# CS 0447 – Lab 3: Functions

## Description

In this lab, you will write two implementations of calculating the $n^{th}$ Fibonacci number:

fib($n$)=fib($n$-1)+fib($n$-2) where

fib(1)=fib(2)=1 and $n > 0$.

Write a program that reads an integer from the user, and then

1. Prints the answer returned from your recursive function and

2. Prints the answer returned from your function that computes it iteratively (use two variables to hold the previous two terms and generate the next from them).

Note that for large $n$, you may run out of stack space in the naïve recursive implementation.

## Requirements

Functions must comply with MIPS calling conventions, such as:

- Pass the parameter via the $a0 register.
- Put the return value in the $v0 register.
- Save registers on the stack as necessary (i.e., if your function uses any $s0-$s7 registers, it should save and restore the used registers using a prologue/epilogue).
- Save $ra on the stack if the function is a non-leaf function.

## What to Turn In

During (or before) your scheduled recitation, on Oct. 25, upload your .asm file to CourseWeb.