Project 4
COSC 121 Computer Systems Fundamentals
Spring 2019

Due March 17, 2019 (Sunday)

For the code shown below using a syntax similar to C, write LC-3 assembly code. Your code for *main* should first create an activation record for main on the stack. Each time the subroutine *myfibonacci* is called, your code should include appropriate steps to create the corresponding activation record.

You may use the assembly code in Prof. Bolton's slides (for instance, for Fibonacci) or relevant code in the textbook as a starting point for this project.

What to submit:

1. Submit your assembly code file.
2. When the code executes, at some points during the execution, the stack will contain the maximum number of activation records for this code. Show the state of the stack the **first time** the stack contains this maximum number of activation records. Identify each activation record, show the contents of each element in the records, and label the different elements in that records (such as, local variables a, b, return address, return value, dynamic link, etc.).

    If you are not able to submit a screen shot for the stack, you may draw the contents of the stack by hand in your report, and label the different activation records as above (also label each memory location in the stack with its address).

3. Also report the value of *result* in main after the assignment in the last line in main is completed.

Additional assumptions: If additional assumptions are needed (such as where to locate the code in memory), you may make suitable assumptions.

```c
void main()
{
int num, max, result;

num = 4;
max = 5;
result = myfibonacci (num, max);
}

int myfibonacci (int n, m)
{
int a, b;

If (n>m)  return -1;
If (n<=1) return 1;
a = myfibonacci (n-1, m);
b = myfibonacci (n-2, m);

return (a+b);
}
```