Project 1 Summary

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The purpose of this project was to Learn how multiple processes can communicate and cooperate. Using the CPU and Memory as the parameters to be considered for each process objective I was able to better Understand low-level concepts which are important to an operating system. I learned a lot about how the processor interacts with main memory as well as how the instructions that were given to me behaved in the CPU. I had a few issues with stack processing and interrupt handling. The overall process was rewarding although difficult to implement. Although I was more familiar with piping and forking processes in c++ it has been awhile since I coded in that language so it took me a little time to learn how to do classes and use headers and general syntax and unknown functions that were helpful but I soon learned about through research. I began implementation of the project by creating Memory. I first parsed the file and read it in to an array that would contain the instructions and operands for the CPU to fetch. After I created Memory I created the main file that I used to create two pipes, read in what type of arguments I received from the user and then afterwards fork. Once I forked I made sure that each process could communicate to each other and when they were finally able to communicate, I began creating the CPU. The CPU contained the most code because all of the instructions and implementation. I coded each instruction as a function and once the function was complete it would either set a status to fetch another instruction, or use the operand for the first instruction since it wasn’t used to start a new instruction set. The statuses that I set would either fetch an instruction, fetch and operand, reset the program counter, exit the program, or switch modes to write to memory. I had issues understanding where the stack pointer was supposed to reside. I figured since the CPU had instructions regarding different stack I figured it belonged in the CPU, I overall felt like I improved my coding skills as I finished the project but I wish I had a little more time. The samples that I was able to run were sample1.txt and sample2.txt. I could run sample3.txt but with minor errors.