

MTH 256 – Statistical Models

Project Proposal

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Introduction

For my project, I will be analyzing data of individual players (called summoners) from the popular game “League of Legends”, in an attempt to discover trends about the most influential factors contributing to the top ranked summoners winning a game.

The Dataset

The dataset that I will be using was compiled by me by writing a program in Java that pooled together data from the game creator’s (Riot Games) databases. The program’s source code is available online if you are curious at <https://github.com/natedehorn/StatsProject>.

The data set currently contains information about the top 100 summoners, providing values for 21 different metrics. They are as follows:

- Summoner Name – The summoner’s name.
- Summoner ID – This is a unique ID assigned to each summoner used within the Riot Database to differentiate between summoners.
- Champion ID – This is a unique ID assigned to each champion (different characters within the game) used within the Riot Database to differentiate between champions. An ID of “0” contains aggregate summoner info.
- Total games – This is the total amount of games played in the “Ranked 5v5” game mode.
- Total wins – The total amount of wins a summoner has in the “Ranked 5v5” game mode.
- Win percentage – This is the win percentage of a summoner in the “Ranked 5v5” game mode, calculated by $\frac{\text{Total wins}}{\text{Total games}}$.
- Average kills – This is the average amount of kills a summoner gets in a single game.
- Average deaths – This is the average amount of deaths a summoner has in a single game.
- Average assists – This is the average amount of assists a summoner gets in a single game.

- Average gold – This is the average amount of gold earned by a summoner in a single game.
- Killing spree – This is the average killing spree of a summoner in a single game. Kills are considered to be a grouped in a killing spree if they are within 10 seconds of one another.
- Max largest critical strike – Each game, a summoner has a largest critical strike, representing the single highest damage dealing attack that they performed in that game. This value represents the maximum value of all the averages of highest critical strikes per champion. In other words, it is the average largest critical strike amount of a summoner in a single game.
- Max time played – This is the average amount of time (in seconds) in a single game played by a summoner.
- Max time spent living – This is the average amount of time (in seconds) that a summoner spends alive during a single game.
- Average damage dealt – This is the average amount of damage dealt by a summoner in a single game.
- Average damage taken - This is the average amount of damage taken by a summoner in a single game.
- Average heal – This is the average amount of health that a summoner heals during a single game.
- Average magic damage done – This is the average amount of magic damage dealt by a summoner in a single game.
- Average minions killed – This is the average amount of minions killed by a summoner in a single game.
- Average neutral minions killed – This is the average amount of neutral minions killed by a summoner in a single game. Neutral minions are much more difficult to kill than minions.
- Average turrets killed – This is the average amount of turrets killed by a summoner's team in a single game.

Questions to Answer

- What is the most significant factor contributing to a summoner's win percentage?
- How important are each of the factors in predicting whether a summoner won or lost a game or not?
 - How do the results of my findings compare with how players act in the game (what are the most pursued objectives in-game?)
- Do players that play more games experience more success?

- How closely related are max time spent, which seems to be a very significant factor, and other factors such as average heal, damage dealt, damage taken and magic damage done? These are factors that could affect how long a player stays alive during a game.
- Players argue about objectives (taking neutral minions, destroying turrets, getting kills, etc.) as being the most important things to focus on in order to win a game. Are summoners that have high values in these area expected to win a lot of games?