Memorandum

To: Professor Bolden

From: Taylor Martin

Date: 3/9/2022

Subject: Programming Assignment 1 – Process Status

This memo contains a requested summary of the work I performed on PA#1. In the following sections, my work has been summarized and I have provided data from my findings.

# Part 1.

The first step that I took when working on the project was completing the quick snippet of code for program 1. I supplied the terminal output within the program code.

## PID and Sleeping:

I utilized the unix standard library, implementing args, sleep(), and getpid(). I made the program display its name, PID, and PPID. I then had it increment and display a count variable with sleep().

# Part 2:

The second step that I took was taking care of the code snippets for Part 2.1 and Part2.2

## Part 2.1:

I set up an infinite loop to open a file, append the character ‘A’ to it, and then close the file. The output was a file with hundreds of thousands of A’s.

## Part 2.2:

I set up an infinite loop to compute a simple arithmetic calculation, incrementing a counter variable. No output for this process.

## Using &, top, and kill:

Once the two tasks of part 2 were complete, I ran them both in the background separately and then together. Gathered some data using top and killed the processes. When running one background process at a time, it didn’t seem to slow down my system that much. However, when running both background processes, it noticeably slowed down my virtual machine. It took about 10-15 sec to type in the kill command with he PID to kill the process. Then I definitely noticed the effect of the freed up resources afterwards, the virtual machine was speedy again.

# Part 3:

The last work I completed was compiling and analyzing the processes data.

## Data:

Code MEM .exe MEM PID VIRT RES SHR %CPU %MEM time COMMAND

2KB 59KB 3481 2364KB 576KB 512KB 96.4 0.0 .0853sec task2\_2.exe

1KB 53KB 3494 5888KB 1592KB 1436KB 85.7 0.0 .1163sec task2\_1.exe

Code MEM = Memory used by the code.

.exe MEM = memory used by the executable file.

VIRT = Virtual Memory Used.

RES = Resident memory Used.

SH = Shared Memory Used.

**%CPU:** The share of CPU time used by the process since the last update.

**%MEM:** The share of physical memory used.

T=total CPU time used to execute the task

Command = task being executed

# Conclusion:

In conclusion I feel that I gained some more information on background processes, memory usage, CPU usage, and Linux commands. It was a fun little assignment.