

League of Legends Viz Wiz Process Book

Overview and Motivation

We are fans of the multiplayer online battle arena game League of Legends, and appreciate the game for its strategic depth, variety of play styles, and focus on teamwork. At high levels of competition, players and coaches analyze statistics on the best tactics and team compositions in an attempt to achieve optimal win rates. Many casual players, including ourselves, are interested in improving our level of success as well.

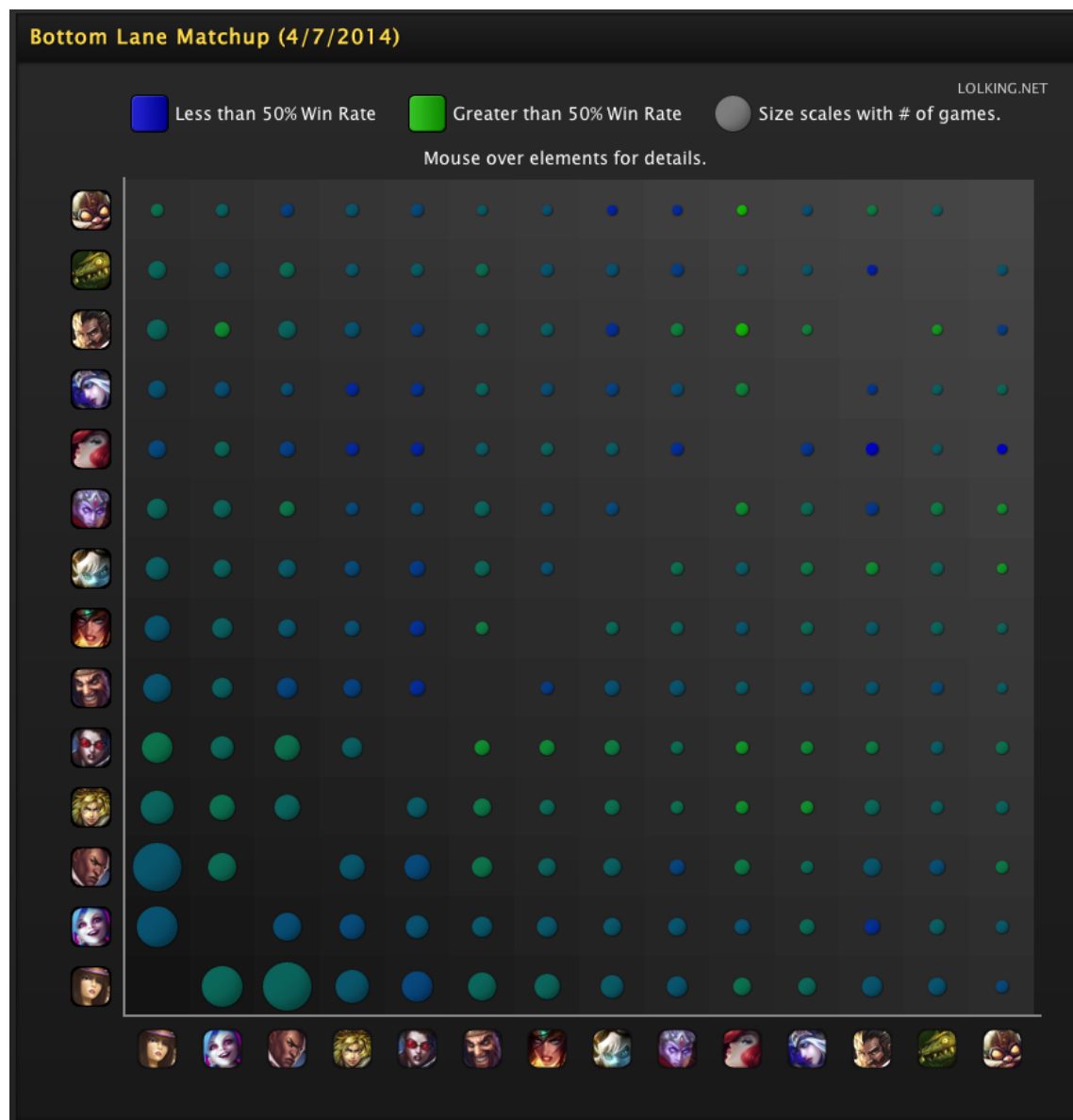
Thus, we would like to discover, through the visualizations that we will produce, the distributions of win percentages for certain combinations of champions on the same team as well as on opposing teams. We will provide visualizations for the pick rates and ban rates for champions over time, which would tell us which champions are the most popular in the current metagame as well as their historical popularity rates.

This would benefit League of Legends players, as they can strategically learn certain champions based on those who show the highest win rate. It would also be beneficial in drafting team compositions, since champion combinations with higher synergies can be shown through these visualizations.

Related Work

A variety of existing visualizations about League of Legends inspired and motivated us.

1. Visualizing win rates for lane matchups between champions
(<http://www.lolking.net/charts?region=all&type=bottom-matchup&range=daily&map=sr&queue=normal>)



This visualization has a shockingly bad color scheme. The subtle shades between blue and green are very difficult to read, and do not effectively communicate the difference between winning on average and losing on average, since the 50% mark is an undifferentiated mix of blue and green. This motivated us to be very clear in our own visualizations and use position/length instead of color to represent important continuous variables.

2. Visualizing win rates for team synergies

(<http://loldb.gameguyz.com/champions/jax.html>)



This visualization shows the best teammates a particular champion can have. It's readable, but the bars are confusing because their lengths aren't proportional to anything in particular. Looking at this, we decided that distance from 50% would be a good baseline to extend bars proportionally from, such that bar length is $\text{abs}(\text{win rate}) - 50\%$.

Questions

We initially wanted to answer the questions: how popular has a champion been over time, and which champions is the champion effective or ineffective with and against? Our first question evolved into our pick/ban rate graphs, and our second question became the synergy/matchup charts. As we explored our data and the possibilities, we realized that another crucial user need would be the overall win rate of a particular champion. So one of our new questions was: "How effective has a champion been over time in winning games?"

Data

Our data sources for visualization data as well as images were lolking.net, lolldb.gameguyz.com, and leagueoflegends.com. We used Python's requests and BeautifulSoup 3 library to scrape our data and images. For our data processing and cleanup, we structured our scraping programs in a very modular way to achieve flexibility and speed, having different code and data files for each type of data. The specific resource URLs and methods can be found in our code.

Exploratory Data Analysis

We used existing online visualizations to grok our data and look for insights on how to build our

own visualizations. As mentioned in Related Work above, we found various flaws that informed our own designs. In addition, we got a feel for the range of values for various data, so we knew what scales to draw them to.

Design Evolution

We at first wanted to have a comprehensive list of the win rates of the selected champion with every single other champion. Currently, we can't find a data source with the data that this visualization would require.

Implementation

Evaluation