ECE 486/586: Computer Architecture

PROJECT REPORT GUIDELINES

The main objective of the project report is to communicate your simulation results. Therefore, the report should focus primarily on simulation data and NOT on the details of how the simulator was implemented. You should analyze the simulation data for the memory image that will be provided to you via email on your project demo day. Your project report must cover the following analysis items/questions for the provided memory image to be emailed to you by the TA on the project demo day:

1. Total number of instructions and a breakdown of instruction frequencies for the following instruction types: Arithmetic, Logical, Memory Access, Control Transfer.
2. Final state of program counter, general purpose registers and memory (You only need to include the register and memory locations whose state has changed during the program execution)
3. Describe the stall conditions in both the "no forwarding" and "forwarding" cases and how long you stalled the pipeline for each stall condition (e.g., in the "no forwarding" case, if a consumer instruction comes right after a producer instruction, then the stall penalty is 2 cycles)
4. In the case of "no forwarding", the total number of data hazards and the average stall penalty per hazard
5. In the case of "forwarding", the number of data hazards which could not be fully eliminated by forwarding.
6. Execution time in terms of number of clock cycles for the "no forwarding" and the "forwarding" scenarios.
7. Speedup achieved by "forwarding" as compared to "no forwarding".

Some of these results can be shown in the form of a table or graph, whichever you prefer.

You should also include a copy of your source files with your project report. Your project report AND all source code is due on Friday, June 4 11:59:59 PM. No extensions will be provided. Please submit one zip file on course D2L including your project report plus all your source code.