22C:060: Computer Organization

Spring 2010

Assignment 2

Total points = 50

Assigned February 11, due February 18, 2010. 11:59:59 PM

Instructions to submit your homework

1. Be generous about using comments to improve readability. This includes a comment at the beginning specifying the purpose of the program.

2. To submit the program, *zip* (or *tar*) them into a single file that has your last name as the prefix. Use ICON drop box to submit your assignment.

The Questions

Part 1 (20 points) Write a program using MIPS assembly language to multiply two 8-bit unsigned integers **x** and **y**. For each integer as well as the product, use a 32-bit representation. Since the integers are small, there should not be any problem with overflow. Use repeated addition to carry out multiplication. The algorithm is trivially simple, and does not need any explanation. The user should be able to enter a number between 0 and 255 after the prompts "Enter x" and "Enter y" are displayed on the screen. The result should be displayed on the screen as "Product = "

Part 2 (10 points) Use the programs in Part 1 as a subroutine to compute the square of the elements of an unsigned integer array A = [7, 13, 1, 20, 250, 5, 35, 8]. You can enter the array elements directly into the data section of your program. Show the result as "A square ="

Part 3 (20 points) Write a program to compute the largest element in the array A square. Use any algorithm of your choice. The largest element should be displayed on the screen as "Largest integer in A square ="

(Do not use the **mult** *instruction of MIPS for doing any part of this assignment)*