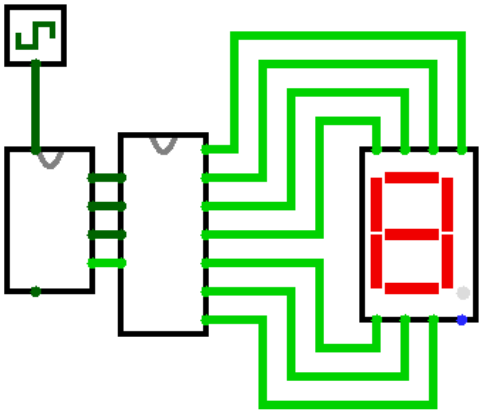
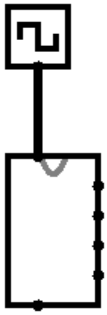
Instructions



In your first project, you are tasked with creating a seven-segment display counter. The goal is to demonstrate your ability to use Logisim and your understanding of programming simple circuits using Boolean functions.



I have provided you with a 4-bit base-10 counter; that is, a counter that enumerates over 0000 to 1001. You will use this counter, along with your own logic and sub-circuit(s) to build a display which represents the base-10 digits from 0 to 9. It is illustrated below with a clock(the top symbol). Based on the orientation in the illustration, it accepts one input:

1. Top-left: a 1 bit clock input to force counter update.

It has four output along the right side (again, based on the orientation below):

1. 2^0,
2. 2^1,
3. 2^2, and
4. 2^3.

Points

Each of the following are worth 1 point for of a total of 3 points.

1. Program a seven-segment display driver to map four 1-bit binary input in the range [0000, 1001] (zero to nine, inclusive) to a seven-segment display and correctly connect it (0.1 points each correct digit [0–9]).
2. Correctly connect the provided counter to the seven-segment display driver, a clock, and a seven-segment display to show all decimal digits [0–9]. (0.1 points each each correct digit [0–9]).
3. Repeat the logic from above to connect two seven-segment displays and any number of counters to display all values [00–99]. You must correctly count all values to get this point.

The End.