

## Program 5

The goal for this fifth project was to record the statistics of every chat session. The user would start the session while the program stores all the user's and CPU's responses. Then save the number of times the user types a query and the number of times the chatbot replies to the user. Afterward, their entire chat session would be saved and sent to a txt file with a date and time on it. And a CSV file that had each chat session file name, the number of replies for CPU, and the user all separated by commas.

For this program, I had to make a lot of small changes, which changed my code greatly. I kept most of the original classes and methods I had before. However, I added another class with a print plus a saver method. The saver method is used to save all the user and CPU utterances and out them to the text file. The print method is used to print out the statistics to the CSV file. I used the Chrono class to get the elapsed time and current date and current. The program still runs the same as the previous program assignments.

I think this program was just as difficult, if not more than the past programming assignments in a different way. This project involved a lot of time of me fixing/adding small things to every single part of my program. Ultimately this led me to a lot of small errors. For extra credit, I implemented Antonio Turner's Time End and start methods.