CS 310H **Computer Organization and Programming** **Spring 2008**
Professor Fussell **Due: Jan. 31, 2008**

Assignment #2

Instructions:
The assignment is due on the date shown above. Tips to remember: give the assignments to your TA in section, remember your name, section number, TA name, and assignment number (5 points). Also, make sure your assignment is neat, stapled, and is entirely your own work.

1. Transistor sizes

   Suppose I have a chip implemented in a 0.090μ process with 120 million transistors. Applying simple scaling rules, approximately how many transistors could I fit on a chip of the same size, fabricated in a 65 nanometer process? Remember that μ is the symbol for micron or micrometers (one millionth of a meter) and a fabrication technology is characterized by the length of its smallest transistor.

2. Patt and Patel 3.3

3. Patt and Patel 3.4

4. Patt and Patel 3.5

5. Patt and Patel 3.6

6. Patt and Patel 3.7

7. Patt and Patel 3.8

8. Patt and Patel 3.0

9. Patt and Patel 3.11

10. Patt and Patel 3.12

11. Patt and Patel 3.14

12. Simple UNIX example

    Create a file (using your favorite editor, such as Pico) in UNIX that has 5 rows of text. Each row will contain two numbers separated by a space. Choose any numbers that you want, so long as they are under 1000. For example, one row might look like 47 52. Save the file as hw2.txt. Then, from your UNIX prompt, run the command:

    sh> /u/fussell/web/courses/cs310/scripts/hw2_filter < hw2.txt > hw2.out

    Submit both the hw2.txt and hw2.out files electronically. If you are curious, run the UNIX cat command on the hw2_filter file to see the script that modifies your input file. To submit your two files, using the following procedure:

    Run the turnin script with the general command below, replacing "your_ta", "hw_number", and "your_files" with the correct values.

    sh> turnin –submit "your_ta" "hw_number" "your_files"

    "your_ta" should be replaced by your TA login (e.g. jdiamond). To submit hw2.txt, type the following (do not type the sh> command prompt):

    sh> turnin –submit "your_ta" hw2 hw2.txt hw2.out