CprE 381 Homework 8

[Note: This assignment is targeted to help solidify your knowledge of pipeline hazards and will be useful for Project Part 3.]

1. Rework and submit your worst problem from Exam 2. You must rework the problem on a clean copy of the exam (see Canvas homepage) and submit it as a legible, single page pdf. This question's grade will be the percent score from your best revised problem. Make sure you answer is the best possible answer you can produce -- please ask questions in OH and on Canvas.

2. Pipeline Hazard Test Case Generation
   [*NOTE: This question refers to the MIPS 5-stage pipeline presented in lecture, the textbook, and the term project part 3.]* Develop a pair of test programs that you can use to test your pipelined designs. Specifically, the first program should cause at least 10 different cases of possible data or control hazards for the 5-stage MIPS processor presented in class. Each test case must be described/justified in a comment. The second program should be a refactored version of the first program that guarantees, for the 5-stage pipeline presented in class, no data or control hazards exist (i.e., use judicious NOP insertion and instruction reordering to avoid data and control hazards in your code). Submit your programs as .s MIPS assembly files. Your test program should be different than that of your term project partner(s).