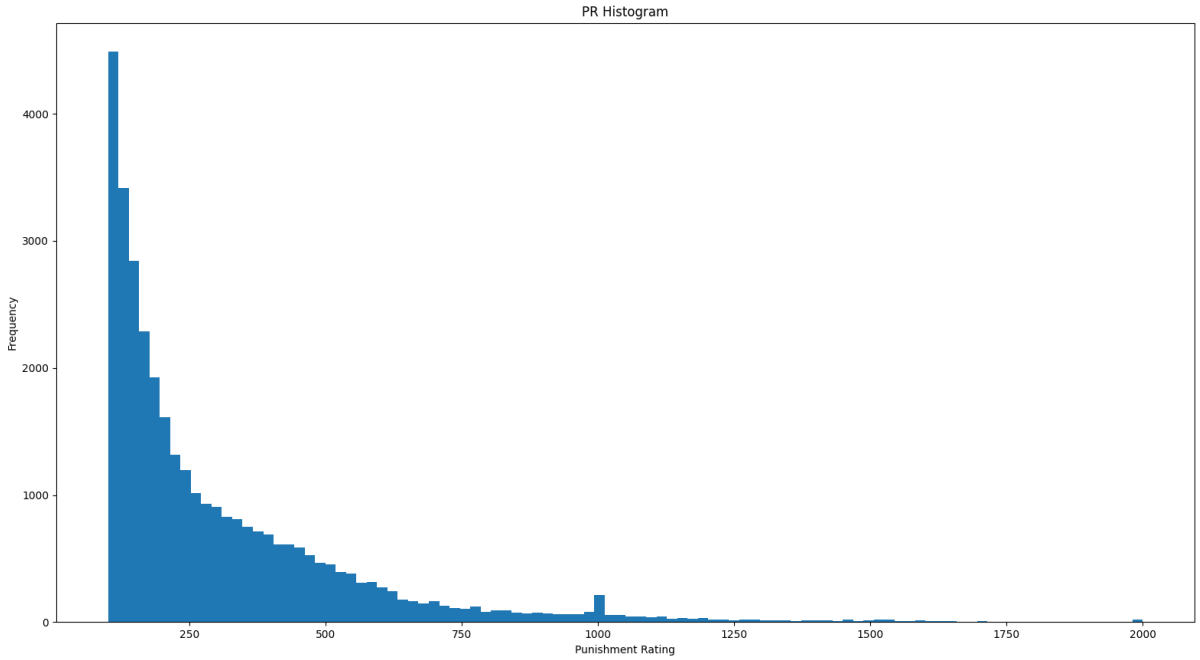
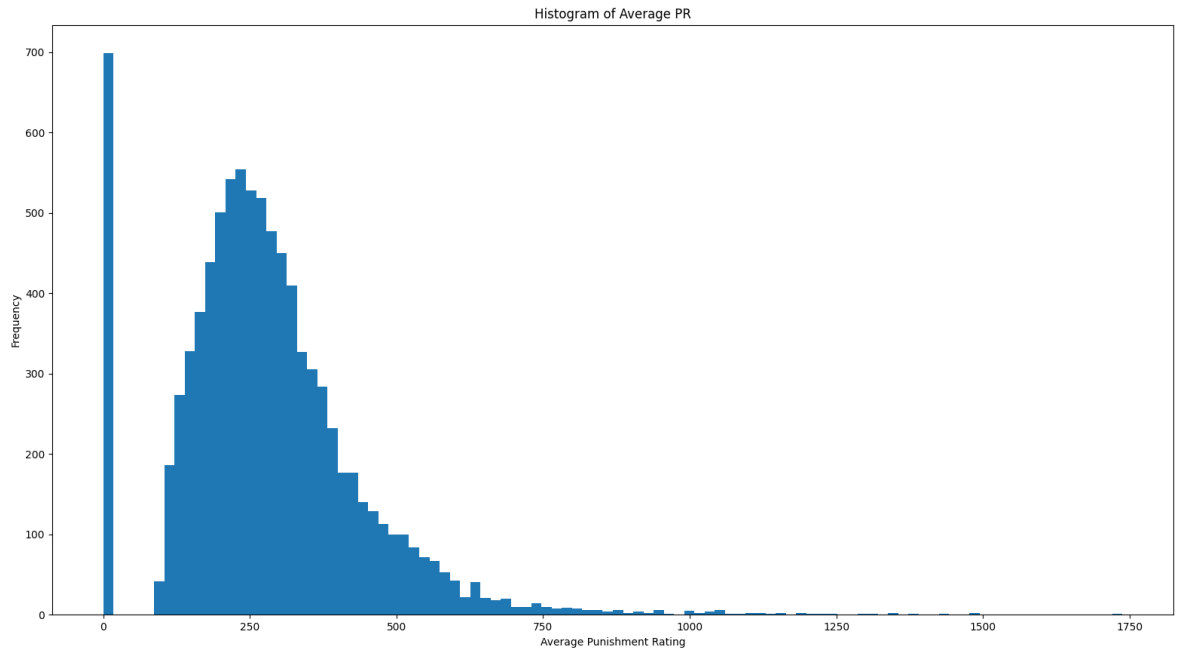
Punishment Rating Histogram



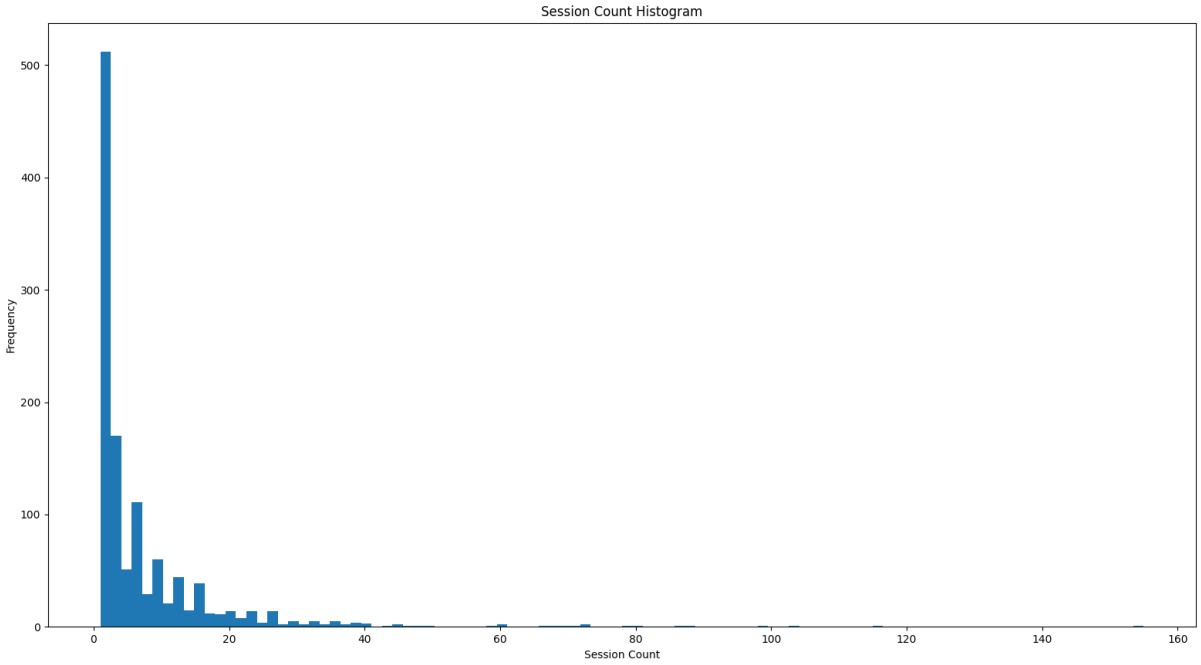
As shown, the histogram of Punishment Rating against Frequency now accurately represents what's expected of 9000 chess games, with the frequency of higher PRs decreasing exponentially. Notably, there is a spike in PR frequency in the 1000 and 2000 range. This can be easily explained as the value 1000 represents the target player blundering checkmate from a neutral position and 2000 represents blundering checkmate from a completely winning position. These scenarios are due to the fact that both checkmate and high evaluation scores are capped at 1000.

Average Punishment Rating Histogram



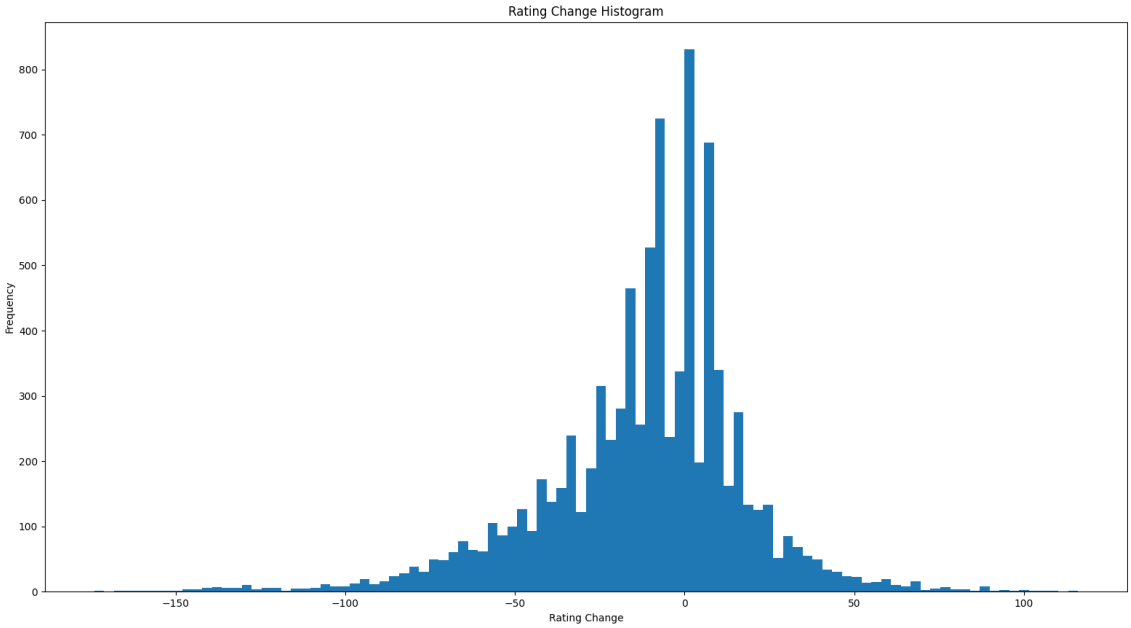
To visualize the distribution of Average PR, a histogram was created. As shown, there is a huge spike in games dominating the 0 average range, with the rest of the values following a right-skewed distribution.

Session Count Histogram



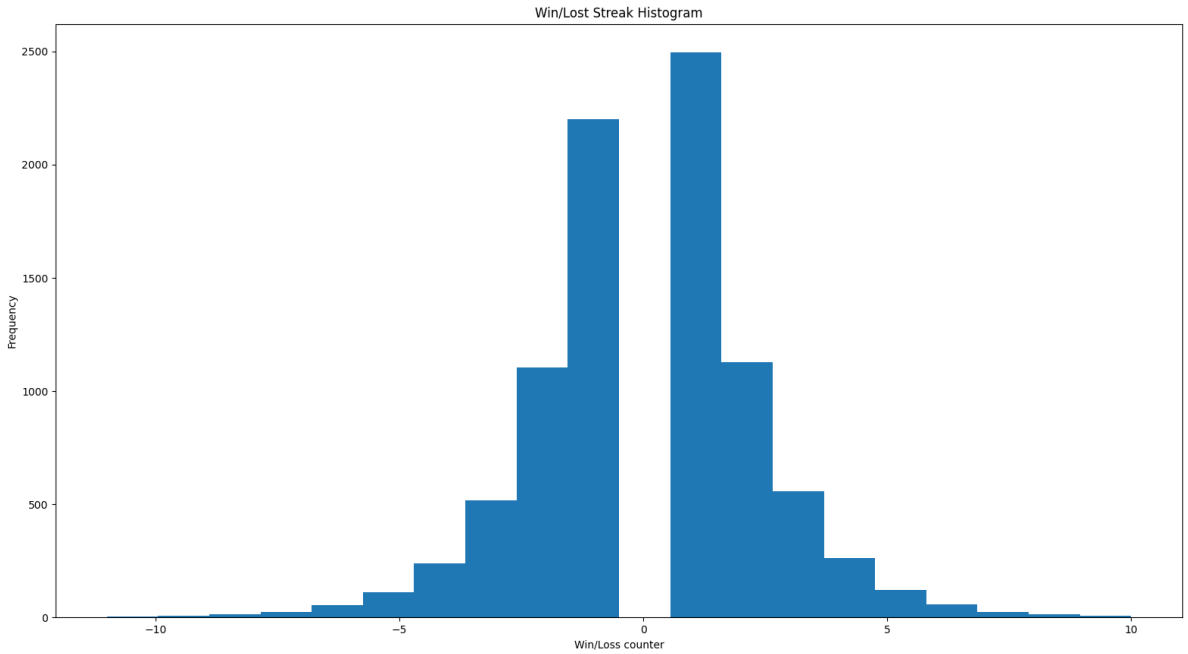
The generation of Session Count Histogram yielded 1,182 individual sessions, or around 38 sessions per month (December 2022 – June 2025). This averages to a little over a session a day for two and a half years straight. The most dominating values are single game sessions by far, with the most extreme value being 155 games in a single seating.

Rating Change Histogram



The generation of this histogram produced a rough looking graph that resembles a slight left-skewed distribution. This is due to the fact that the majority of sessions ends after losing or winning 3 to 4 games, resulting in an influx of values that are multiples of 8 (the average ELO gain/loss). The dominance of 0 values indicate either session starts or unrated games.

Streak Histogram



The histogram produced by this dataset shows a chart that resembles a normal distribution without the zero value. This is because streaks always starts with 1 or -1 and counts up or down from it.