Lab 6 Report

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## Overview

This lab was our first experience with using local variables and calling our own functions in Assembly. We deal with the composition of stack frames and learn how to access local variables and function parameters relative to the ebp register. We also write our own recursive function, which involves the function prologue and epilogue steps for creating a new stack frame.

## Obstacles

* Figuring out how to access the local variable num\_disks was difficult, mainly passing the correct address to the \_scanf call. What caused the trouble was passing the value in ebp - 4 as the address using mov, as opposed to the *address* of ebp - 4 using lea. Once I used lea correctly, referencing ebp - 4 accessed the variable successfully.
* In the \_hanoi function, after first attempting to store the decremented num\_disks in register ecx, we realized that each recursive call was modifying that same register, causing our program to infinitely recurse, causing a stack overflow. This was fixed by pushing the decremented value onto the stack as a local variable.

## Results

We successfully completed all of the lab instructions.

Before this lab, we had never used our own functions, nor local variables. All the data in our previous assembly programs were defined in the .data section, thus we never had to deal with accessing data on the stack. Having completed this lab, however, we now are more comfortable using local variables and function parameters, now that we know the correct ways to do it.