Lab #3: More Assembly Programming

Due date: Thursday, 10/03/24

Coding Assignment (20 points in total)

We will use Venus RISC-V simulator for the lab. To get started with Venus, here is the web interface: http://venus.cs61c.org

Task 1: Swap elements in an array (8 points)
Please declare an array A in your data segment with 10 random integers. Program to find the maximum number of A and put it as the last element in the array while other elements relative order does not change. Then print A[0] to A[9] on the screen.
For example:
Input: A=(2,-1,3,8,10,5,4,**23**,-20,6)
Output: A=(2,-1,3,8,10,5,4,-20,6,**23**)

Test your program by giving different values to A. Please save the screenshot of the two following test cases:
1) A=(7,12,3,6,23,90,-2,-122,10,1)
2) A = (1205,5523,703,66,-324,0,-9,80,5048,990)
Save your code as **task1.s,** and submit it to the Canvas. (to help understand your code, please annotate when necessary)

Task 2: Sum of two arrays (8 points)
Code with risc-v to implement adding elements in array **A and B** as a new array **C**. Save your work as **task2.s**. **A** and **B** have **x** and **y** elements respectively (x and y may not be equal). In C, $c_i=a_i+b_i$, where a_i and b_i are elements from A and B. z is the size of C. If A and B do not have the same length, bring the rest of elements in the longer array to the C directly. Print all elements in C to the screen.
For example:
Input: A=(2, 4, 6)
        B=(1,3)
        x=3
        y=4
        z=3
        C=(0,0,0)
Output:
        C=(3,7,6)
Test your program with different values of A and B. Please save the screenshot of the two test cases below.

1)A=(10,20,30,40), B=(90,80,70,60,50)
2)A=(3,2,1,0,1,2,3), B=(7,8,9,10,9,8,7)

Save your code as **task2.s,** and submit it to the Canvas. (to help understand your code, please annotate when necessary)

What to submit:
1. Your source code files **task1.s, task2.s**.
2. A **report** (4 points) with your name, and two screenshots and your observations of the lab.