



Predicting NBA Daily Fantasy Scores with Data

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Daily Fantasy Games are Dominated by Algorithms

- DraftKings and FanDuel
- Data > Anecdotes
- 91% of profits were made by 1.3% of players (McKinsey)



Scraping the Web to Obtain Stats Data

- Basketball-reference.com
- Game logs for every player 2015-2019
- Useful raw features:
 - All basic stats
 - Opposing team
 - Date of game
 - Home/Road

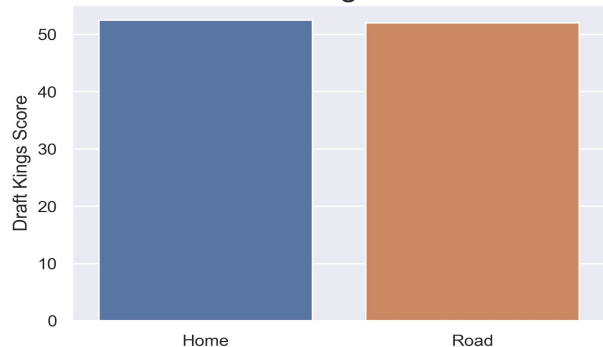


Feature Engineering to Obtain More Valuable Predictors

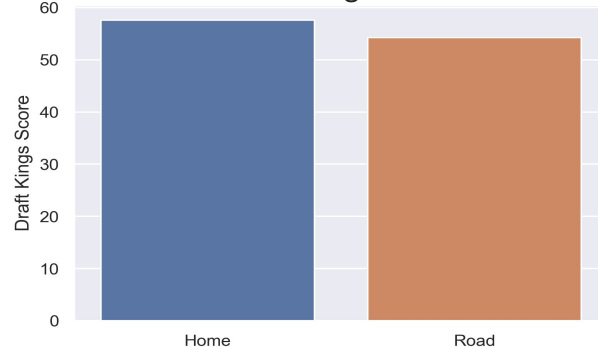
- Player average vs each opponent
- 3- and 7-game trends to capture hot/cold streaks
- Player's overall season average
- Days rest

Testing My Assumptions - Home/Road Splits

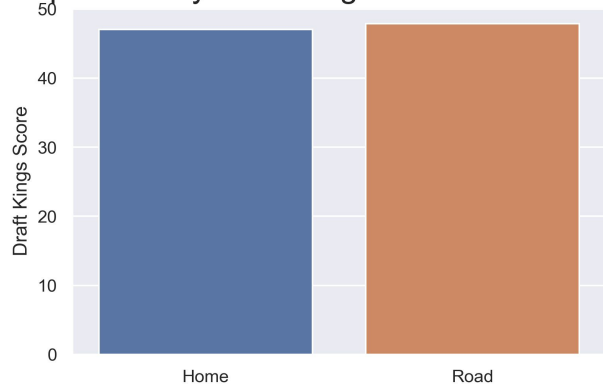
LeBron James Draft Kings Score Home v. Road



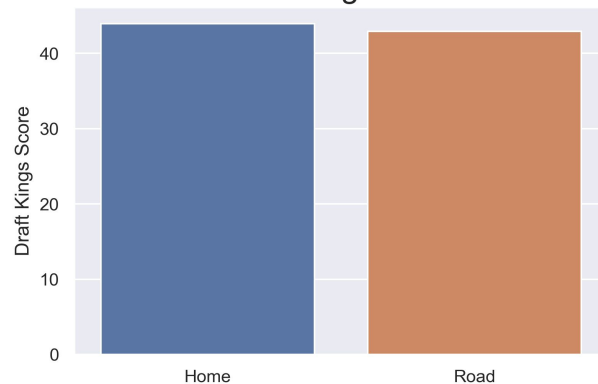
James Harden Draft Kings Score Home v. Road



Stephen Curry Draft Kings Score Home v. Road

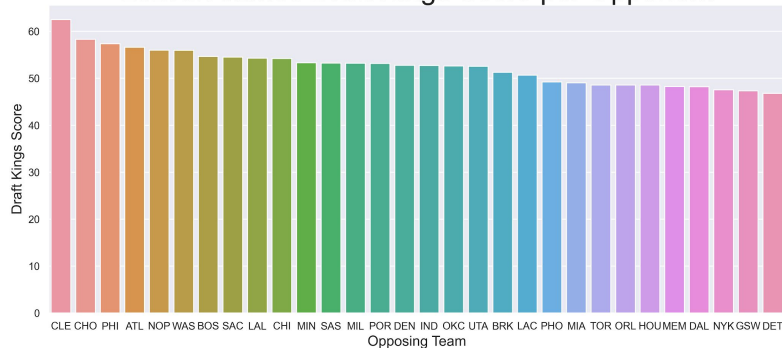


Damian Lillard Draft Kings Score Home v. Road

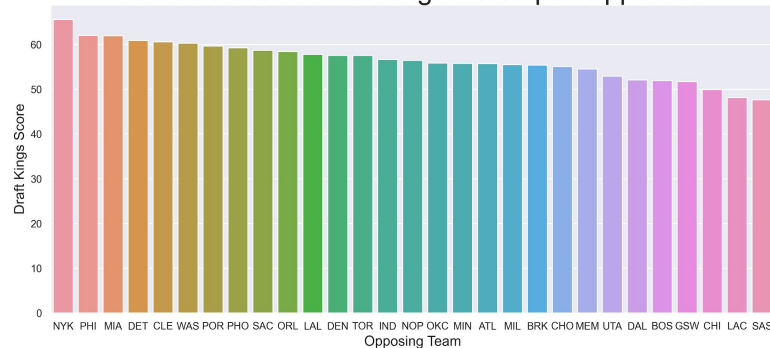


Testing My Assumptions - Opponent Splits

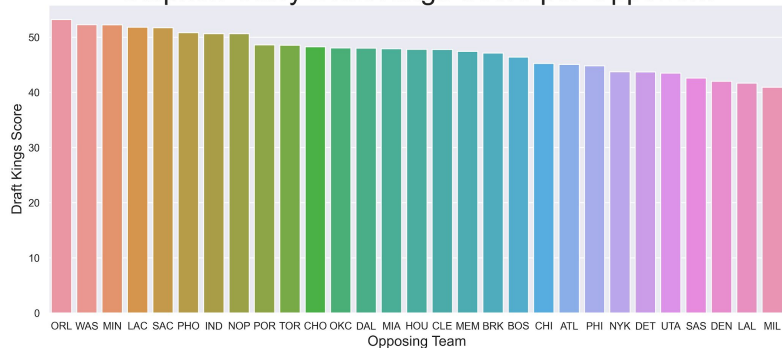
LeBron James Draft Kings Score per Opponent



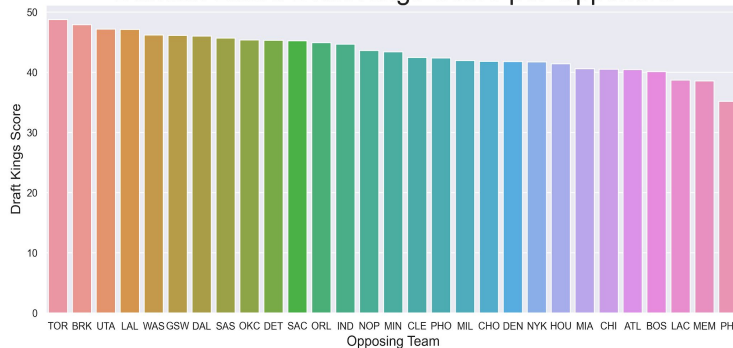
James Harden Draft Kings Score per Opponent



Stephen Curry Draft Kings Score per Opponent

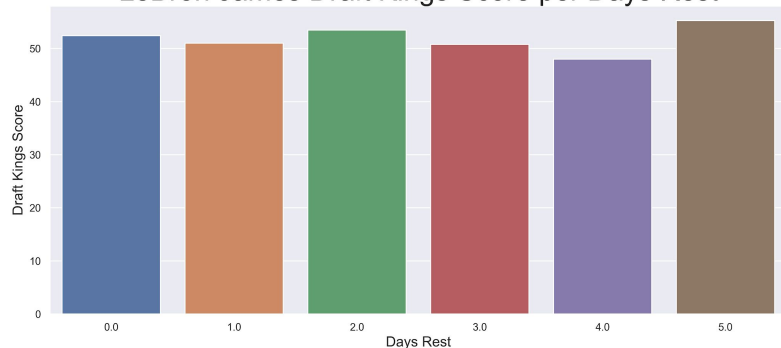


Damian Lillard Draft Kings Score per Opponent

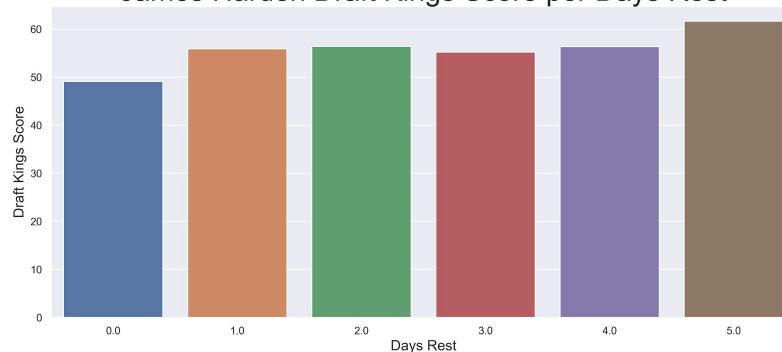


Testing My Assumptions - Days Rest

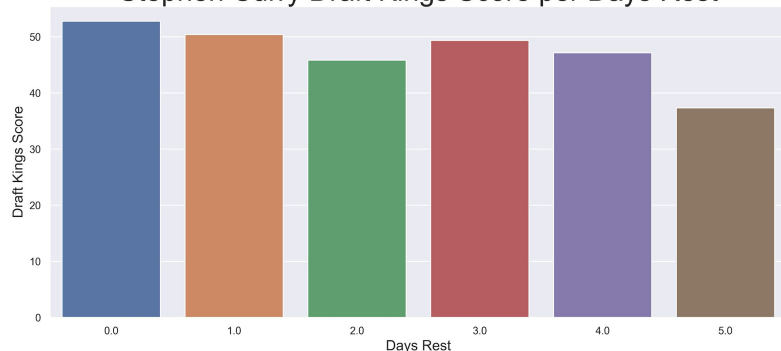
LeBron James Draft Kings Score per Days Rest



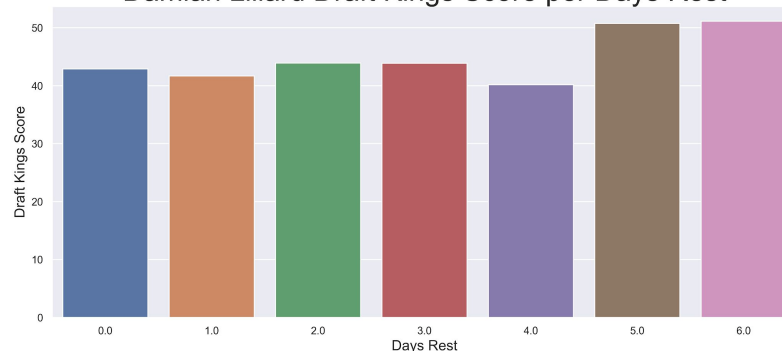
James Harden Draft Kings Score per Days Rest



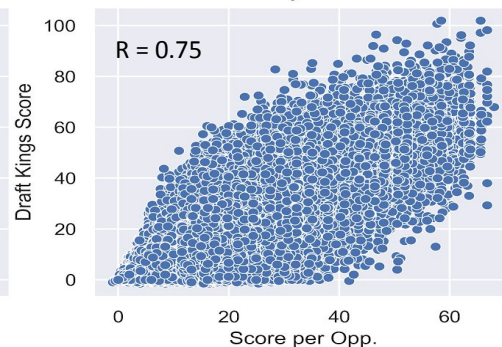
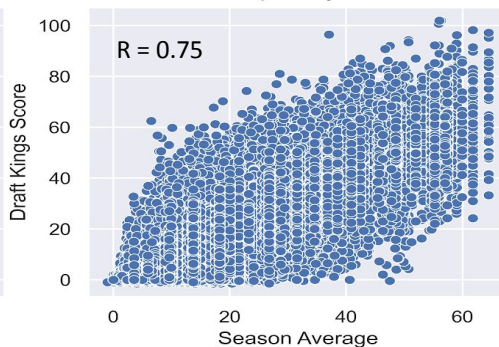
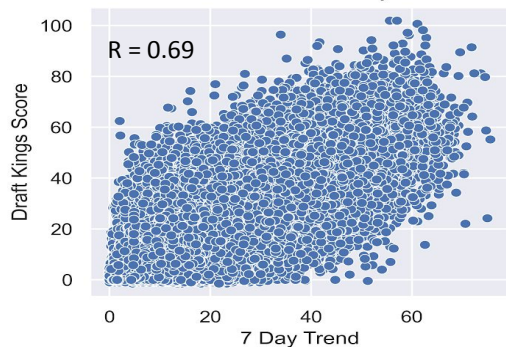
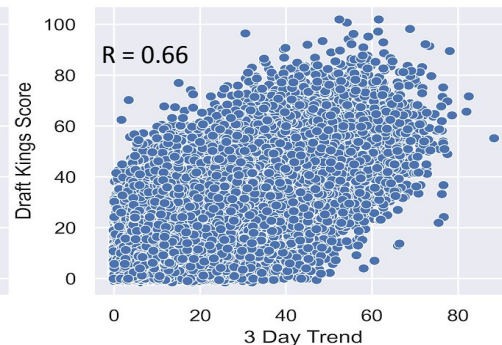
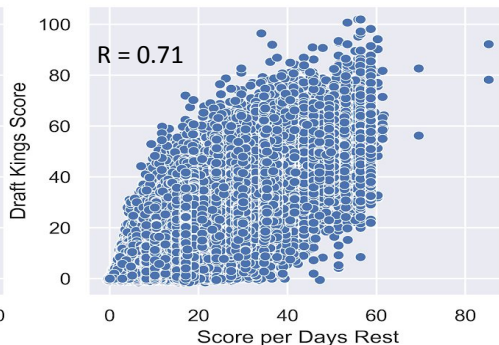
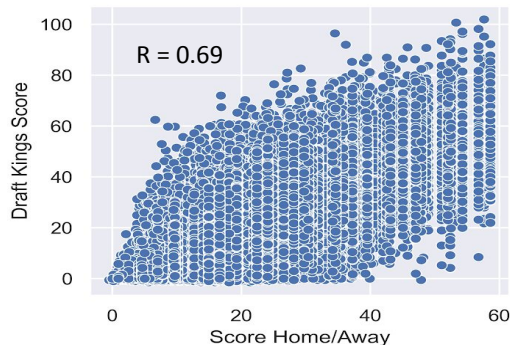
Stephen Curry Draft Kings Score per Days Rest



Damian Lillard Draft Kings Score per Days Rest



Model Development - Feature Selection



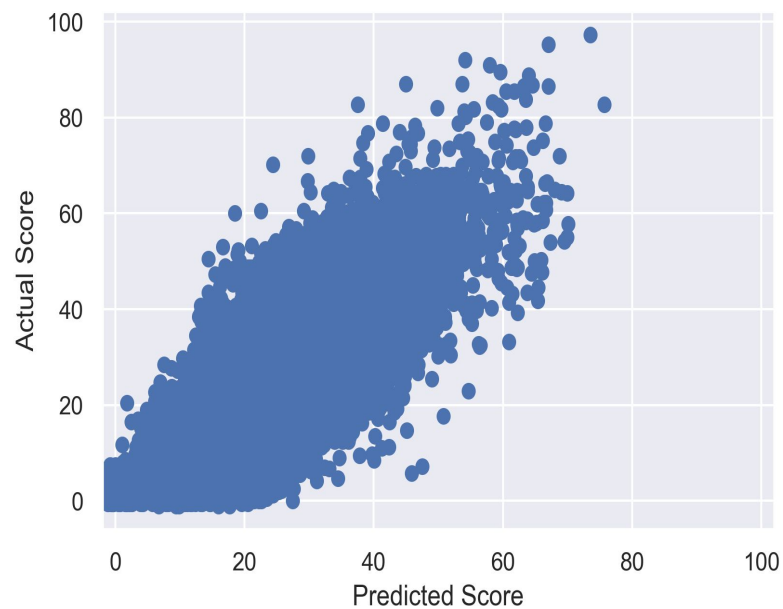
Model Results on 2019 Games

**Best: Simple
Linear with all
6 features**

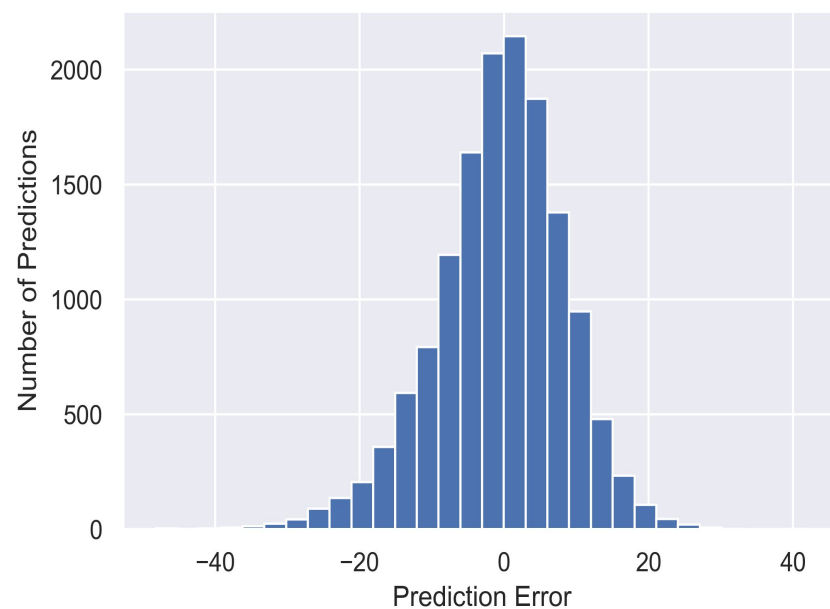
**R squared:
0.66**

**RMSE: 8.6 fantasy
points**

Actual Score v. Predicted Score



Distribution of Prediction Errors



Next Steps

- Algorithm to scrape injury reports day of games
- Adjust algorithm to continually scrape new data
- Algorithm to determine optimal lineup based on player salaries
 - Undervalued players