OrangeSlices Design Document

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# Terminology

# Requirements

## Stats

OrangeSlices must be able to generate the following stats:

1. Teams
   1. Match Results
      1. Games Played – Games played count.
      2. Wins – Win count.
      3. Win Percentage – Wins (including penalty kick wins) divided by games played.
      4. League Wins – League wins count.
      5. PK Wins – Penalty kick win count.
      6. Draws – Draw count.
      7. Draw Percentage – Draws divided by games played.
      8. League Draws – League draws count.
      9. PK Losses – Penalty kick loss count.
      10. Losses – Loss count.
      11. League Losses – League losses count.
      12. League Points – Points accrued through league play.
      13. League PPG – Points accrued through league play divided by league games played.
   2. Competitions
      1. League Titles – League titles won.
      2. Other Titles Won – Non-league titles won.
      3. Competitions – Competitions played in.
   3. ELO
      1. Current ELO – The team’s current ELO rating.
      2. Highest ELO – The team’s highest ELO rating over the time period.
      3. Lowest ELO – The team’s lowest ELO rating over the time period.
      4. Average ELO – The team’s average ELO rating.
      5. Starting ELO – The team’s ELO at the start of the time period.
      6. Ending ELO – The team’s ELO at the end of the time period.
   4. Goals
      1. Goals Found – Cumulative goals found.
      2. Goals Allowed – Cumulative goals allowed.
      3. Goal Differential – Cumulative goals found minus cumulative goals allowed.
      4. Goals Found per Games – Cumulative goals found divided by games played.
      5. Goals Allowed per Game – Cumulative goals allowed divided by games played.
   5. Clean Sheets
      1. Clean Sheets – Clean sheets accrued.
      2. Clean Sheet Percentage – Clean sheets accrued divided by games played.
   6. Discipline
      1. Yellow Cards – Cumulative yellow cards received across all players on the roster.
      2. Red Cards – Cumulative red cards received across all players on the roster.
      3. Games Suspended – Cumulative game suspensions received across all players on the roster.
   7. Roster
      1. Player Count – Total number of players registered on the team’s roster.
      2. Call-Ups Count – The total number of call-ups performed by a team.
      3. Trials Count – The total number of trials performed by a team.
2. Individual
   1. Goals
      1. Goals – Goals scored by a player across all competitions.
      2. Goals per Competition – Cumulative goals scored by a player in each competition.
   2. Clean Sheets (Keepers Only[[1]](#footnote-1))
      1. Clean Sheets – Clean Sheets accrued by a keeper across all competitions.
      2. Clean Sheets per Competition – Cumulative clean sheets accrued by a keeper in each competition.
   3. MVPs
      1. MVPs – Cumulative MVP designations earned by a player across all competitions.
      2. MVPs Per Competition – Cumulative MVP designations earned by a player in each competition.
3. Field
   1. Predictability
      1. Field Impact – How the field a match is played on affects the match’s outcome. A common theory amongst footballers is that a poor pitch favours the poorer team. Ideally, this stat could be used to determine the truth of that sentiment. This stat requires more fleshing out.

All stats are subject to a time period filter which impacts from which data the stat is generated.

## Visualizations

OrangeSlices must be able to generate the following visualizations:

1. Division
   1. Rankings
      1. Rankings – Graph each team’s position in a division over the course of a season.
2. Team
   1. Match Results
      1. League Points Over Time – Graph up to “X” teams’ points accrued over time, typically a season.
   2. ELO
      1. ELO Over Time – Graph up to “X” teams’ ELO ratings over time.
3. Individual
   1. Goals
      1. Goals Scored Over Time – Graph up to “X” individuals’ cumulative goals scored over time.
      2. Top Goal Scorers – Graph the “X” top goal scorers. Must be possible to filter by competition scored in and/or teams played on.
   2. Clean Sheets (Keepers Only[[2]](#footnote-2))
      1. Clean Sheets Over Time – Graph up to “X” individuals’ cumulative clean sheets over time.
      2. Most Clean Sheets – Graph the “X” top clean sheet earners. Must be possible to filter by competition registered in and/or teams played on.
   3. MVPs
      1. MVPs Over Time – Graph up to “X” individuals’ cumulative MVP designations over time.

## Functionalities

OrangeSlices must be able to perform the following functions:

1. Match Predictor – Receiving two teams and a date as an input, calculate the likelihood of each potential result (home win, draw, or away win) and provide the most likely result.
2. Season Predictor – Using either an empty or partially filled table and a series of matches, simulate many iterations of the season and calculate the likelihood of each team finishing in each position on the leaderboard.

An option, “Display Points”, must exist for this function. If activated, for each position a team could possibly achieve on the leaderboard, show the following values: 1) the mean points of each simulation which have that team finishing in that place on the leaderboard, 2) the minimum points of any simulation which have that team finishing in that place on the leaderboard, and 3) the maximum points of any simulation which have that team finishing in that place on the leaderboard.

1. Expected Table Generator – An offshoot of the season predictor. Rather than iterate through countless iterations of a season and randomly picking outcomes, always pick the most likely outcome. Thus, the final table will represent the “most likely” final table.

1. On the GKSSA website, only goalkeepers are awarded clean sheets. It is impossible to tally the clean sheets earned by an outfield player. [↑](#footnote-ref-1)
2. On the GKSSA website, only goalkeepers are awarded clean sheets. It is impossible to tally the clean sheets earned by an outfield player. [↑](#footnote-ref-2)