**CECS 341 - Lab 7**

**“MIPS Execute Stage”**

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I certify that this submission is my original work

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Lab Report: Lab Assignment 7 - “MIPS Execute Stage”

1. **Goal:** The goal of this lab is to understand how the MIPS Execute stage works. The execute stage primarily involves the ALU which is used to calculate the result of R-type instructions, subtraction checks for BEQ and calculates address for load/store operations.
2. **Steps:**
   1. Step 1: Read over the entire lab and understand the procedure
   2. Step 2: Copy over the code for the left shift module (sl2.v)
   3. Step 3: Copy over the code for the ALU
   4. Step 4: Copy over the code for the MUX that was used in previous labs
   5. Step 5: Copy over the code for the 32-bit adder used in previous labs
   6. Step 6: Copy over the code for the test bench
   7. Step 7: Copy the skeleton code for the design module
   8. Step 8: Understand how the execute stage works and how all the modules work together.
   9. Step 9: Complete the skeleton code by filling the modules with the correct inputs and outputs
   10. Step 10: Test the lab thoroughly and ensure the results match the ones that are given
3. **Results:** The results of this lab show the ALU performing a couple of instructions. The result displays a text saying that ALU is performing an operation. After that it shows the output from the ALU. For example, the ALU is performing an AND operation. The output of the operation is 00001010. We get this result by performing AND on 00001212, which is the source signal A, and 00003434, which is on the writedata signal. This continues to run through AND, OR, ADD, failed state, SUB, and SLT.
4. **Conclusion:** In the is lab I have learned how the MIPS execute stage works in the single cycle processor. The challenging part of the lab was understanding how each signal for each input and output worked for each module.