

Capstone Project 1 Proposal

Problem to Solve

The problem I want to solve will be in Esports, specifically the game League of Legends. This is online multi-player game where 10 players fight in 5v5 matches. The problem I want to solve is predicting which team will win based on decisions a player can make before a match starts. This includes champion picks, summoner spells, and runes. Currently, there are a lot of tools that use post-match data to provide match statistics and determine best combinations of items for a given champion or calculate win rates based on past matches. The goal is to take a data science approach to turn this into a classification problem. The idea is to use what the pre-match player choices as features.

Client

The client would be the developer of League of Legends, Riot Games, professional teams, and competitive ranked players. Riot Games invests a lot of time and money into broadcasting/shoutcasting big events like World Championship tournaments. Today, it rivals the professionalism and quality of events like the NBA. As professional teams make their picks for team composition, shoutcasters make this a huge talking point to their audience. Adding a new talking point about could add more depth and engagement for the viewers. The match prediction can be this talking point. This information may even be useful to the developers for fine tuning the game.

For professional teams and ranked players, the prediction mechanic can be built into some form of an app which an individual can input player choices for their team and the opposing team to see the results of a certain team composition versus another. This could lead to more insight on strategies, and help to win games in ranked matches. A different model will most likely be needed for each player level tier and region. Another model will most likely be needed for professional level plays as strategy and skill level play a huge role in predicting match outcomes.

Data

The data I will be using will come from Riot Games API found at <https://developer.riotgames.com/>. I will use python to pull ranked (competitive) match data from the API based on popular players, streamers, and professional players. All match data will be from high ranked games where the meta game is usually defined and copied down to lower ranks. The data includes game stats like match duration, game creation date, characters picks and bans. The data also includes about 100 game stats each for all 10 players.

Problem Solving

Based on looking at the data, we can get the games of every player, how many matches a player has played, when the match was created, and every game stat at the

end of the game. This information will be good for the initial data analysis. However, I am more interested in extracting the data which players have direct control over. The idea is build a model to predict games based on high tier matches. For this project, the matches will come from 'Diamond' Tier and above for ranked matches in North America. At this level of play, the players are assumed to have in depth game play knowledge and are highly skilled. With this high level of gameplay the features of the model should be more relevant to predict the outcome of a match. My intuition is that team composition and choice of summoner spells/runes will give good predictive insight given a set level of skill. A model to predict win outcomes may prove difficult at low levels of play due to the vast difference in player skills and casual players, playing for fun. If the model proves to be successful at high levels of play, I assume that the model could have similar success when using data from professional matches as well.

Deliverables

I plan to deliver a Jupyter Notebook with all the code for pulling, wrangling, and cleaning of the data. Another Jupyter Notebook or the same will be used to provide the code for visual exploratory analysis. I will provide a slide presentation that breaks down on a high level, key findings and answers from the data which will include visuals with low text. The slide presentation should show key findings that are interesting to those who play and do not play the game. Finally, a paper will be provided that will outline the thought process and more detailed breakdown data. The paper will be directed to those with more intimate knowledge of the game who really want to learn the fine details. The paper will definitely make more sense for people who play the game.