CSE 2304 Lab 5

4/11/2016

Due: 11:59PM, Mon 4/25/2016

Instructions:
Finally the last lab for the semester! Here you will get the opportunity to put lots of the concepts you have learned throughout the semesters together. For this lab you will implement a sorting function that makes use of recursion and FLU operations. Implement a Function called quicksort that will sort a given array of floating point number in increasing order. The signature of the function should look like the following:

void quicksort(float nums[], int first, int last)

, where nums[] is the input array of single precision number, and first and last are both integers and represent the first and last indexes of the array, respectively. The base address of the input array should be passed through register $a0, and the indexes through $a1, and $a2, respectively.

The quicksort algorithm will be described in the lab. You also can find more information in http://en.wikipedia.org/wiki/Quicksort as a guideline.

As you can see, this algorithm requires a swap function. So you will also have to implement a swap function that will swap the values given in $a0 and $a1. You should complete the swap function in the following lab (Mon. April 18) and be ready to demo your swap program in lab.

Your program should be able to read at least 10 floating point numbers from the console, store them in the array, sort them using the quick sort function that you have implemented and finally print them to screen with a print_arr function, that will take the base array as argument and its length, then print all the floating point numbers in that array to the screen.

Deliverables: You are expected to complete this lab assignment alone and submit both a softcopy of your MIPS source code and a one-page report discussing your design and implementation, any difficulties you have encountered to complete this lab, and what you think you have learned. In your MIPS code, write your name, class and section number in the first lines as comments. All of your source code files should be saved either as a .s file or .asm file. All files should be zipped into one. The zipped file should be named in the format: Firstname_Lastname_Lab#.zip.

Note: You should be ready to demo your program in lab. No late submission will be accepted.