Final Project Test Procedures

* Set the I/O pins
  + Set the lock and **Alarm** outputs to the rightmost LEDs
  + Set the clock input and the chain input to the leftmost switch (or automatic clock) and one in from the left, respectively
  + Set the inputs 0-4 to switches with the LSB being the rightmost switch
* Download to FPGA
* Test the circuit as following:
  + First run the “correct” inputs to transition between **Unarmed** -> **Armed** -> **Unarmed**
    - Remember that states should only transition on the positive clock edge, if using a manual clock.
    - The code to change states is “2-0-3-3-1-4”
  + Test at least one reset in the **Unarmed** state
    - “2-0-3-3-1-1-2-0-3-3-1-4” Should end in the **Armed** state with output 10
    - Test with other inputs followed by the state change code each time are in the **Unarmed** state
  + Test transition from **Armed** to **Alarm**
    - First test with only failing with the last input
    - “2-0-3-3-1-1” Should end in the **Alarm** state with output 11
  + In **Alarm** state, test at least one reset and the state change to **Unarmed**
    - “2-0-3-3-3-2-0-3-3-1-4” Should end in the **Unarmed** state with output 00
  + Test an early reset in **Unarmed** state while transitioning to **Armed** state
    - “3-2-3-2-0-3-3-1-4” Should end in the **Armed** state with output 10
  + Test a last input reset and then a first input failed input to transition from **Armed** to **Alarm**
    - “3-2-0-3-3-2-2” Should reset the **Armed** state
      * Verify that output is still 10
    - “3-2-0-3-3-4” Should transition to **Alarm** state with output 11
  + Transition from **Alarm** to **Unarmed** with a different reset
    - “3-2-0-3-3-1-4” Should end in the **Unarmed** state with output 00
  + Test a mid-sequence reset and transition from **Armed** to **Unarmed**
    - “2-0-3-2-2-0-3-3-1-4” Should end in **Armed** state with output 10
  + Test a mid-sequence reset with and then a mid-sequence failed input to transition from **Armed** to **Alarm**
    - “2-0-3-4-0-2-4” Should reset the **Armed** state
      * Verify that the output is still 10
    - “2-0-3-1-2-3” Should end in the **Alarm** state with output 11