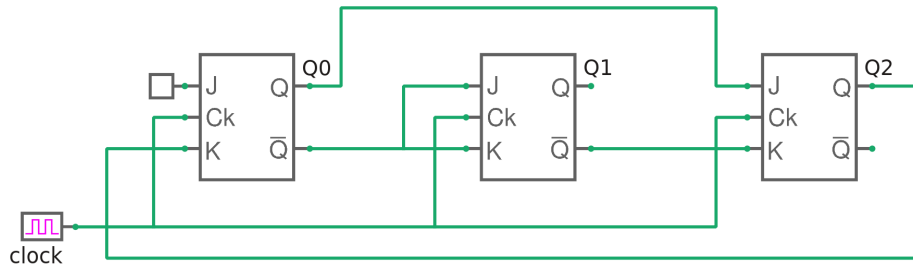


ee101_counter_hw.sqproj



Note that the flip-flops are negative edge-triggered.

A synchronous counter is shown in the figure. We are interested in the sequence produced by the counter, starting with the initial state $Q_2Q_1Q_0 = 000$. This can be done by preparing a table in the following format:

clock	Q_0	Q_1	Q_2	J_0	K_0	J_1	K_1	J_2	K_2	Q_0^{next}	Q_1^{next}	Q_2^{next}
1												
2												
3												
4												
5												
6												

Note that Q_0^{next} , Q_1^{next} , Q_2^{next} of the first row will be Q_0 , Q_1 , Q_2 , respectively, of the second row, and so on. From this table, we can find the counter sequence and also its modulo number.

Exercise Set

1. Work out the counter sequence.
2. Verify your sequence with simulation.