This project was to design a system to simulate the interactions of a processor and memory along a bus. It is my hope to explain what I learned when confronted with the multitude of programming issues over this project.

The first Milestone I set was to create the two processes and have them successfully communicate. There were some issues working with the flags when I was setting up a pipe, so I decided to use two instead. This proved to be a worthwhile decision, as it caused my communication loop to have an asynchronous timing issue. This let me to using the function select() to notify my processes that there was information available in their respective pipes.

The next issue came from writing to memory. The way I had set up the pipes to avoid the asynchronous timing issue is very delicate. Changing it was not something I wanted to risk. Instead, I decided that I was going to have two different forms of input going to from the cpu to memory. For a simple read request, I would use an integer as we would expect.

To write to memory, I would send two numbers, both 4 digits long at the same time as a single integer in the form 1xxxxYYYY. The one is used so there would be no issues with using zero. Because of the physical limitation of memory being two thousand ints long,, there would not be a read request for any number passed to memory larger than 1999. Knowing this, I set up the memory side to parse the strange input and separate the two numbers, on being the address of the write request, and the other being the data. This does bring up an issue where you can only write to memory if your numbers are smaller than 9999.

I think my biggest regret was not investing more on methods to do my work for me. However, one of my friends enlightened me to one of the great hidden gems of the internet, a website called linux.die.net. This website was almost like a crutch, with all the information I needed over all of the commands I was using, such as the select() I mentioned earlier.

In conclusion, this project was a wild success in teaching me about the needs that arise when making an operating system. It is difficult to be more comprehensive with timing and bus management issues.