CPSC 490 Proposal: Research and Development of Statistical Software for Online Poker

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1 Introduction

Online poker players use a variety of tools when playing or studying. A few examples are:

- Heads up displays (HUDs) that display statistics about other players [http://drivehud.com/]
- Tracking/analysis software that keeps a log of hands so that players can review their decisions [https://www.pokertracker.com/]
- Equity calculators that help players determine the probability of winning a hand given certain cards [https://github.com/andrewprock/pokerstove]

Note: a hand is a single instance of a game of poker, from when the cards are dealt out to when the pot, consisting of all the money that was bet during the game, is awarded to the winning player.

2 Research Goals and Motivations

When playing online poker ourselves, we found that most poker software is relatively expensive (with the most popular options costing around $100). To a player just starting out, this might be even more than their poker bankroll. Furthermore, we found that many tools only support Windows. Additionally, many tools did not support the specific poker site/application.

Thus, the goal of this project is to develop our open-source tools for online poker players, keeping ease of use and operating system portability in mind. Specifically, we hope to design and implement a HUD and tracking/analysis software, two of the most essential tools.

Goals for the HUD

- Display basic statistics [https://redchippoker.com/basic-hud-stats/], correctly mapped to players
• Develop more advanced statistics and possibly a system where the user can build a HUD statistic themselves

• Develop nice GUI where HUD statistics appear next to the players on screen

Goals for the tracking/analysis software

• Parse hand histories and store results in a database

• Analyze data and find common mistakes

3 Challenges

For the HUD, the main challenge in getting started is retrieving real-time game data while the user is playing. This might involve parsing log files, intercepting data sent to the poker application, or screen capture.

For the tracking/analysis program, the main challenges will be efficiently parsing the hand histories, storing the results in a database, and using the parsed data to make meaningful conclusions about the user’s decisions. To this end, we will need to learn how to link a database with our program.

4 Other Considerations

There are many different poker variants. In this research we focus on Texas holdem ([https://www.partypoker.com/how-to-play/texas-holdem.html](https://www.partypoker.com/how-to-play/texas-holdem.html)) as it is currently one of most popular variants and the one the author is most familiar with. The results will hopefully be extendable to other variants.

Additionally, as mentioned earlier, we will develop software to use with Ignition Casino’s ([https://www.ignitioncasino.eu/](https://www.ignitioncasino.eu/)) poker application, as it is the site that the author currently uses and, as mentioned, it is a relatively popular site not supported by many current tools. If time permits, we will explore extending our work to be compatible with other poker applications.

5 Plan

We plan to first focus on the development of the HUD, spending a few weeks on whether or not it is possible for us to access real-time data on the current hand while the user is playing. Our preliminary research suggests that the current hand’s information is not stored in a temporary log file on the user’s computer, so we will need to explore other avenues such as intercepting the data. Existing HUD programs must have some way of doing this, so our intuition is that we will be able to as well.

If we are able to finish our HUD or are unable to progress with the HUD, we will then shift to the tracking/analysis software. Ignition Casino’s poker application
provides hand histories 24 hours after a hand is played, so we are certain we will be able to use this data. We will first explore possibilities for what database connectors or object-relational mappers to use. Then we will move to parsing the hand histories and storing the results in a database, thinking about how best to represent the data given what queries we want to make. Finally, we will try to have the software give useful feedback about the player’s decisions as well as allow the user to perform their own queries.

6 Deliverables

The deliverables will ideally include a heads up display and tracking/analysis software (potentially combined into a single application), documentation on this software, and a final report.