

CSE/EEE 230 – Bonus 4

Important: This is an individual assignment. Please do not collaborate.

Make sure to follow the academic integrity policies. Using work done by someone else will be considered a violation of the academic integrity and will result in a report to the Dean's office. Your work should not match with anything found online.

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No late submissions will be accepted.

Show all the steps including how you arrived at your solution to receive full credit.

There is one question that counts towards Bonus points, if you turn it in. It will be graded for 10 points and scaled down to 1 point.

The following MIPS Code is executed using the MIPS pipeline architecture. Include all iterations of the loop.

```
Start:    addi $s0, $s1, 32
Loop:     lb $t1, 0($s0)
          sb $t1, 2($s0)
          nor $t2, $t1, $t1
          sb $t2, 0($s0)
          addi $s0, $s0, -8
          bne $s0, $s1, Loop
Exit:
```

Question: Loop Unrolling - For the above code, show the steps in unrolling the loop and write the 2-issue VLIW pipeline representing the order of issuing the instructions from the loop unrolled code.