

22C:060: Computer Organization

Homework 1

Total points = 50

Due September 17, 2013, **5:00 AM**

(Ideally you should finish the work on the previous night and submit it by midnight. This way you can avoid last minute hassles, like network failures or “ICON was not available” kind of problems. **Late submissions will not be accepted**)

1. **Only for this assignment**, we encourage you to get help from other students to debug your programs and make them work.
2. Carefully read the handouts on the course webpage about MIPS assembly language programming and the SPIM simulator. Read Appendix B of the textbook to review assembly language programming tips, as well as the various system calls for performing various input and output operations. Also, check out the sample program.
3. Be generous about using comments to improve readability. Insufficient comments will lead to loss of grade. Include a comment at the beginning specifying the purpose of the program.

To submit the program, *zip* (or *tar*) them into a single file. Submit your solution through ICON dropbox.

Problem 1. (10 points)

Write a program to print your name on the monitor screen using a system call. You should declare your name as an ASCII string in the data section of the program.

Problem 2. (20 points)

Write a program to store an array A of words [9, 72, 101, 108, 108, 111, 13, 10, 0] in the memory. Now, loop through the array elements and display each entry (one element per line) with the *print_char* system call. The loop will exit and the program will terminate when it encounters the NULL character 0.

Problem 3. (20 points)

Write a program that will ask you to enter an integer n ($1 \leq n \leq 26$) using a prompt “Enter the value of n here:” As you enter the integer n through the keyboard, the program will print the n^{th} capital letter of the English alphabet in the following format

The letter is: <the n^{th} letter here>

Thus, if you enter $n = 5$, the output will be **The letter is: E**

If you enter a value of n outside the range, then it should output the character “?”