

Draft Analysis for the 2022 Fantasy Football Season

A Data Scientist's Guide to Optimizing the
PPR Fantasy Football League

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Fantasy Football Basics

- 10-14 team league size
- “Draft” is held before NFL regular season
 - Salary cap or number of draft picks
 - Select virtual team of NFL players
- Compete head-to-head against other teams every week of NFL season
 - Points determined by in-game NFL player statistics
- PPR vs. Standard Scoring
 - One additional point per reception in PPR

Project Overview

- Build a draft strategy based on historical fantasy football drafts
 - Compare 2015 - 2021 ADP (Average Draft Position) vs actual points scored
 - Identify position value by round
- Create an ARIMAX time series model to predict the 2022 Fantasy Football Season
 - Veteran players (more than 3 seasons)
- Compare fantasy point projections to ADP
 - Identify steals and busts of the draft

Business Case

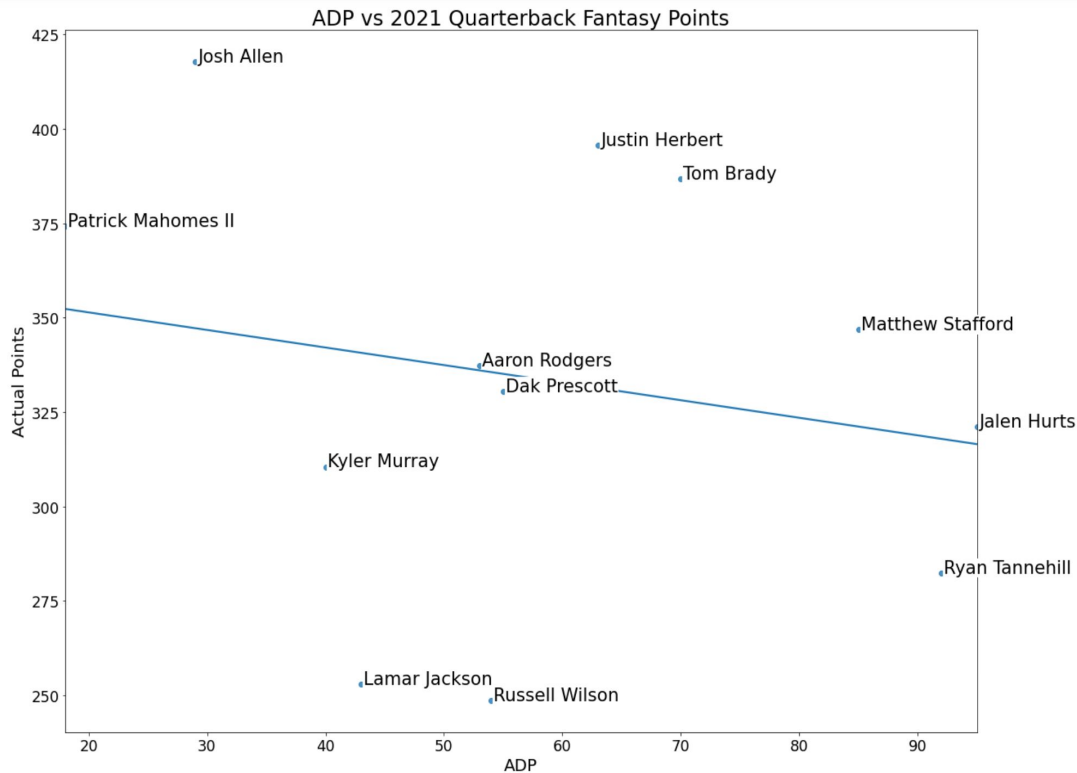
- Nathan Hall will be competing in a 2022 Fantasy Football league
 - He wants data driven draft strategies
 - Key players to target
- 12 Team League
- PPR (Point per Reception)
- Randomly set snaking draft order
- Build a team consisting of:
 - 1 Quarterback
 - 2 Running Backs
 - 2 Wide Receivers
 - 1 Tight End
 - 1 Flex (RB / WR / TE)
 - 1 Kicker
 - 1 Defense
 - 6 Bench Spots

Data



- Datasets downloaded from Fantasy Pros
 - Weekly PPR fantasy points from NFL seasons 2017 - 2021 for veteran players (over 3 seasons) in the top 200 2022 ADP
 - Weekly snap counts from NFL seasons 2017 - 2021 for veteran players (over 3 seasons) in the top 200 2022 ADP
 - Yearly PPR fantasy points from NFL seasons 2015 - 2021 for players in the top 200 ADP for the respective year

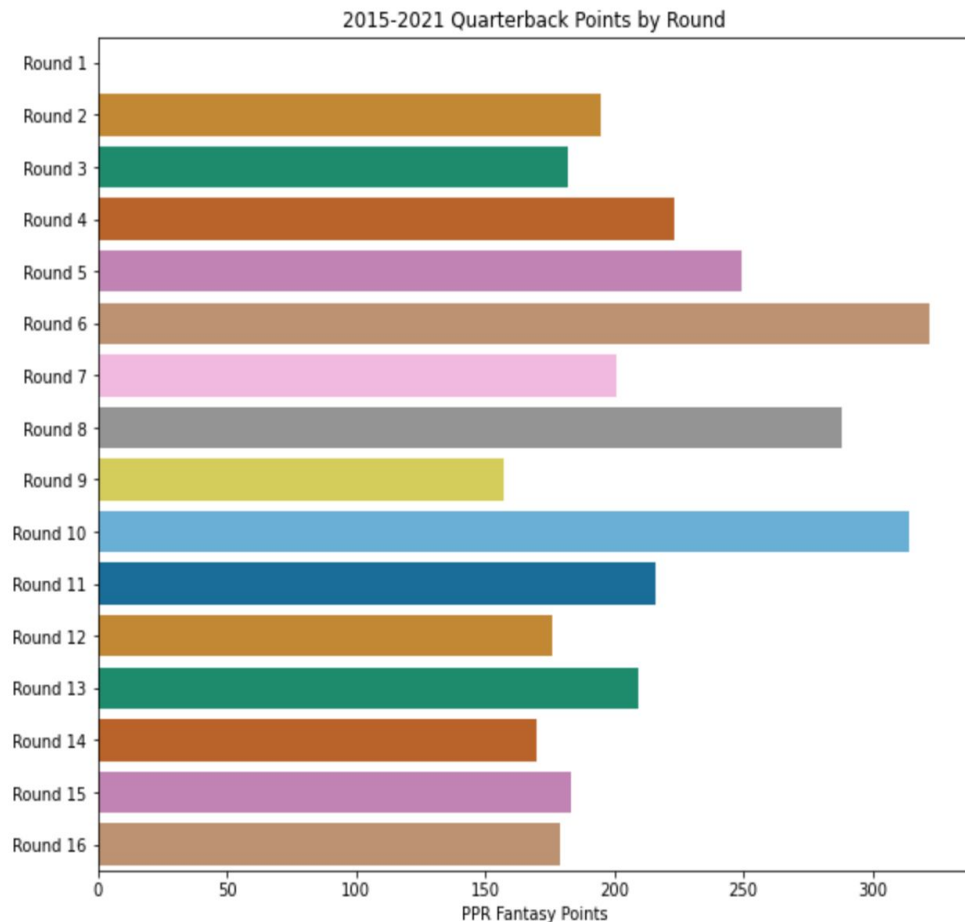
Quarterback Analysis



- Quarterbacks score the most points as a group
- The spread between the players is low

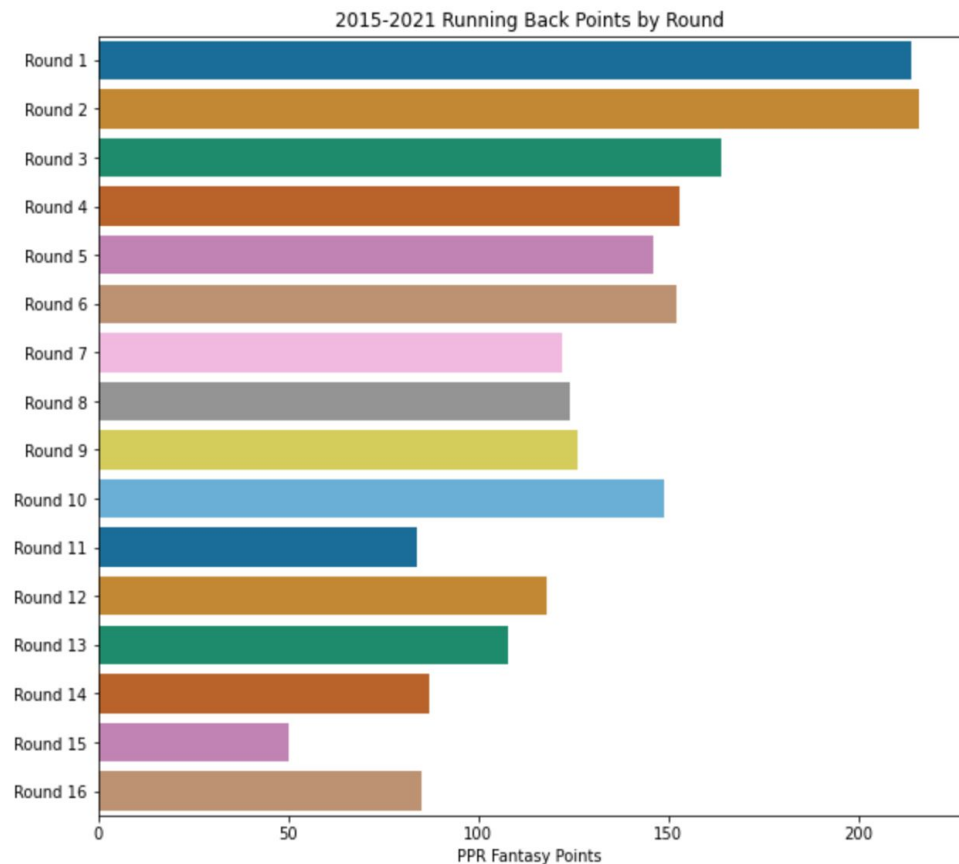
Quarterbacks by Round

- Highest average value in rounds 6 and 10



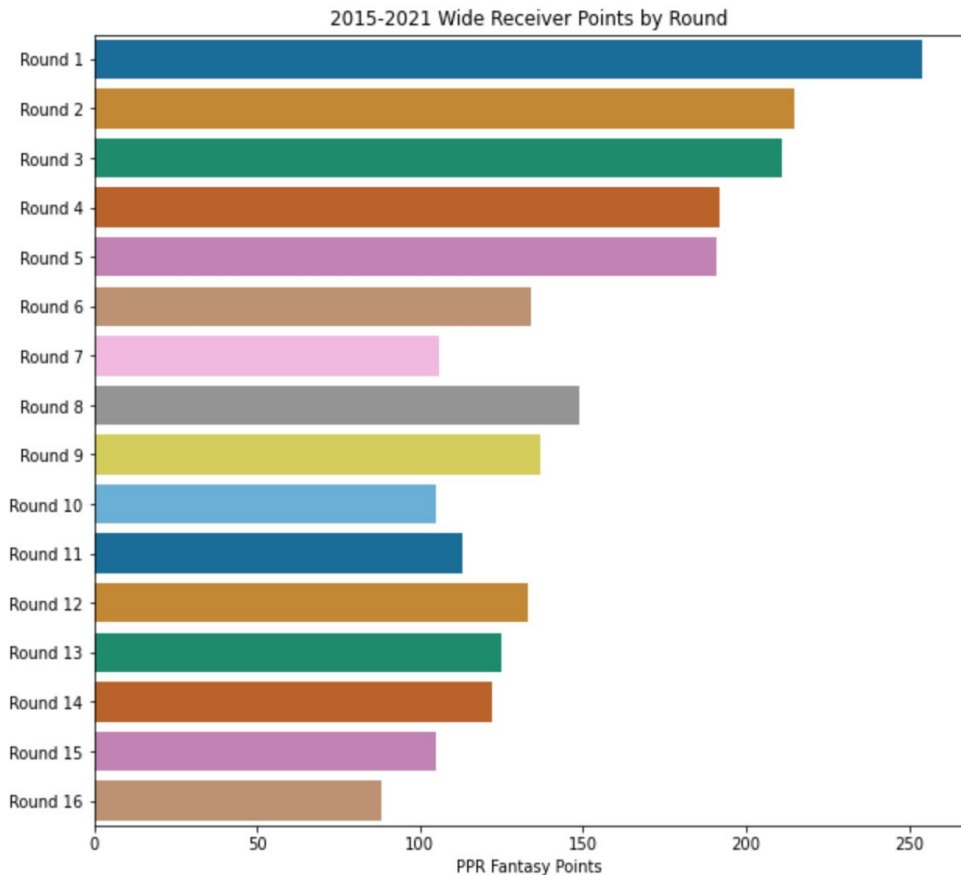
Running Back by Round

- Highest average value in the 1st and 2nd rounds
- Steep decline in value in the 3rd round forward



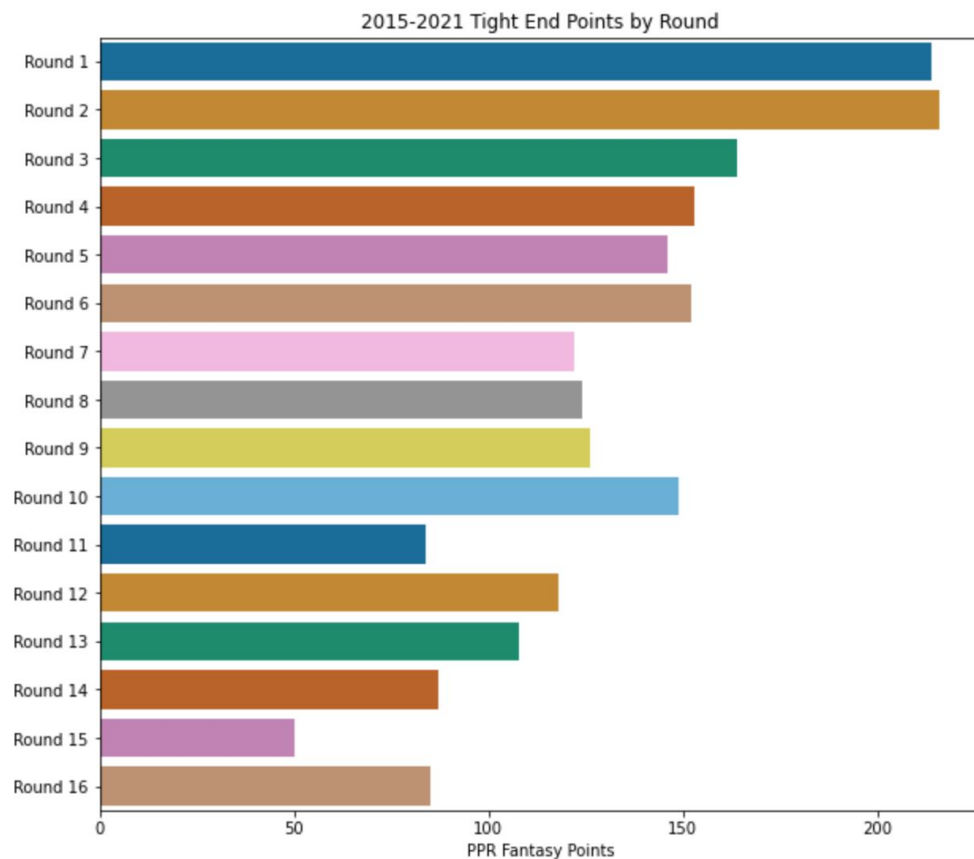
Wide Receiver by Round

- Highest average value in 1st round
- Value is maintained through round 5



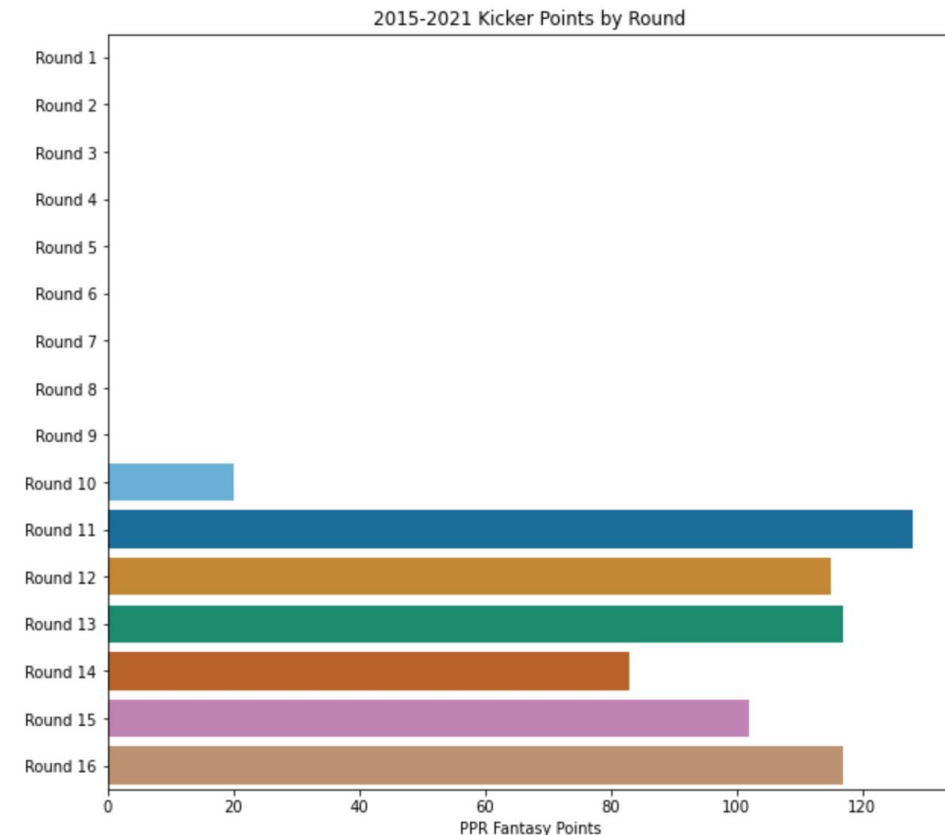
Tight End by Round

- High value in 1st and 2nd rounds
- Low value in remaining rounds



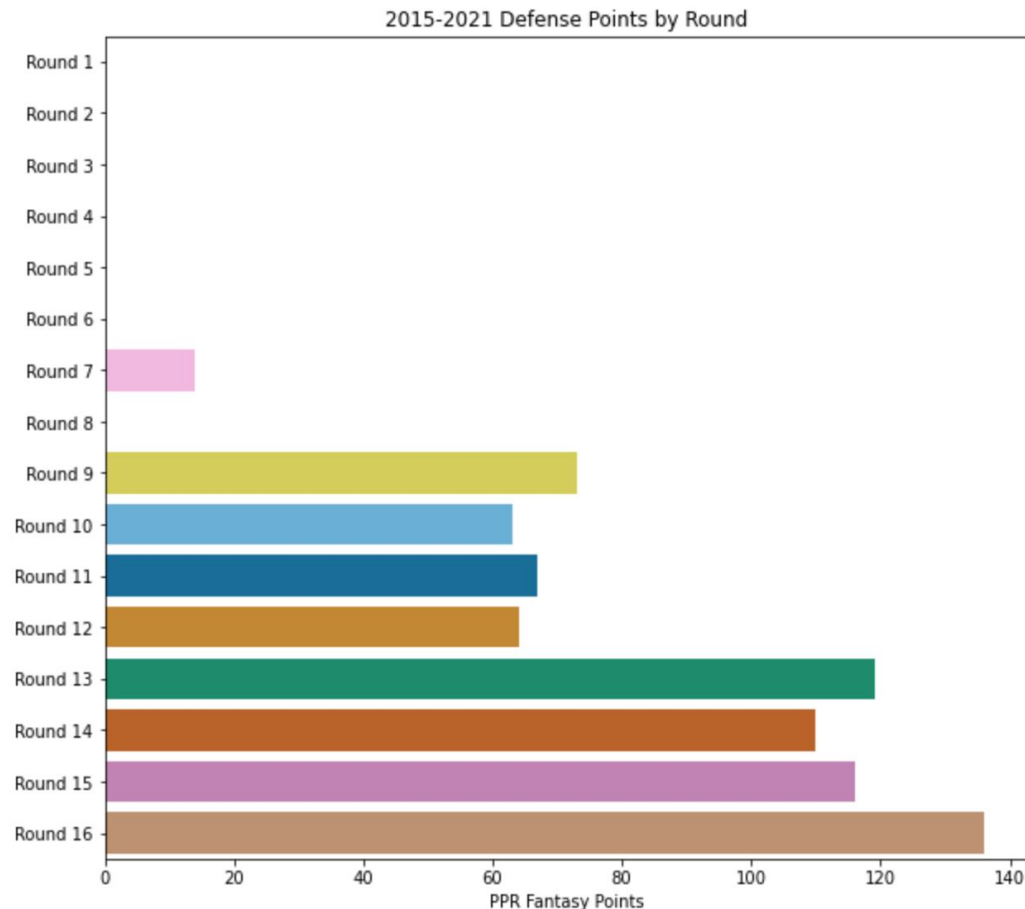
Kicker by Round

- Round 11 has the highest average for kickers
- Closely followed by round 16+ (After the initial draft)



Defense by Round

- Defense points increase with rounds
- Top scoring defenses are taken after the initial draft (round 16+)



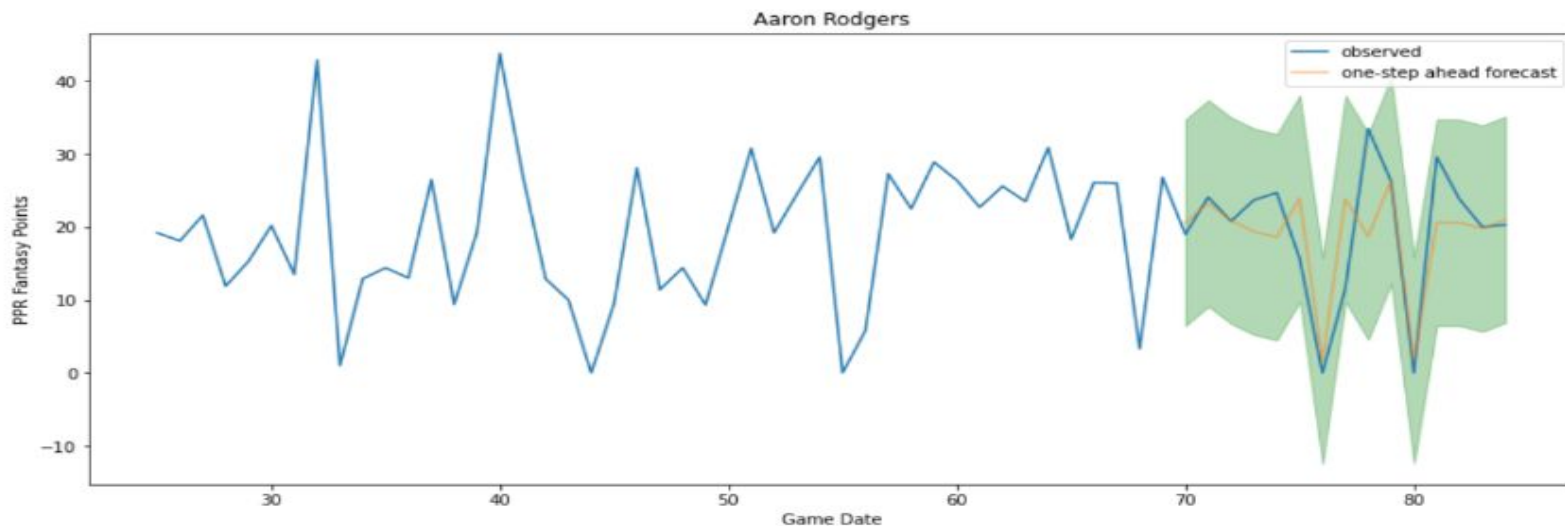
Modeling Methods

- ARIMAX Time Series Models on veteran players (over 3 seasons) in top 200 2022 ADP
 - Player snaps used as exogenous variable to model
- Dynamic Forecasting to predict player points for the 2022 fantasy season



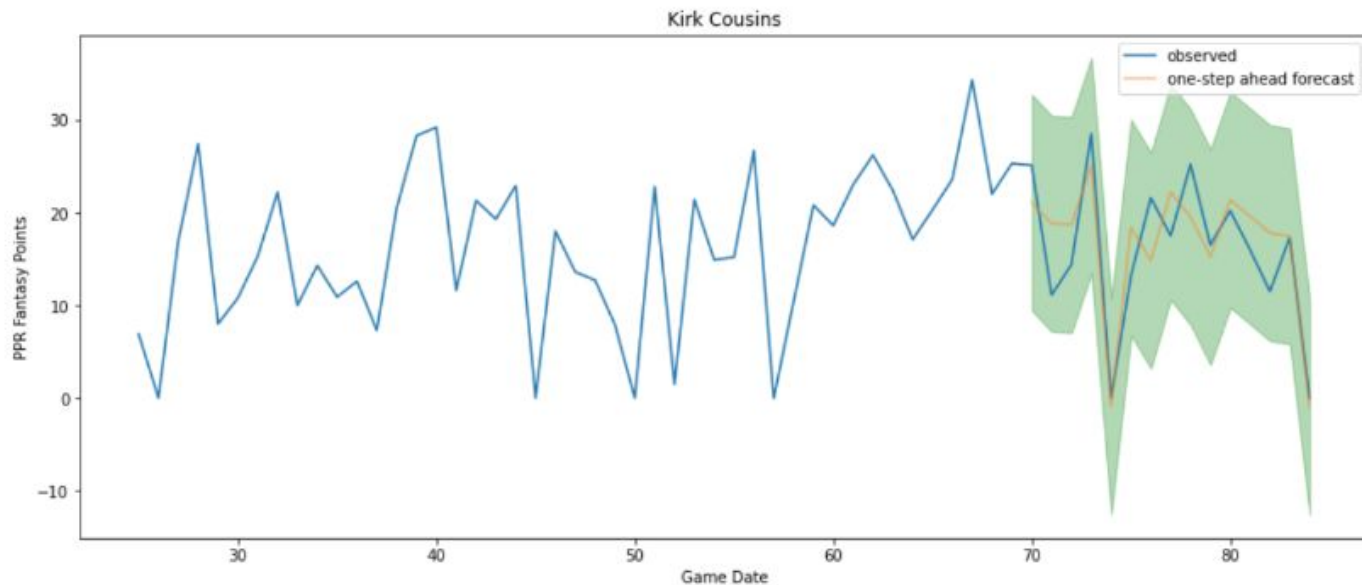
Model Validation

- RMSE of forecast for Aaron Rodgers 2021 season was 6 points

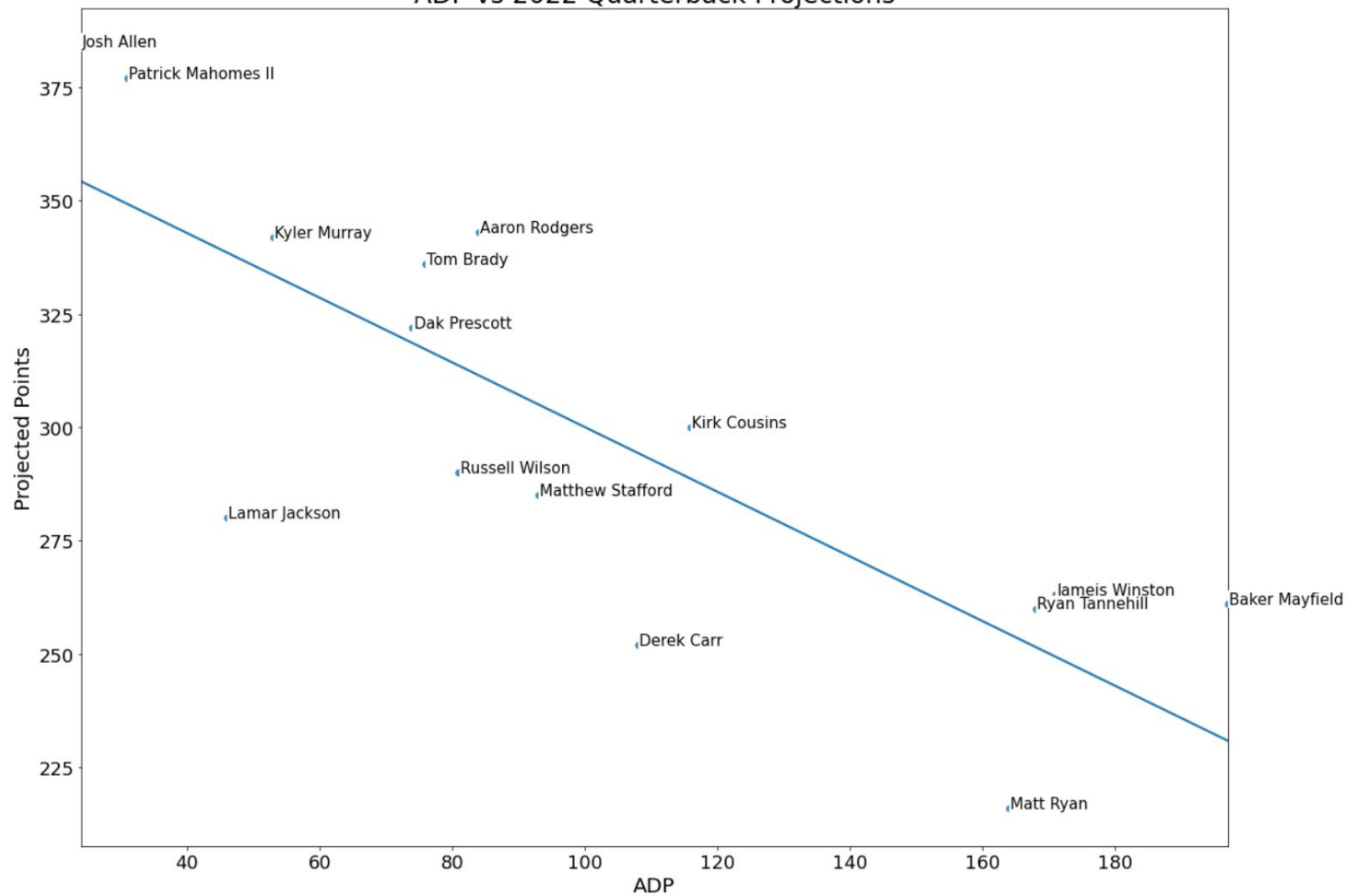


Model Validation

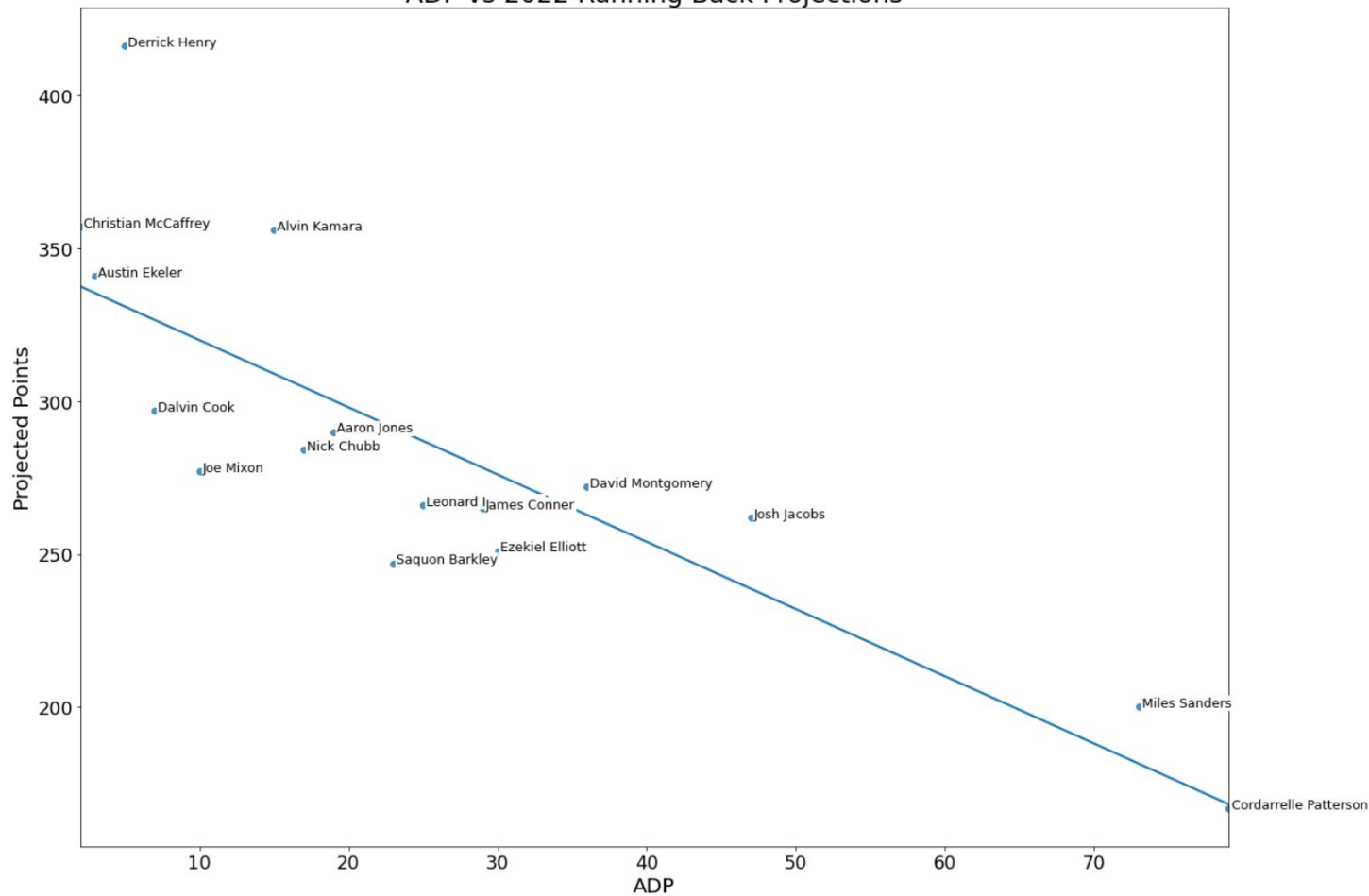
The RMSE of Kirk Cousin's 2021 season forecast was 4 points



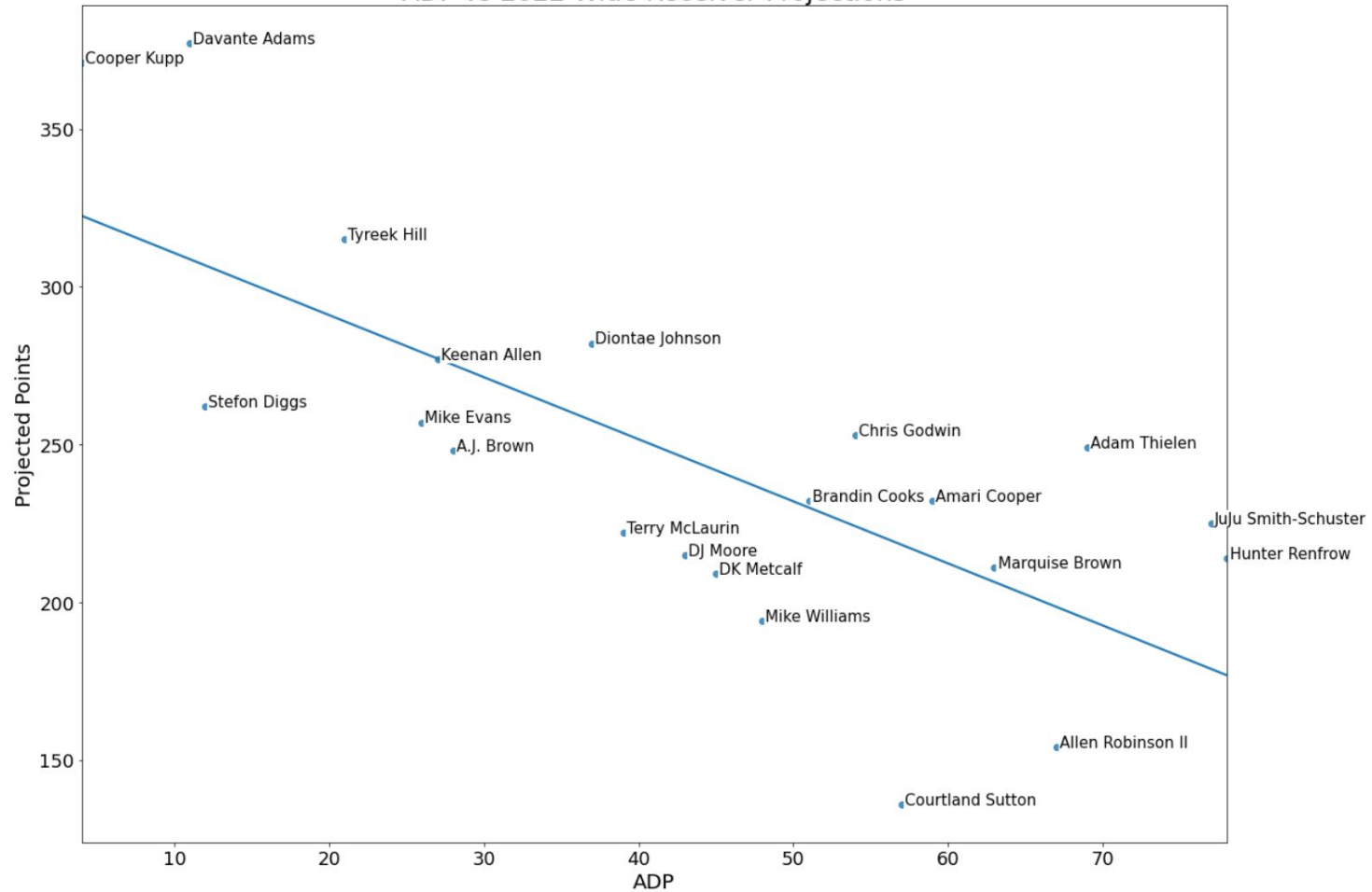
ADP vs 2022 Quarterback Projections



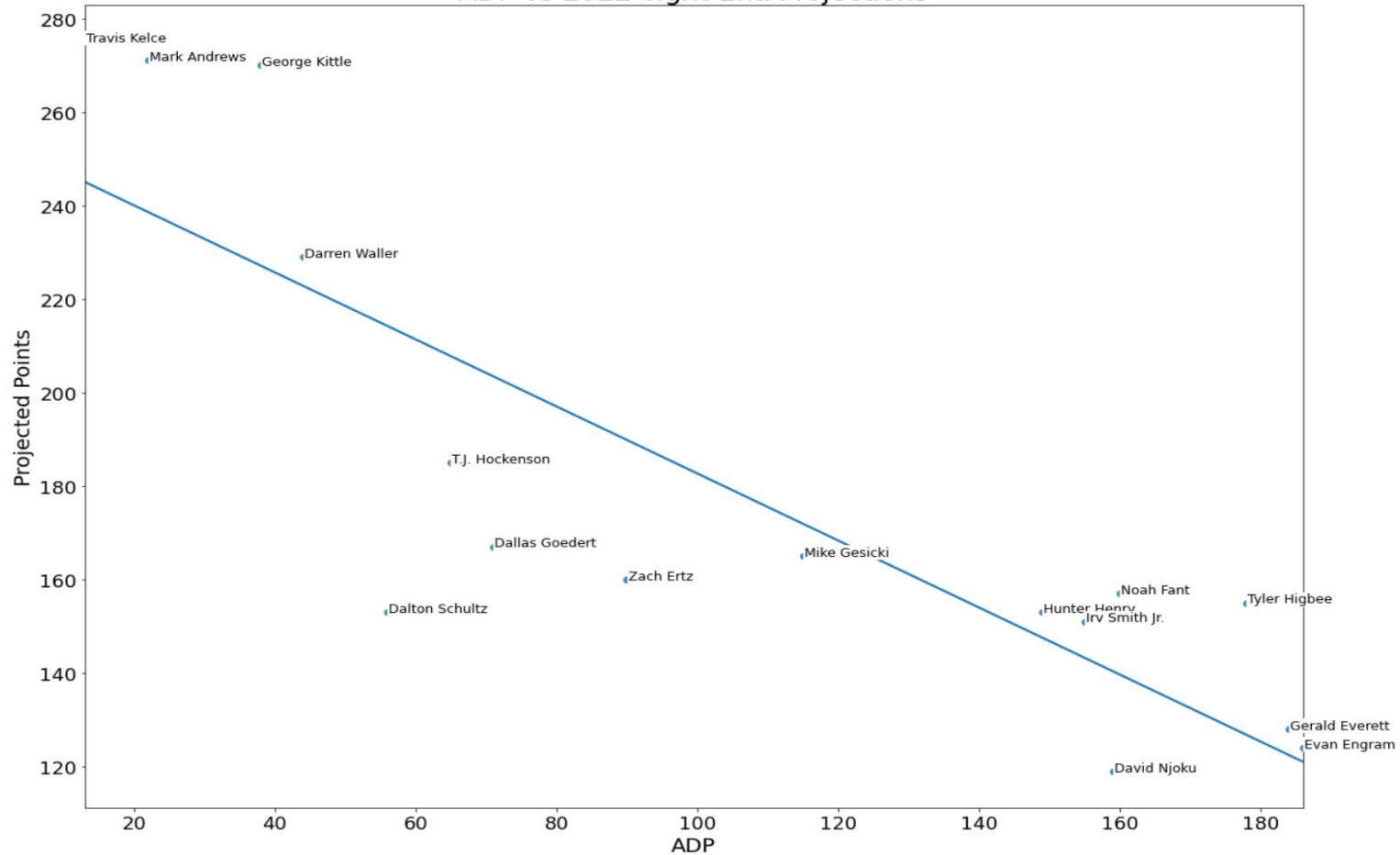
ADP vs 2022 Running Back Projections



ADP vs 2022 Wide Receiver Projections



ADP vs 2022 Tight End Projections

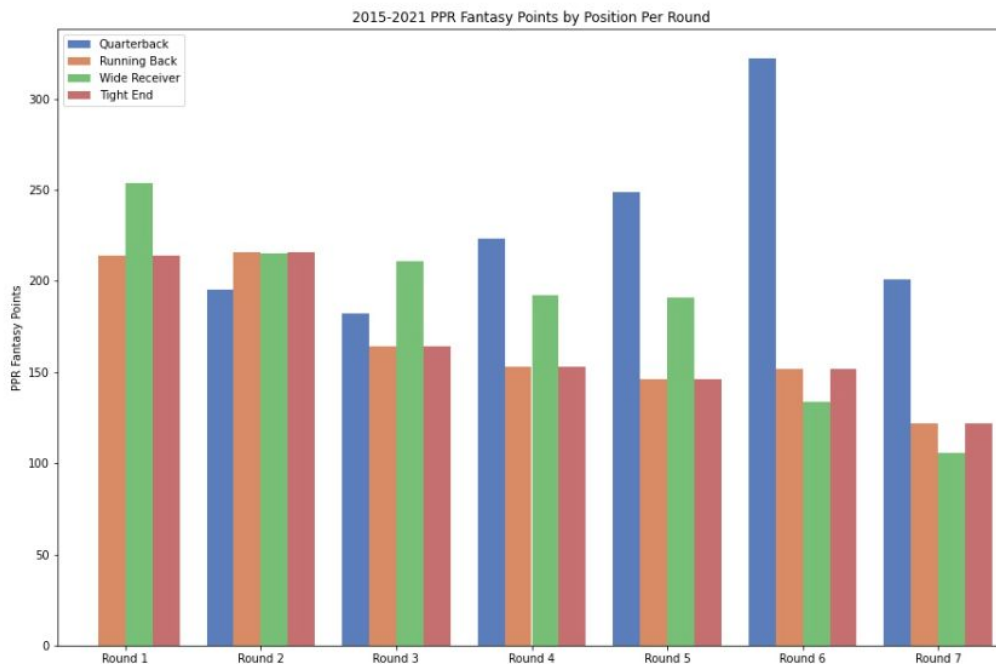


Recommendations

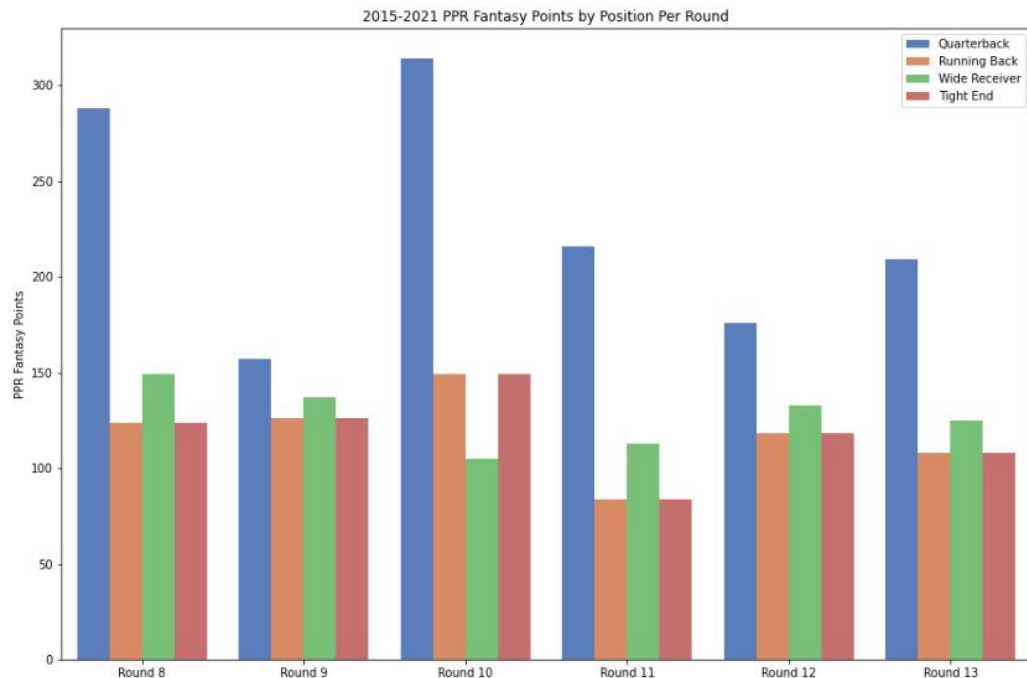
- Fantasy football draft strategies are not a one size fits all approach
- Adapt to draft order and players left on the board
- Large loss of value in 7th round of draft - will have 1 weak player in starting lineup
- Implement value based draft strategies and high value model forecasts to make draft decisions

Rounds 1 – 7

- Round 1 - RB
- Round 2 - TE (WR/RB)
- Round 3 - WR
- Round 4 - WR/RB
- Round 5 - WR/RB
- Round 6 - QB
- Round 7 - WR/RB (TE)



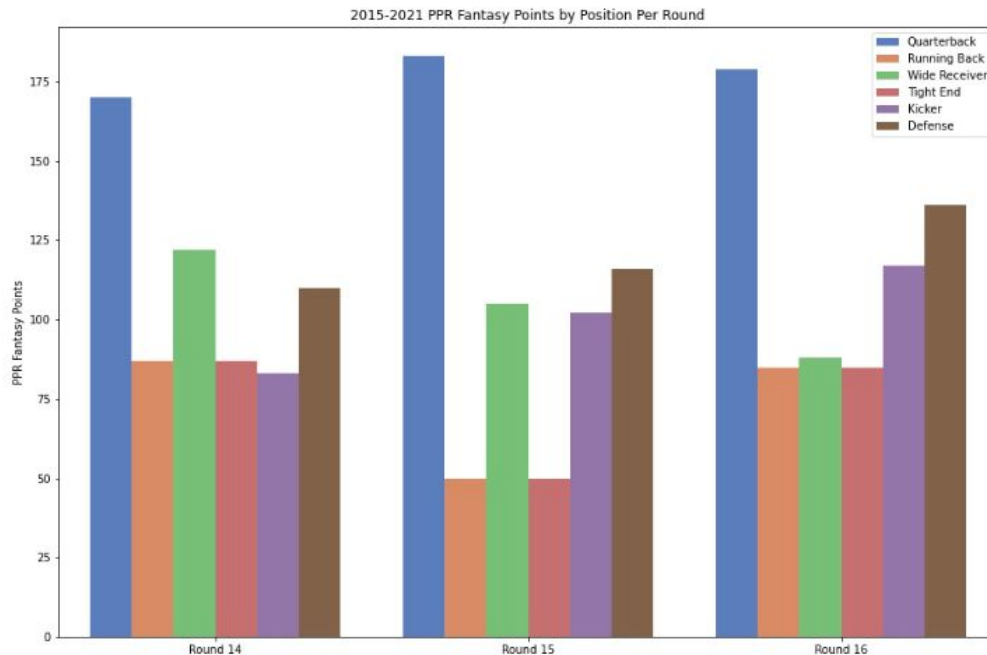
Rounds 8 -13 (Bench)



- Wide receivers and Running backs for bench
- Load up on late round sleepers and rookies
- High quarterback value in round 10

Rounds 14 – 15 – Kicker and Defense

Repeat after me. I will NOT defy the fantasy gods and draft a kicker or defense until the last 2 rounds of the draft, I will NEVER have a backup of either, and I swear to check streamers every week. Amen.



Biggest Busts of the 2022 Fantasy Draft

- Mike Williams (round 4)
- Lamar Jackson (round 4)
- Dalton Schultz (round 5)
- Courtland Sutton (round 5)
- Allen Robinson II (round 6)
- T.J. Hockenson (round 6)
- Dallas Geodert (round 6)
- Russell Wilson (round 7)
- Tony Pollard (round 7)
- Christian Kirk (round 9)
- Mike Gesicki (round 11)



Steals of the 2022 Fantasy Draft

- Davante Adams (round 1)
- Cooper Kupp (round 1)
- Derrick Henry (round 1)
- Josh Allen (round 2)
- Tyreek Hill (round 2)
- Alvin Kamara (round 2)
- Patrick Mahomes II (round 3)
- Donte Johnson (round 4)
- Chris Godwin (round 5)
- Amari Cooper (round 5)
- Adam Thielen (round 6)
- Aaron Rodgers (round 7)
- Tom Brady (round 7)
- Kareem Hunt (round 8)
- Chase Edmonds (round 8)
- Robert Woods (round 9)
- Kirk Cousins (round 10)
- Darrell Henderson Jr. (round 11)
- J.D. McKissic (round 13)

Future Work

- Extension in progress to analyze public yahoo fantasy leagues and the league winners drafting strategies.
- Additional exogenous factors to improve model performance - Strength of schedule, Teammates, Opponent.
- Other modeling techniques - RNN-LSTM model and Facebook Prophet.
- Model to predict rookie and non-veteran fantasy points

THANK YOU!!

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Github Repo : <https://github.com/meljoy1099/fantasy-football-draft-analysis>