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Project #1 Summary

The project is two programs that will simulate the interaction between a central processing unit and memory. The purpose of the project was to learn the basics of processor-memory interaction and the role of various registers, gain exposure to memory protection, and provide a basis for future discussion of operating system components. The processor is an extremely important aspect of operating systems due to the fact that the operating system can be said to be in control of the processor, yet having to give up control of the processor to other programs for execution.

For the project I decided to create the program using C. I chose C because I already had experience using it in spawning processes, and process communication. I chose to have the CPU process spawn the ‘memory’ process, with the CPU communicating with memory through memory’s standard input and standard output. Communication through the pipes involve the CPU declaring what action is to be performed, then passing and integer, which is the desired the address in memory, and optionally a second integer that is to be written to the location. The CPU process passes all of the command line arguments, consisting of names of text files, to the memory process and the memory process opens the files and stores their contents into its array.

My personal experience while working on the project is noticing that pipes behave strangely while passing integers. Passing a character or a string, the pipe will behave as expected, but passing integers will cause useless memory to be received. For a solution to this problem, I converted all my integers into strings before passing them through the pipe.