For this project, our task was to create a session logger that would record down statistics of specific things when the chatbot was run, such as how many times the user inputted a query into the program, and how many times the program was able to successfully output an appropriate response.

First, I began by taking the code I had for PA4 and modifying its code. I added 4 new methods: printClearStream(), getCurrentDateTime(), writeToFile(), and appendToCSV(). getCurrentDateTime() was an important method that would be able to get the current year, day, and month into a string using the chrono library. Its intent was mainly for the writeToFile() method, which would utilize getCurrentDateTime to archive chat sessions depending on the date they were run. However, since it was possible for multiple chat sessions to happen during a day, I decided to add hours to the getCurrentDateTime() string so that the possibility of overwriting a file with the same name would be less likely. printClearStream() is used due to the way I modified the main code. I made it so that all responses from both the user input and the program output would be stored in a stringstream variable called responses, and replaced all instances of cout within the main function with responses. However, putting in everything in responses would mean that it would contain duplicates, and not having cout would mean nothing would be printed to the terminal. I created printClearStream() to simplify this process, by allowing it to store the responses stringstream as one long string called logger. Then, I printed the current responses stringstream to the terminal before replacing the stringstream with an empty string. The rest of the data was collected by using int variables that would increment when the appropriate user query or program response was outputted successfully, and chrono was again used to time how long the chat sessions lasted. These were put into the chat_statistics.csv file using the

appendFromCSV() method that appended the data appropriately to a new row when the chat session ended.

Finally, the actual PA5 project itself was relatively simple in theory. It would extract the information from chat_statistics.csv and give out the appropriate statistics, and it would also be able to grab the chat logs from a specific text file if needed. However, I did run into a couple problems within the code, especially of the readFromCSV() method which would sometimes not read anything at all. Overall, this was a challenging part of the project, but it was fun to successfully implement the plan I had for this project.