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ENEE 350 Computer Organization, Summer 2007

Homework Set 1

(Due: Class 3, Wed., June 6)

Text: Andrew S. Tanenbaum, *Structured Computer Organization, 5th Ed.*, Prentice Hall, 2006, ISBN 0-13-148521-0.

Part I.

First read carefully the course syllabus; then read Chapter 1 and Read Appendix A and work the following problems: A1 through A14 inclusive.

Part II.

Obtain an account on the Glue Workstations which you will need to do the assembly language programming assignments. You can do this from a computer with an internet connection and browser by registering on the web at: **http://www.oit.umd.edu/new/** If you have questions, please contact the OIT Help Desk (http://www.helpdesk.umd.edu/) at 301-405-1500. After obtaining a glue account use the secure shell (ssh) to login as in "ssh engr.dialup.umd.edu" or "ssh glue.umd.edu" to protect your password. For Microsoft windows machines you can download and use "PuTTY.exe" from the class webpage (see syllabus) which will provide an ssh connection (after dial-in). You can also download "psftp.exe" (or even better "winscp") for secure file transfer from the same location.

Your login name will be collected on exam 1 so be sure you know it intimately by then. If you are on campus, you will also need to obtain a print account from the Office of Information Technology by visiting the help desk in the Information Technology Library, Room 1400, Computer and Space Sciences Building (new wing), on Stadium Drive. While at the Information Technology Library obtain from the help desk whatever handouts they have about using UNIX and about text editors such as vi, emacs, or pico. You might also pick up a copy of the appropriate handout explaining how to set up dial-in access from your home PC using Windows 98, 2000, XP, etc., or Macintosh PCs, although dial-up connections will end in June; so you will actually need a high speed internet connection from one of the internet service providers, such as VERIZON, COMCAST, etc. For X-windows access from your home Microsoft Windows based PC you should also ask for information on obtaining and setting up XWIN32 or obtain (for free) cygwin and XFree86, Linux that runs on top of MS Windows, from www.cygwin.com. If you have Linux on your PC, then you have X-windows. Another possibility that runs from CD is XliveCD available for free from the University of Indiana. Use your browser and Google to search for XliveCD for the website URL. An even better possibility is Xming which is a free X-server for MS Windows XP machines. Look up the Xming download site using a search on your web browser and download and install the Xming and Xming_fonts files (self extracting archives). There is some more information on the class webpage. In any case, you need an X-server running on your PC in order to accomplish the assembly language programming assignments.

Part III.

Learn to use a text editor on the Glue (UNIX) workstations (either "vi," "emacs," or "pico") and demonstrate your knowledge by editing the following program. (The label field starts in column 1; if there is no label on the line then indent the operation field about 7 spaces for readability. Don't type "LABEL FIELD, etc." column headers.) Save your edited program in a file named prog0; you will be asked to assemble and execute this program in a later assignment. Turn in a printout of your edited program and be sure to save the electronic version in file prog0 for later use. **Be sure to enter your correct glue system login's e-mail address on the "Sample Main Program..." comment.**

```
LABEL  OPERATION  OPERAND    /COMMENT
FIELD  FIELD      FIELD      /FIELD
        /Sample Main Program
x       19            /create decimal value 19 in x
y       -8            /create decimal value minus 8 in y
z       RES   1       /space reserved for the answer in z
begin   lodd  y       /load contents of y into accumulator register
        addd  x       /add contents of x to accumulator register
        subd (-5)     /subtract literal value minus 5 from accumulator
        stod  z       /store contents of accumulator in location z
        halt          /stop execution
        END   begin   /end assembly; starting address is "begin"
```