

22C:060: Computer Organization

Homework 3

Total points = 40

Assigned October 9, 2012, due October 18, 2012, 11:59: 59 PM

Be generous about using comments to improve readability. Ideally you should add a comment with each line of your program. Insufficient comments will lead to loss of grade. Include a comment at the beginning specifying the purpose of the program.

You should turn in an executable program with adequate comments about the use of the registers and the strategy that you used to solve the problem. To submit the program, *zip* (or *tar*) them into a single file, and submit your solution through ICON dropbox.

Problem 1. (20 points)

Write an ARM program that converts each character from a character string of maximum length 16 into the *hexadecimal format* and print it on a line. Each ASCII character is to be transformed into two hex characters. Assume that the character string is stored in a file `myinput.tex`. The displayed contents of the successive characters in the string should be separated by a space. As an example, if the file contains

Nov is cold

then the output should be 4E 6F 76 20 69 73 20 63 6F 6C 64. Table 1.1 on page 18 of your textbook contains a list of ASCII codes.

Problem 2. (20 points)

Write a [recursive program](#) to compute $F(n) = 1+2+3+\dots+n$ from a given value of n using the following recursive definition of $F(n)$ ($n>0$):

$$F(1) = 1$$

$$F(k) = F(k-1) + k$$

Your program should accept a value of n from a file `myinput.tex`, and print the value of $F(n)$.

(Note: **Do not use** a simple iterative loop to compute $F(n)$)

