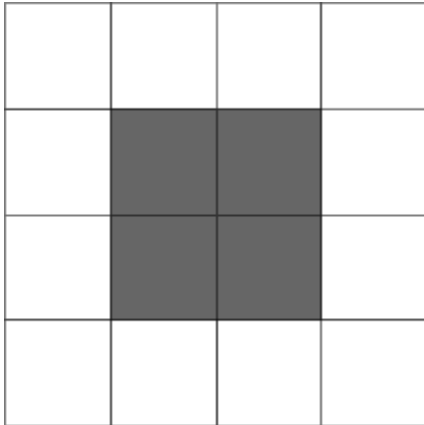Benjamin Modlin, Ella, Moises Padilla

Worksheet #8

1. Using the game of life rules, create a cellular automaton configuration that is static, meaning the same cells are alive for each and every generation.

2. Using the game of life rules, create a cellular automaton configuration that oscillates with period 2. This means that every odd number generation configuration should be identical and every even number generation configuration should be identical (and the odd and even configurations should not match).
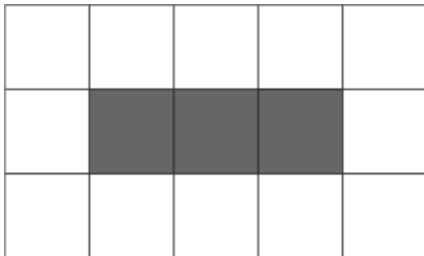
3. Consider two-state 1-D cellular automata. Given all possible starting configurations of n cells, consider simulating a CA for t steps. Is the language formed by the resulting configurations (interpreted as binary strings) a regular language? Why or why not?

Yes, there is a finite amount of states defined as the configuration of all the n cells, a finite number of steps, and well defined rules for transitioning between the states that does not require knowledge of states previous to the current step. This machine can easily be defined as an DFA, so the language it accepts is a regular language.