Challenges:

* Communicating with the hardware. It was our first time working with OLED. It includes a lot of learning on the protocols and new modules. Understanding the example code and making changes to show our desired output wasn’t easy. One of the issue we encountered was sending one clock cycle input signal to the OLED. Since one refresh of the OLED may take multiple cycles, the signal may be ignored by the system. To solve it we set up a dirty bit in the system to remember if the system has read the signal.
* Output Logic. After the finite state machine was designed, creating the output logic is a challenge. As we can see from the block diagram, the finite statement machines need to take care of a lot of system output and control signals to both the display and the actual calculator. The signals may require various lengths and width. Decoding them to the proper logic make the program more difficult.
* Implementation. In this lab, even though we did the simulation for the system, we still had many troubles of putting things together correctly. Implementation shows problems that is not shown on the waveforms.

Things need to change:

* Start unit testing. Work on small modules very and make sure they are working properly
* Build small pieces fist with testing.

Insight:

* A correctly working simulation doesn’t lead to a properly working simulation.
* Start early, beflexible on timing.