ECE 593 Final Project Milestone 3 Discussion

1) **Class based TB flaws**

As of turning this milestone in, our class based test bench is running in the problem of not being able to detect the DUT's flags. Specifically the full and empty flags are never changing. Our team believes our connections are correct, but were still unable to uncover the bug. This bug has caused our test bench to be unable to test complex tests such as filling the fifo and reading it all out.

However, the test bench is still able to detect the writes and reads going in and out of the DUT. This means we are still able to see that the DUT is correctly inputting the writes and outputting the reads in a FIFO behavior. Also, we can see that the FIFO is not outputting any writes that would have gone over the depth limit set by the testbench. From this, we can conclude that the FIFO's flags are actually functional. Milestone 2's test bench confirms the functionality of our FIFO through a simple testing as well. Because of this, the team is fine with turning this version of the test bench even though it's not able to detect complex tests due to the flag bug.

2) **Coverage**

Due to the team spending a lot of time on trying to fix the bug, functional coverage was not covered during this milestone. It wouldn't have been too great anyway since the flags weren't detectable. Initially, our code coverage hovered around ~80% due to including extended toggle coverage into our code coverage set. Our code coverage went up to ~88% by switching that into normal toggle coverage and that could likely be further increased if we ignored toggle coverage all together and also removed the testbench files from the coverage reports and only focused on the coverage for the DUT. But as mentioned earlier, we were having difficulty expanding our test suite as we spent a lot of time trying to figure out a bug involving the Full and Empty flags that mostly appeared with our class-based testbench but not in the conventional testbench. In addition, some members of the team were unable to run the class-based testbench, we believe this may be due to a difference in version, but that is currently unconfirmed.