

CSCI 2500 — Computer Organization

Lab 09 (document version 1.0)

- This lab is due by the end of your lab session on Wednesday, November 7, 2018.
- This lab is to be completed **individually**. Do not share your code with anyone else.
- You **must** show your code and your solutions to a TA or mentor to receive credit for each checkpoint.
- Labs are available by 6:00PM on Mondays before your lab sessions. Plan to start each lab early and ask questions during office hours, in the discussion forum on Submittity, and during your lab session.

1. **Checkpoint 1:** For the first checkpoint, use C to finish implementing the `push_lsb_bit()` and `pop_lsb_bit()` functions. Review the `print_b32()` function, too, though do not change it.

Begin by downloading the `lab09.c` code, which provides fill-in-the-blank skeletal code for these (and other) functions. Verify that the test cases given in `main()` provide correct results, but also add additional test cases.

2. **Checkpoint 2:** For the second checkpoint, continue to add to the `lab09.c` code by implementing the `isolate_bits()` function. Uncomment the test cases in `main()` to test your `isolate_bits()` function. Further, add additional test cases to be sure your function is correct.

3. **Checkpoint 3:** For the third checkpoint, complete the `lab09.c` code by implementing the `decode_inst()` function. As part of this function, display the decoded instruction opcode using the format shown in the commented code. This function must also display the ALU control lines, when applicable. Uncomment the test cases in `main()` to test your `decode_inst()` function. Further, add additional test cases to be sure your function is correct.

As a hint, in addition to the textbook, consider using `spim` to see what the decoded `opcode` codes, `funct` codes, etc. are for various instructions.