Basic Info

- **Project Title:** BeatingTheOdds
- **Team Members:**
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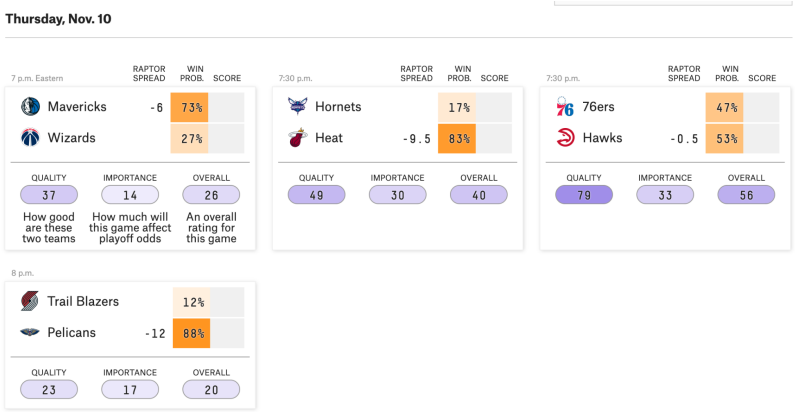
- **Repository Link:** https://github.com/Wilferd/BeatingTheOdds

Overview and Motivation

There's a saying when it comes to gambling that "the house always wins." The motivation for our project is knowing how often Vegas predictions are right for the outcomes of NBA games. We are interested in sports betting and want to display the results for the NBA and compare actual outcomes to predicted outcomes. For every NBA game, there are countless statistics that oddsmakers come up with such as money lines, spreads, favorites, expected payouts, etc. Our goal is to distill this information into helpful visualizations that show how teams perform vs how they are expected to perform.

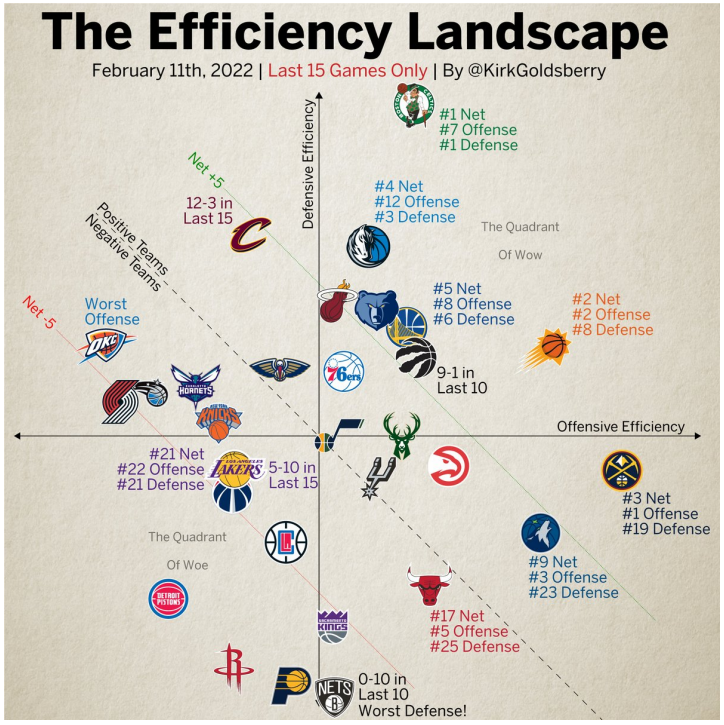
Related Work

While not specifically related to Vegas gambling, NBA odds predictions have been done (and visualized) by the website FiveThirtyEight which is very prominent in sports analytics.



For all NBA games, FiveThirtyEight has a prediction on which team will win and by how much. We were interested in how good these sorts of predictions are. FiveThirtyEight is a lot more open about their methodologies, but there is no doubt that Vegas also employs mathematical models to predict the

outcomes of NBA games. Visualizing predictions versus actual outcomes is what we found to be an interesting topic for our project.
Kirk Goldsberry of ESPN who has also worked at FiveThirtyEight has also been a source of inspiration for visualizing different aspects of the NBA. Here's an example of visualizing the different offensive and defensive ratings of the NBA:



Our project employs a similar strategy of using NBA team logos within visualization.

Questions

The original question that we are trying to answer is how often is Vegas right in predicting bets.

Data

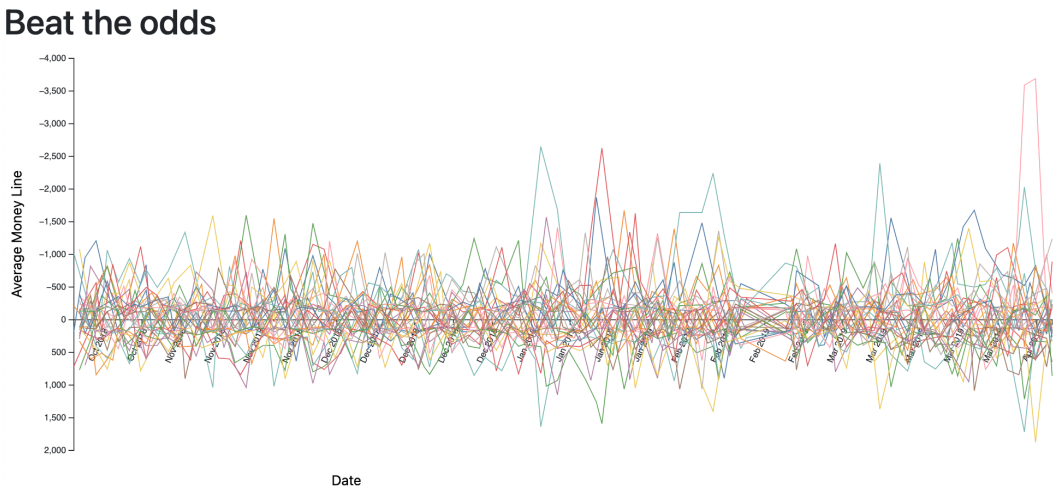
Source: https://www.kaggle.com/datasets/erichqiu/nba-odds-and-scores

- The source we used is kaggle.com. We found a data set containing NBA odds and scores from the 2012-2013 season to the 2018-2019 season. This data includes the results of each game in the season, the predicted spreads from multiple betting websites, and the best spread choice.

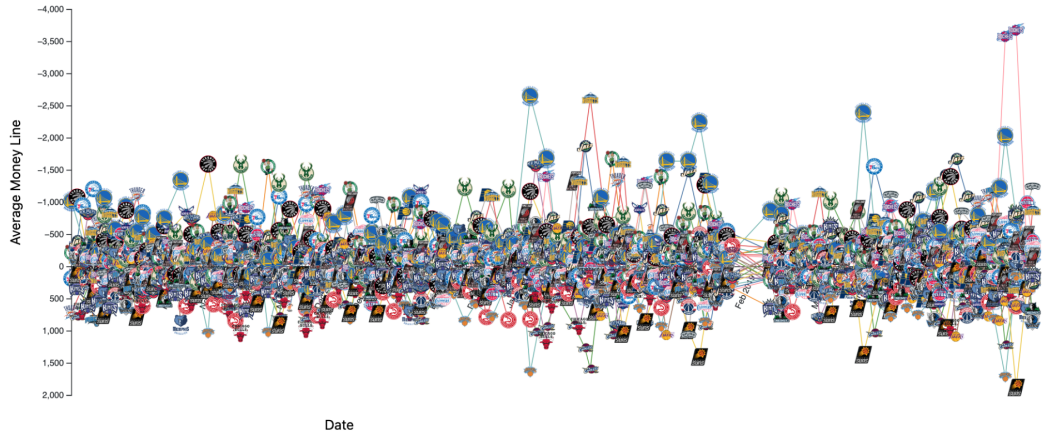
Exploratory Data Analysis

The first iteration was very similar to our project proposal but the main issue we were facing was too much data on the line chart at once. Since there are 30 teams and 82 games, we found that displaying that many data points at once is really confusing for someone trying to deduce anything from the visualization. We tried basic ways of trying to fix this such as making the svg larger or removing lines but ultimately we decided that the best way of displaying out data will not include all of the teams plotted at once – unless we can devise someway of differentiating the points closer to the 0 spread easier.

Initial Line Chart



Initial Scatterplot



Design Evolution

Implementation

Evaluation
