LOLytics

https://github.com/Entranco/dataviscourse-pr-lolytics

Dhanpaul Nandkeshwar

u1089230

dpnandkeshwar@gmail.com

Andrew Fraser

u1171089

u1171089@utah.edu

Background and Motivation

The League of Legends Worlds tournament is one of the largest eSports events to date, garnering millions of viewers every year. One of the most exciting features of the game is that it never stagnates. New champions (which are controlled by each player) are released each year, often significantly influencing the metagame. Updates are usually released every other week or so with a slew of buffs and nerfs (changes that make champions stronger or weaker). Although these changes are often minor, their effects on professional play and the metagame of professional play is monumental. For example, a very small buff to a champion called Maokai right before Worlds 2022 has led to him being one of the most selected champions of the entire tournament. Before this buff, he was seeing little to no competitive play. Professional players have such extensive game knowledge that they will abuse every small change to any champion in the game.

This dynamic metagame has fostered a gold mine of data, especially during Worlds season. As avid League of Legends viewers and players, we wish to analyze how the metagame at Worlds has evolved over time with respect to champion picks and strengths.

Project Objectives

At its core, League of Legends is a very strategic game. Making the best decision and play to make is entirely based upon the information presented to you and assessing risk versus reward. The main components of what decisions you are allowed to make are based on the champion you are playing, how much gold you have, and how much gold the team has. Our objective is to analyze data related to these two fields at the highest level of play: the League of Legends Worlds Tournament. We would like to see how the changes to the champions and changes to the game that happen very consistently affect play at the highest level. Specifically, we aim to analyze what champions are being picked during the Worlds tournament, what champions are being banned (not available to be picked

for that game, a total of ten champions can be banned for any given game), and how these champions affect win rates. We also aim to analyze the reason for these outcomes, such as, how much gold did this champion generate, how many kills, deaths, and assists did they have by the end of the game, and so on. We would also like to analyze some of the metadata of the teams that are competing in Worlds, such as which teams picked what champions and what was their success rate with these champions.

Data

We plan to use the Worlds champion datasets from Worlds 2015 up to Worlds 2022. Datasets do exist from the older Worlds tournaments, but they are not nearly as detailed. The new datasets not only contain statistics about which champions were selected, but also their roles, how much gold they had, and their kill/death/assist ratios. This additional data can help us determine whether a champion actually performed as well as expected in the metagame. This could also point to a shift in strategies if a certain champion did not perform well or performs too well. Counterpicks are often developed throughout the tournament as the metagame is explored further, so it would be interesting to see such effects.

Data Processing

Luckily, the data is already easy to extract into csv format. We don't need to perform any additional processing to extract it. We may perform some small transformations on the data based upon certain statistics we care about. For example, we may choose to calculate the most popular champions in each role or the damage/gold generated by each champion. These transformations should be fairly straightforward.

Visualization Design

We want to have two key visualizations. One visualization is used to compare statistics over time, while another is used to compare statistics over various champions. We considered encoding all of this into one, but it is only semi-possible to do so. When more than a few champions are featured, things might get too confusing. You can follow our line of logic in the sketches at the end of the proposal.

Must-Have Features

- A basic bar chart allowing for comparison of any column in the data. This allows us to see a difference between champions.
- Filtering the data by certain key terms (champion, years of the Worlds tournament, roles)
- Sorting visualizations based on the most pertinent columns of the data (gold, K/D/A, damage)
- A chart comparing various statistics concerning each champion with respect to each year of worlds. This allows us to see a change over time.

Optional Features

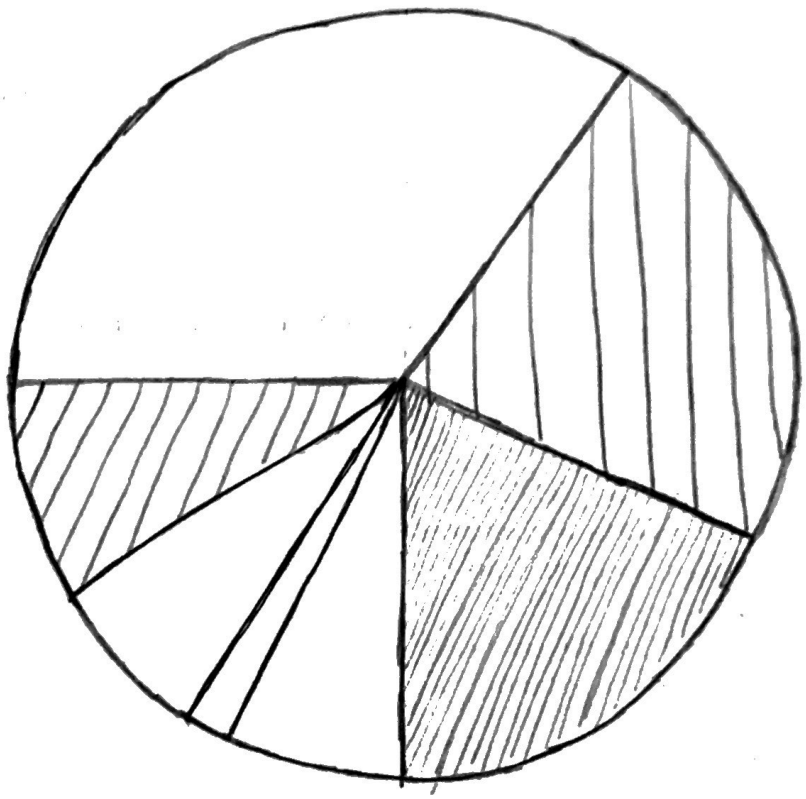
- Sorting visualizations based on every column of the data
- Filtering the data based upon player
- Including an additional exploration of player statistics, potentially connecting them to their most chosen champions
- Box and whisker plots of each column of the data to indicate how common certain values are
- A pie chart illustrating all champions with respect to each statistic
- The ability to analyze matchups between various champions in Worlds (how often champion X defeats champion Y)

Project Schedule

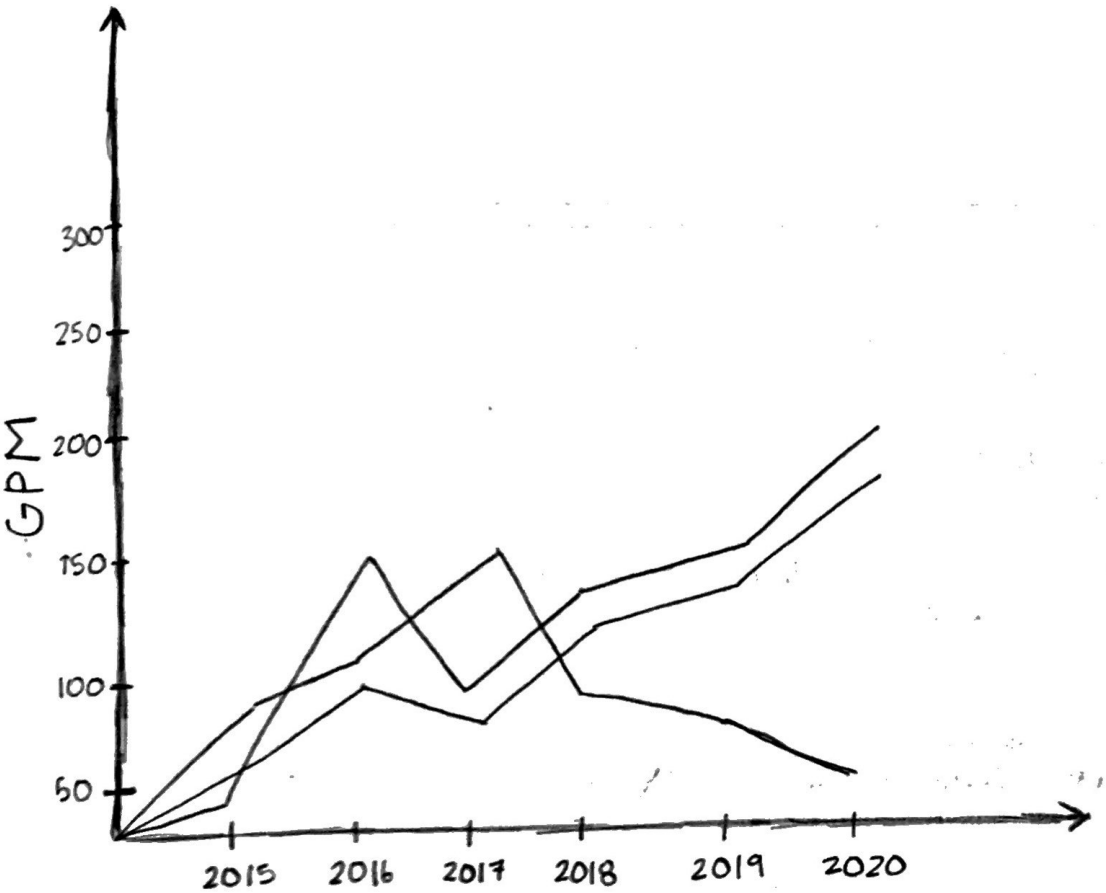
- Week 1: Process the data into javascript, get some kind of visualization on the page
- Week 2: Get the visualization functioning for a single column of the data
- Week 3: Add modularity between different columns, as well as sorting of the data
- Week 4: Work on a visualization over champions to complement the visualization over time
- Week 5: Polish the website, make things looks nicer, add text
- Week 6: Add any optional features that we decide are most important
- Week 7: Prepare for presentation, catch up if necessary

Filter: Year

Filter: Gold/Pick/Win/Loss



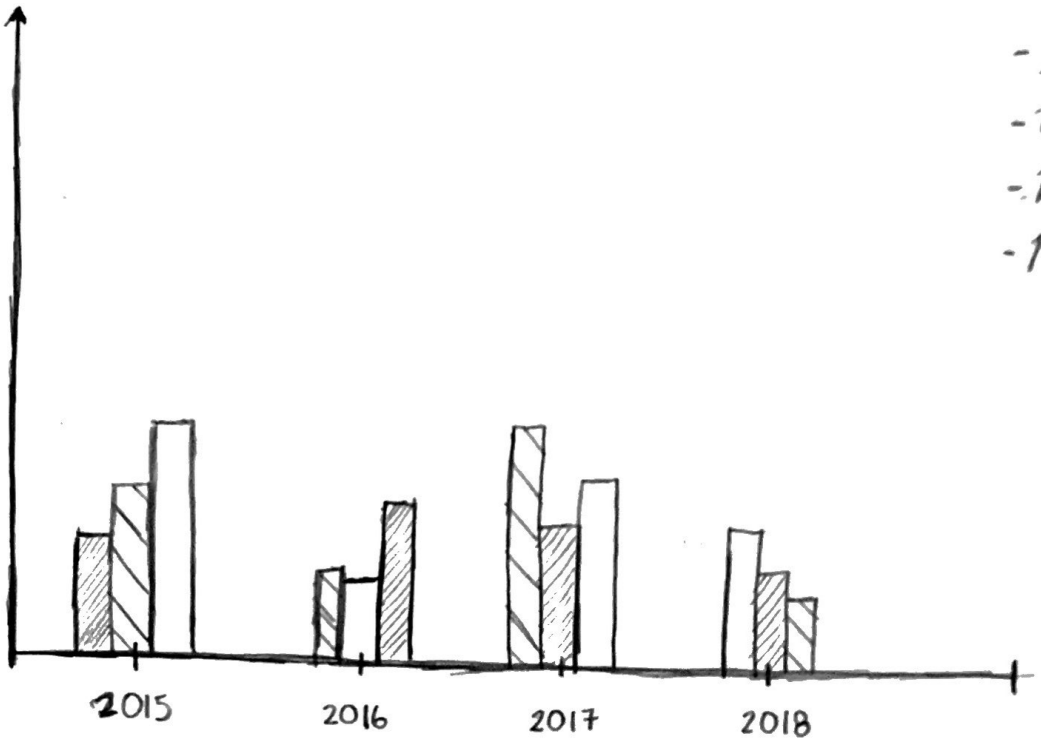
We change what rates we want to change as part of the pie. Each slice of the pie is a champion, coded with color. We can select the year.



* Line per champion, can select specific champions if you want, or show all by default

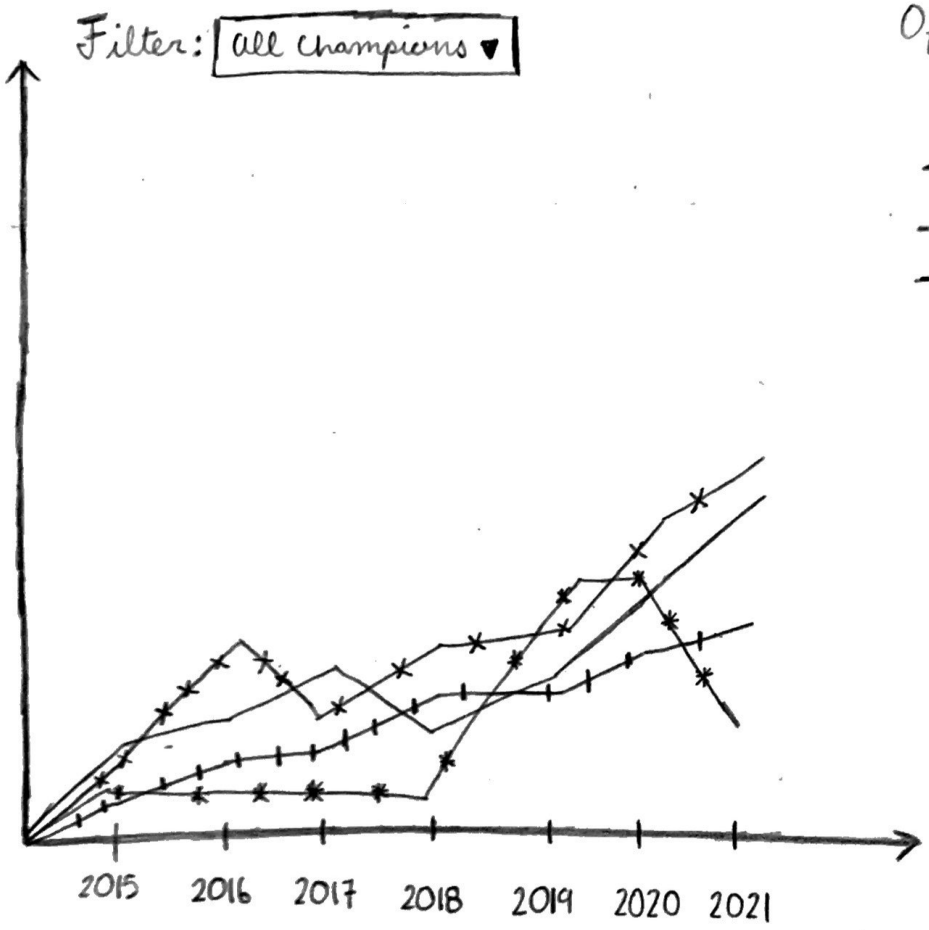
Options for Y-axis:

- Gold per minute
- Win Rate
- Ban Rate
- Pick Rate



* Different bars for different champs, different colors for different roles or other encoded data

We use bars to encode various champions, each with different color. Y-axis is variable. However we can only use a few champions at a time due to cluttering of bars. We could also show more by changing X-axis to show fewer years



* Lines for each champion, can select only ones you want

We combine aspects of all graphs by introducing variable y-axis selection, as well as different line colors and textures to encode additional data. X-axis encodes the year.