

# Data 607 Week 5B ELO Calculations

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## Approach

To tackle this problem, I will first clean and structure the tournament data so that each player's pre-tournament rating, total points, and list of opponents are correctly extracted. Using the standard Elo expected score formula, I will calculate the expected score for each game based on the rating difference between a player and their opponent. I will then sum these expected values across all rounds to compute each player's total expected score. Finally, I will subtract the expected score from the player's actual tournament score to determine whether they overperformed or underperformed, and rank players accordingly.

## Anticipated Data Challenges

One anticipated data challenge is ensuring that opponent pairing numbers correctly match the corresponding player ratings, since mismatches would distort expected score calculations. Another challenge is accurately extracting game results (win, loss, draw) and opponent IDs from semi-structured text using regular expressions. Additionally, small inconsistencies in formatting or missing values could cause alignment issues between player lines and rating lines, so careful validation and checks will be necessary before performing the Elo calculations.