Lab Final - FlipFlops, Displays, and Math!

In this lab, you combine everything you've learned over this semester into one functional design.

Rubric

Item	Description	Value
Summary Answers	Your writings about what you learned in this lab.	25%
Question 1	Your answers to the question	25%
Question 2	Your answers to the question	25%
Question 3	Your answers to the question	25%

Semester Summary

Over this semester we learned how to use SOP AND POS forms and create k-maps to then design and create circuits and convert them into code with verilog. We also learned how to develop encoded, decoders and use ones and two compliments. We then moved on to learn how to create mux's and demux's and adding clocking cycles to our designs. Also learn how to build build D, T, JK, and SR flip-flops to lastly design and build a Mealy and Moore FSMs to sequence through states to control and LED display.

Lab Questions

1 - Which state machine design did you use for the scanner, and why?

We used a four-state Moore FSM, we used this design, because the anode outputs depend only on the current state, which makes the design synchronous with D-flip-flops driving the state registers.

2 - What function is the selection logic in the decoder representing? Think functional blocks.

The decoder's selection logic is a 4-to-1 multiplexer, based on which anode is active ,it gets one of the 4 bit values and displays it onto the board.

3 - What would happen if we did not divide down the clock feeding into the scanner?

If we didn't divide the board clock down we wouldn't even be able to see the number change on the display since it would be so fast. Dividing the clock helps us be able to read the display.