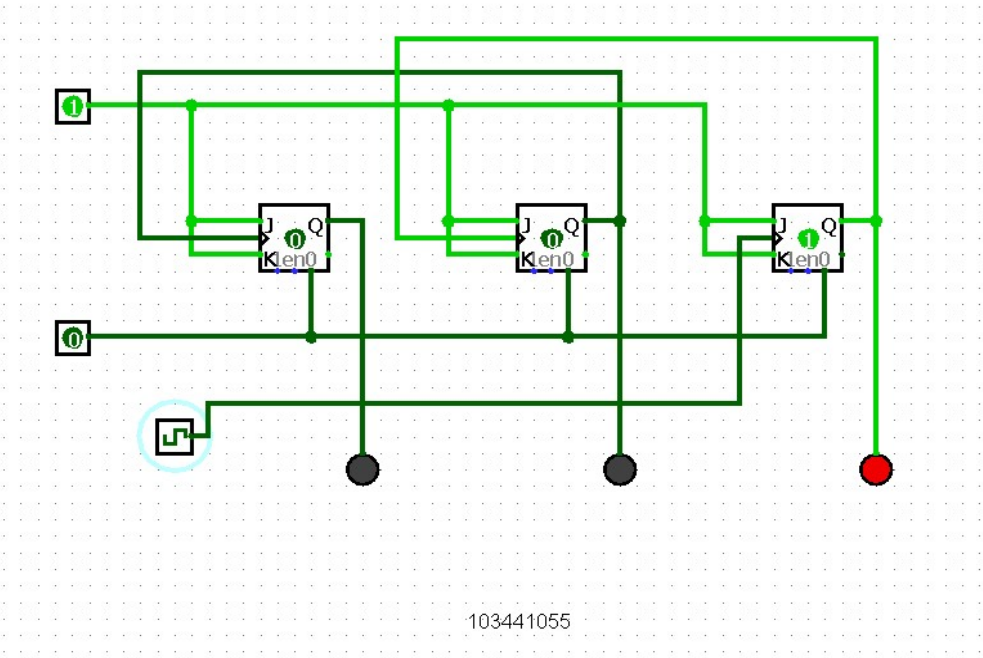
7.2. Describe in a few sentences how a ripple counter works. How does the "ripple" occur?

Answer: An asynchronous counter in which only the first flip-flop is timed by an external clock is known as a ripple counter.

The output of the preceding flip-flop clocks all subsequent flip-flops.

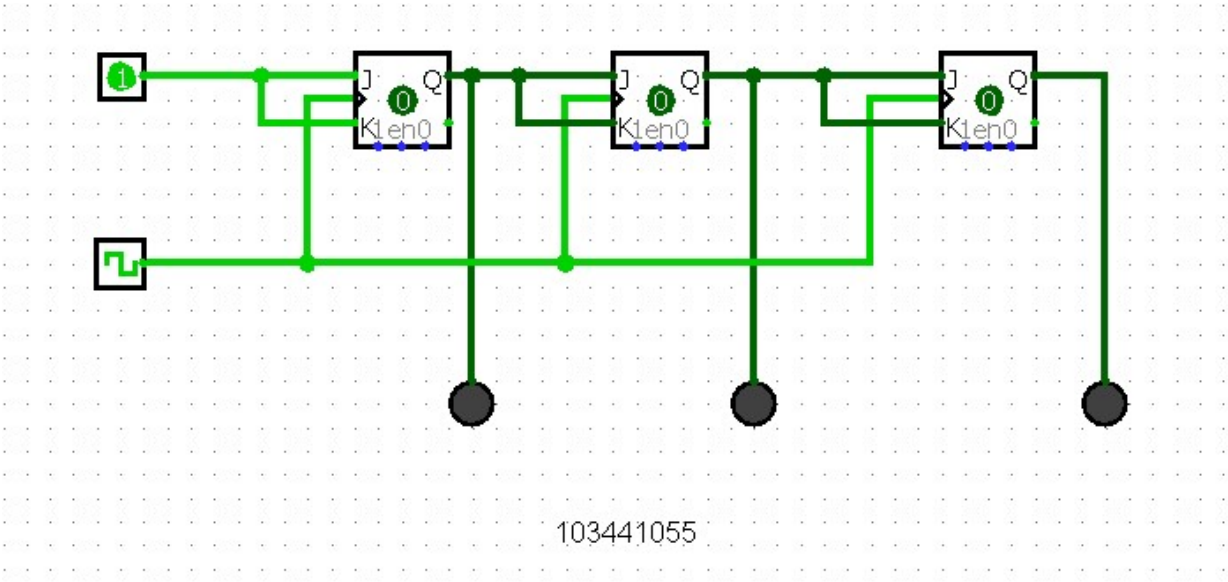
JK Ripple counter

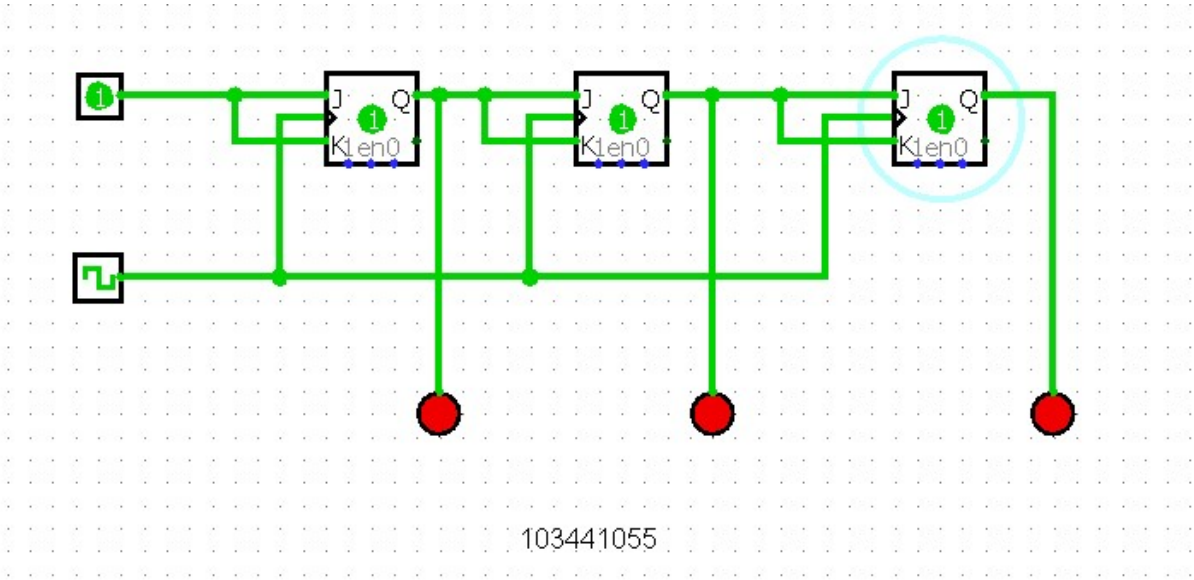




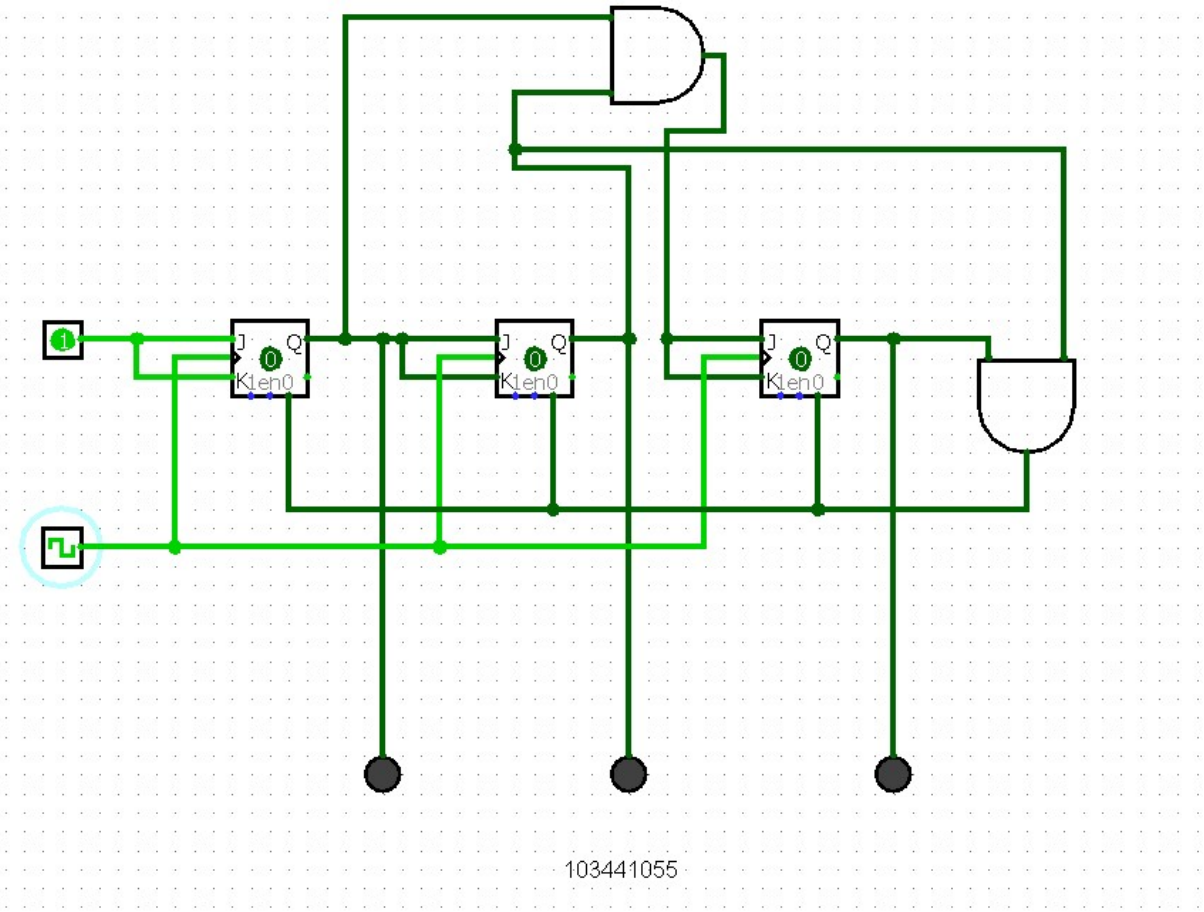
The counting down counter looks to be the same as the counting up counter since they share the same connection, however the attribute of the flip flop for the counting up counter is falling edge, whereas the rising edge for the counting down counter.

JK Counter with common clock



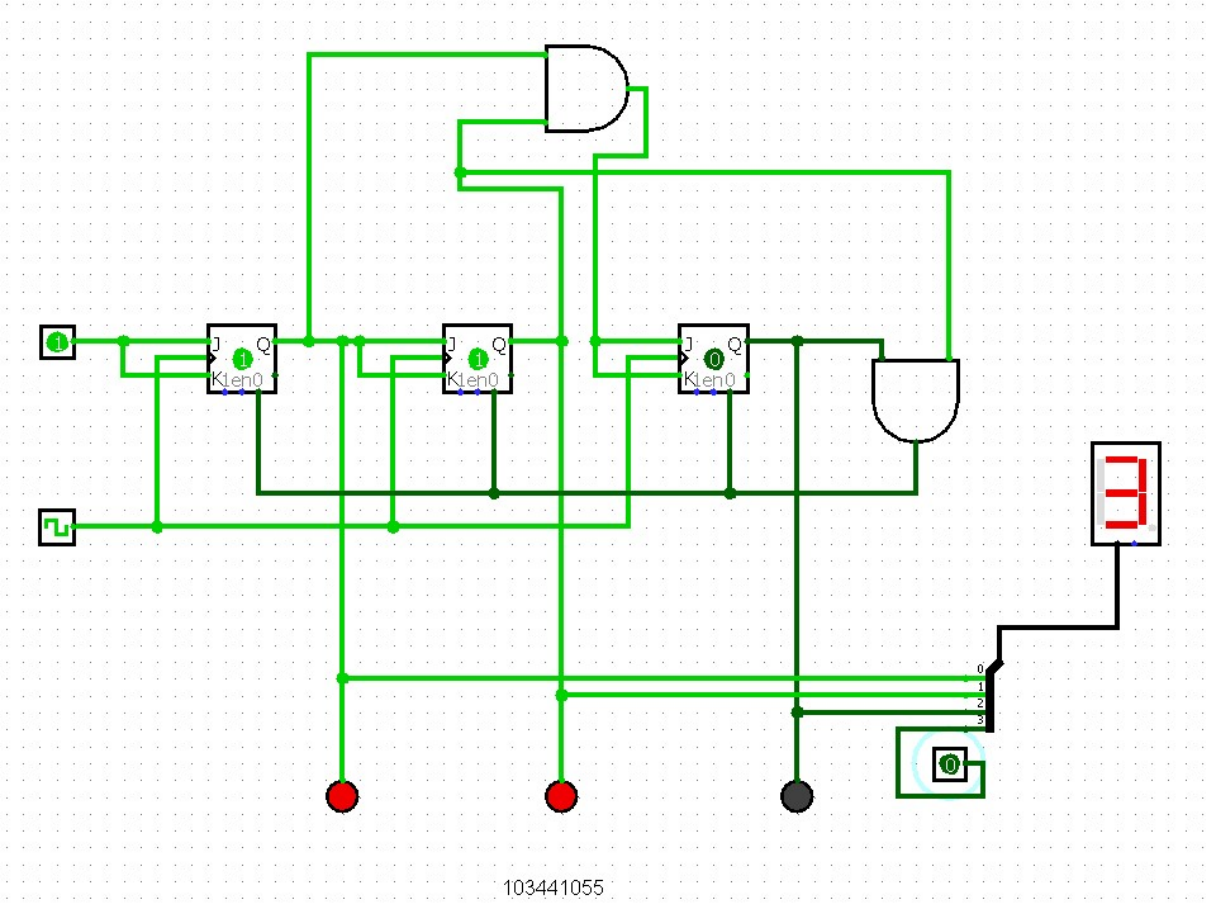


Mode 6 Counter



17.2. Why is handling such things important?

Answer: It is critical to guarantee that the counter does not enter an illegal state so that it can operate smoothly and without error.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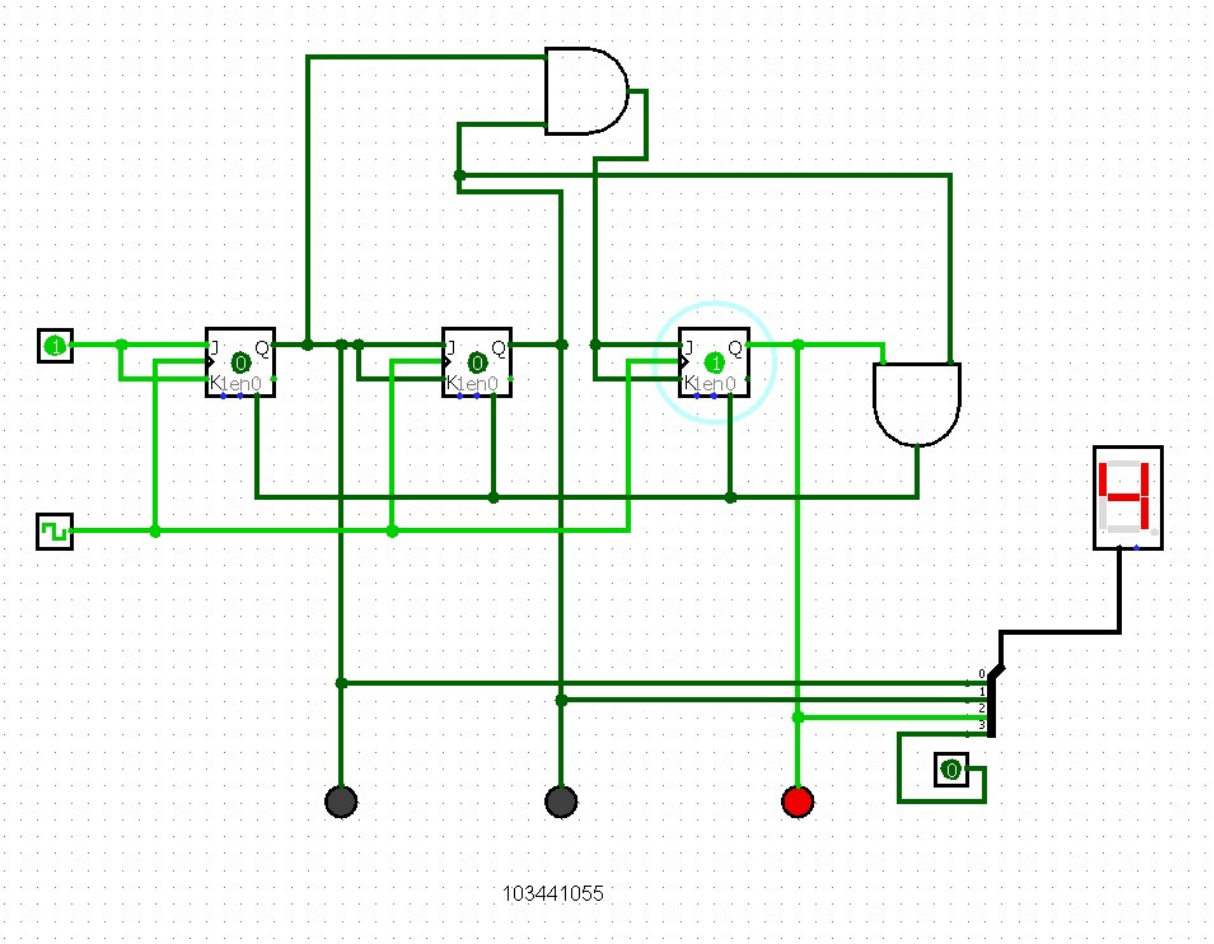
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