Homework 4 Report

For this Homework 4 assignment, I spent about 25 hours over the course of a few weeks. Like Homework 3, I tried to start Homework 4 as early as possible because I knew Homework 4 needed me to utilize some complex concepts. I started a few days after Homework 4 was assigned and explained in class and began changing the code in Homework 3 to use inheritance and polymorphism. I first changed and created the header files needed in Homework 4, then changed and coded the cpp files. This homework was quite difficult because we had a lot of control over the program's functionality. The instructions gave me the power to make our own decisions, and didn't walk me step by step through what I needed to do, unlike a lot of the other projects I've worked on. It was also difficult to implement inheritance and run-time polymorphism because it was still a relatively new topic for me. I struggled a lot with this and had to ask for help to get over the rough patches of this project. However, in a way, because this project required us to build off of our Homework 3 code, it was easier than I expected. Having a base and an idea of how all the classes worked together optimized the entire process for me, and allowed me to implement things faster. Although Homework 4 still required me to change a lot of code for Homework 3, even creating the new classes of Audio CD and DVD, it was easier because once I figured out how to make Book a derived class, changing the 2 new derived classes wasn't as bad. I learned a lot about problem-solving and time management. I kept a small planner to plan out my tasks every week, which definitely helped. From Homework 3, I knew it was not too good of an idea to procrastinate on Homework 4, so I made sure to stay on a strict time schedule to get everything done. I utilized the resources around me, such as my friends and the internet, to solve bugs and to increase optimization. Hopefully, for my next big project, I'll have even better time management and organization. This experience has solidified my belief that it's always better to start early, especially since for this assignment, we were awarded extra credit for completing this project early.

The portion of this assignment I had the most trouble completing was the virtual function component. It took quite a lot of logic, reasoning, and planning to figure out which functions could be or needed to be a virtual function. The code that accompanied this aspect also needed a lot of logic, as although I wasn't starting completely from scratch thanks to Homework 3, incorporating virtual functions and inheritance was still difficult. The struggles with inheritance relationships and run-time polymorphism made me really frustrated at times, but as a result, I'm even more proud of myself for completing such a complex project. I will look forward to my next big project in my next computer science course!