Ali Hilal

Tuesday, March 8, 2022

CS 4348

Project One Report

**Project Purpose:**

The purpose of this project was to dive deeper into concepts learned in this class and implementing them in code. This project focused on how multiple processes can communicate with each other while running simultaneously. Running two or more processes at one time increases efficiency of programs and allows for quicker execution. This project also focuses on many other important OS concepts with the most important being interrupt handling and how a CPU interacts with memory and visa versa.

**How the Project was Implemented:**

Implementing this project was very interesting and taught me a lot more than I expected. I created two classes, CPU and Memory, each with their own processes. The CPU was the main processes that initiated the execution of the Memory process. The memory class is very simple. It stores an int array of size 2000 and reads in the file that is passed to it from the CPU process. The class cleans the data and stores the instructions in the array. Lastly, it continuously listens waiting for a command from the CPU processes to either read an instruction from the array or write data to it. The CPU process creates the child process for the memory to process to execute. It reads in the file name and interrupt timer time from the command line and sends the file name to memory. Then it runs the user program, checking for interrupts after every instruction is read from memory and executed. The CPU class also holds the definition of every instruction and what should be done when each instruction is called.

**Personal Experience:**

I found this project extremely interesting and fruitful. I learned a lot more than I expected when completing this project. The most significant one is the implementation of multiprocess execution in a coding project. One of the first things I was taught when I first started programming was that each project can only have one main method. Then this project showed and forced me to use two main methods, and it actually works. This is a concept that I will definitely be exploring more and try to discover how much potential this method of program really has.