League of Legends

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Abstract

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1 Background and Motivation

League of Legends (LoL) is a competitive multiplayer game. It is a very popular game with an average player count of 150 million throughout the last 30 days [**?**]. League of Legends is a major source of revenue for Riot Games, the creator, but also for players. It is big in e-sports, and streaming services with big income potentials for the top competitors and streamers [**?**]. It is therefore no surprise that many players are interested in bettering their skills and get a competitive edge to increase the odds of ranking among the very best. Furthermore, even players without top ambitions, still play the game hoping to become better. The primary attraction in the game is 'Ranked'. Here players are assigned a rank. If they win more games than they lose, they will climb the ranks. This is the primary incentive behind the game.

These two factors combined 1) the earning potential and 2) the competitive nature, is the motivation behind creating a data visualisation project that can provide players with insights giving a competitive advantage over their competitors.

2 Project Objectives

As the overall goal of the game is to win, it would be most logical to explore factors that has influence on victories. The *response variable / dependent variable* is thereby "win"; a boolean value, which is the most simple type of regular categorical / nominal variables. The overall question that will be explored is:

Which variables are most important to examine in order to maximize the probability to win a game in LoL?

It has been decided to focus on four different areas that might have an effect upon victories. Each focus area will have multiple independent variables that can be explored. This is listed below.

1. How does map control affect the probability of a victory?

    - Vision score

2. How does the chosen champion play a role in a victory?

    - Player role, champion
    - Exploring a champion's win rate against a specific champion within the same team position

3 Data

This section describes the data set that is utilized to answer the project objectives.

3.1 Source

The data is collected from the Riot API, the method for collecting the data was, to firstly select a starting game. From this game all the data is collected, then fetching all the players, from these games, match history and collecting the data regarding those matches. This process is then repeated until about 2.500 matches were collected in the dataset.

3.2 Description

The source contains all recorded League of Legends matches, and given that millions of games are played each day, the dataset quickly becomes massive. Each match results in 10 records, one record for each player. One record contains over 100+ variables. Some of which are unique to the player dependent on their performance, such as damage dealt, minions killed, vision score etc. Other variables are unique to the team in the match, such as win/lose, objectives killed etc. It was not possible to analyze all the variables and so 15 of them has been picked. These variables is explained down below in an effort to give the reader a solid understanding of the variables influence in the game.

3.3 Processing

4 Visualization and Dashboard

4.1 Design

For the visualizations the variable that will be compared in most of the graphs is the Win Boolean. Therefore, many of the visualizations will include this values as a second or third variable. The visualizations will generally show how the variables differ depending on if the game was won or lost and try to visualize which variables effect the win Boolean the most.

Variable	Variable Description	Variable Type	Uniqueness
Game Duration	Game length in miliseconds	Discrete	Match
Kills	The killing of an opponents' champion	Discrete	Player
Champion Name	Players' chosen champion	Nominal	Player
Deaths	Amount of deaths	Discrete	Player
Gold Earned	Total gold earned	Discrete	Player
Assists	Amount of kills the player has helped another player with	Discrete	Player
Team Id	The side the player is playing on	Nominal	Team
Team Position	The position on the map the player is playing on	Nominal	Player
Damage Dealt	Amount of damage dealt to opponent champions	Continous	Player
Vision Score	A calculation on the amount of wards placed, and wards killed and how many opponents they have detected	Discrete	Player
Wards Killed	Amount of wards killed	Discrete	Player
Wards Placed	Amount of wards placed	Discrete	Player
Win	Whether or not the player won	Nominal (0,1)	Team
Game Id	Unique id given for the entire match	Discrete	Match
Minions Killed	Amount of minions killed	Discrete	Player

4.2 Must-Have Features

4.3 Optional Features

5 Story and Results

6 Discussion

7 Conclusion

Glossary

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