

22C:060: Computer Organization

Homework 1

Total points = 50

Assigned Feb 1, 2011, due Feb 8, 2011, 11:59: 59 PM

1. Read the handout on the course webpage about MIPS assembly language programming and the SPIM simulator. Download the SPIM simulator – you may download the latest version, although most programs will run on the older version 8 or even version 7. SPIM is also available on the departmental Linux machines.
2. Read Appendix B of the textbook to review assembly language programming tips. Study MIPS programming resources on ICON. Be familiar with the various system calls for performing input and output operations. Also, check out the sample program.
3. **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.**

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

Problem 1. (20 points)

Write a program to generate and print the integers 1, 2, 3, ..., N. The program should ask for an input “**Enter a positive integer N:**” and then print the list in the ascending order.

Problem 2. (30 points)

This problem is concerned with array access. To start, allocate space for an array A of size 16 in the **.data** portion of your assembly code. Your program should then fill the n^{th} element of the array with the value of 2^n . At the end, your program should loop through the array elements and display each entry with the ***print_int*** system call.