

buyer\_seller writeup

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## 0.1 Project Summary

buyer\_seller is a project consisting of two programs, buyer and seller. The buyer program is a client that reads a data file of 50000 entries, consisting of an account number and order or payment, and sends it to it seller through the use of Unix Domain Sockets. Acting as a server, seller receives these transactions, and through the use of multi-threading, consolidates data from all 10 clients into a single account structure, avoiding collisions.

## 0.2 Challenges

The main challenge of this project was trying to incorporate threading in conjunction with Unix Domain Sockets. The client side was easy to design and implement, however, despite writing a few code examples of threaded processes, figuring out the logic of how to spin up a thread after a connection and continue to listen for more connections was more difficult than I had anticipated. Additionally, many resources online were difficult to understand, had 0 regard for memory management and signal handling, or continued to reference them in regards to network sockets, which I also don't have a fundamental knowledge of yet either. Unfortunately, because the course material is sub-par, it meant spending alot of time online trying to figure out how to implement Unix Domain Sockets, which can be dangerous.

## 0.3 Successes

Signal handling. After the last project, I was not happy with my understanding of signal handling and how it was implemented. I did some extra exploratory learning on the subject, and started re-writing that project around signal handling, rather than implementing it after the fact. I used the gained knowledge of signals, as well as the idea that they must be designed around to do my initial design for this project. I think that I did a much better job of implementing signal handling on this project because of that, and it is a more graceful exit on SIGINT.

## 0.4 Lessons Learned

The biggest lessons learned are all the specific intricacies that I learned while digging through the man pages trying debug my program or implement certain functions. For example, on the client side, I was trying to figure out how to encode an EOF character to send to the server to indicate the client was done transmitting. However, when

reading through the `recv` man page, I realized that `recv` returns a 0 on EOF from client, so the work is done for me, and I can leverage the intricacies of the API itself.

Aside from getting a better understanding of Unix Domain Sockets which will translate to network sockets, I have narrowed down and identified reliable, trustworthy resources for these topics. Again, it is impossible to learn all we need for this course from the text, so having a set of resources I know I can turn to that represent good coding practices will be extremely beneficial leading up to the BSLE.