Atij Mahesh

905954423

Project 4 Report

I was able to finish the entire project. I have no known bugs, although I believe my code could run a bit faster. I did not use banned STL components.

The first two classes I wrote were Movie and User. The tests were fairly straightforward for these classes, as I just had to ensure the object constructors and various methods worked using a few test cases. The next class I wrote was TreeMultimap, and I first tested it using the example given at the end of Page 20 of the spec. I then wrote a few more test cases using strings and other primitives to make sure it was working. I also used a timer later on with a loop of 40K elements to test the class in terms of time in milliseconds. I then wrote the UserDatabase and MovieDatabase classes and tested them both with the user.txt and movie.txt files. I also modified the files at some points, making them shorter to gauge an expected output, or keeping the inputs large to see how they can handle large quantities of data. Finally, I wrote and tested the Recommender class, which was the most difficult class for me. I heavily relied on using timers and tracing through the Big-O of the function, as I made many modifications to make the function more efficient. I found an error in my iterator class in my TreeMinimap while testing the recommender, and had to use a timer to trace through my classes to where the error was occurring. Ultimately, I had to rewrite a substantial portion of my Iterator class, as it was very slow when I inserted numerous keys (genreMap). I finally tested all the functions together, which worked homogenously and outputted consistent results.