CSCE 2610: Assembly Language and Computer Organization
Fall 2018

Programming Assignment 2
Due: November 10, 2018

In our lab assignment 1, we are able to find sum, largest and smallest element of an array. In this lab, we will use functions to implement these operations. Three functions called find_sum, find_largest and find_smallest will be used to find desired values.

The three functions called by above C segments are shown next.

> *void find_smallest (long long int *a, long long int n, long long int largest, long long int index) {*
>
> > *long long int smallest = a[0];*
> > *index = 0;*
> > *for (i = 0; i <n; i++)*
> > > *if (a[i] < smallest) {*
> > > > *smallest = a[i];*
> > > > *index = i; }*
>
> *void find_largest (long long int *a, long long int n, long long int smallest, long long int index) {*
>
> > *long long int largest = a[0];*
> > *index = 0;*
> > *for (i = 0; i <n; i++)*
> > *if (a[i] > largest) {*
> > > *largest = a[i];*
> > > *index = i;}*
>
> *void find_sum (long long int *a, long long int n, long long int sum){*
>
> *long long int sum = 0;*
> > *for (i = 0; i <n; i++)*
> > *sum=sum+a[i];}*

Different from Lab 1, you MUST use 3 functions to find desired values.

Test input: n= 5; the five positive integers are: 31, 32, 33, 34, 35.

Program Output: Store sum in register X10, largest and smallest values in X11, X12 respectively. Also store index of largest and smallest values in X13, X14.

A main program snap shot is also provided. You can fill in the 3 functions and you are also free to modify the main program as long as your final result is correct. In this lab, you will gain hands-on experience in how to implement functions, and how to use stacks to save function parameters.

Submit: A file containing your ARMv8 code, a read me file (if needed), a snapshot of memory showing the values in the array before your program starts execution and a snapshot of memory showing the values in the array after the program completes execution.