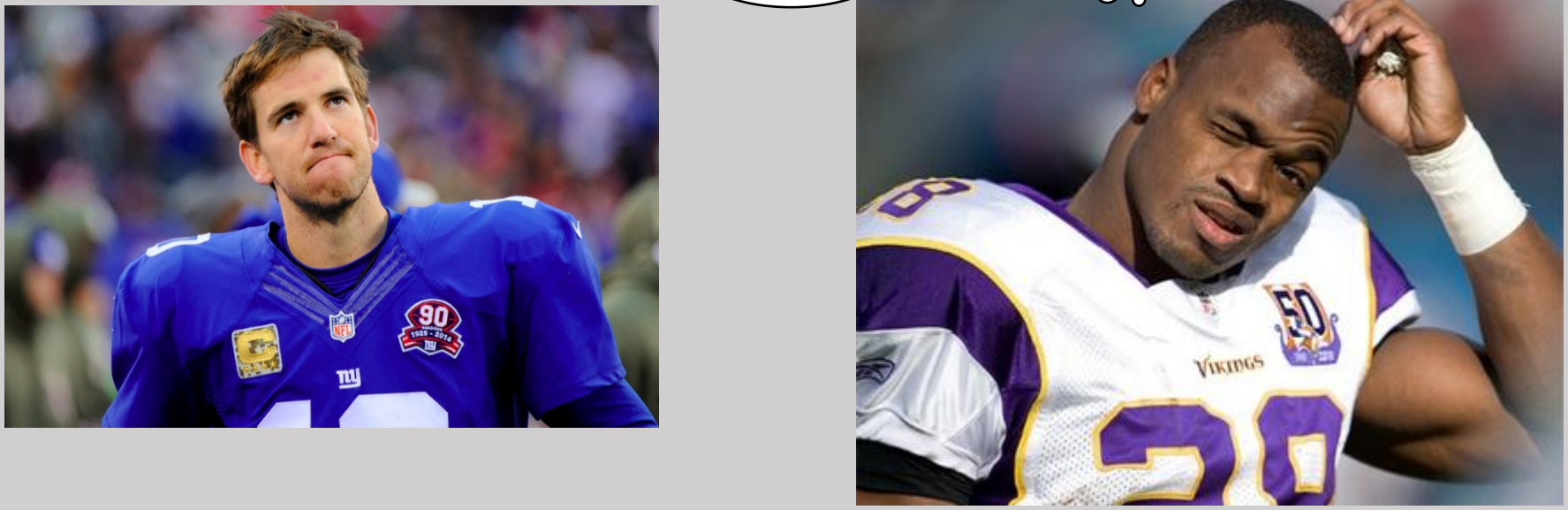
NFL Player Pay Predictions

Allow talent agents better identify new clients

Michael Jimney



Project Scope

Use Case:

- Help sports agents identify clients for contract negotiation

Objective:

- Predict the "% of Salary Cap" for an NFL player

Key Assumptions

- The % of Salary Cap is based on total compensation (salary + bonuses)
- Modeling only Quarterbacks, Running Backs, and Wide Receivers

Methodology

Two Primary Data Sources

spotrac.com

- 1994 to 2018
- Player compensation

pro-football-reference.com

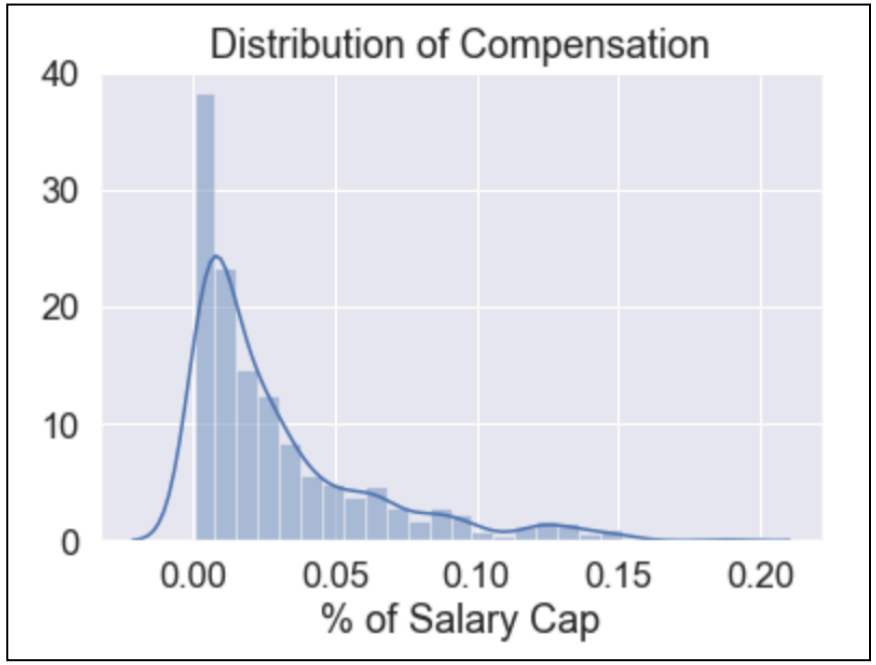
- 1993 to 2017
- Game statistics
- Descriptive information

4,750 Players x 65 features

Data Challenges

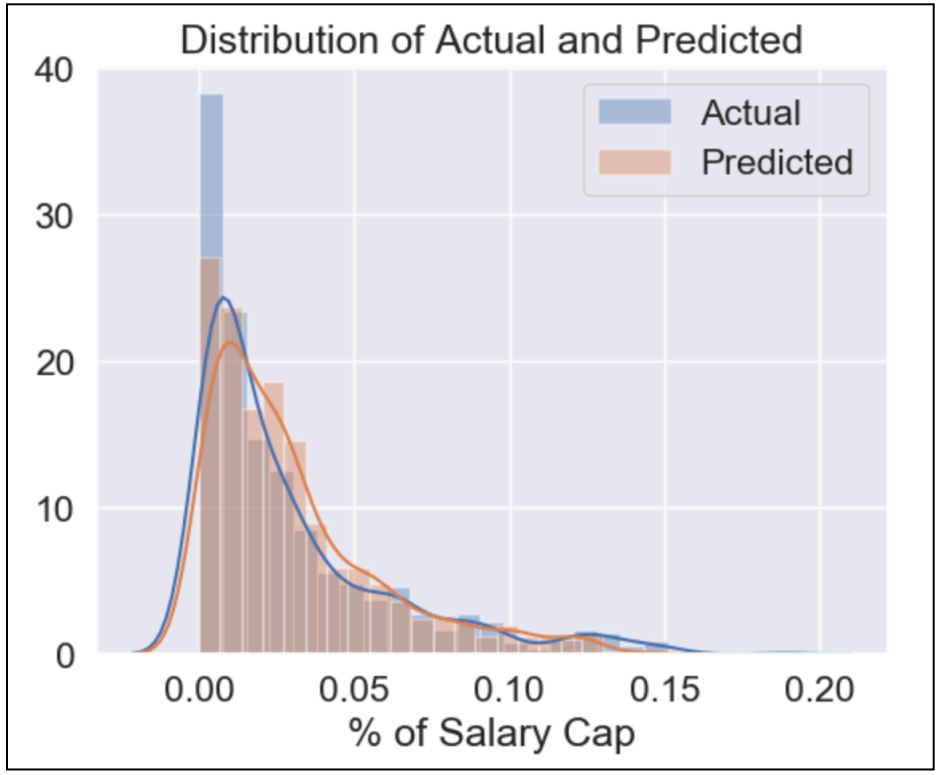
- Stats are not comparable across position (Pass TD's vs Rushing TD's)
  Enhancement: Stat scaling by year

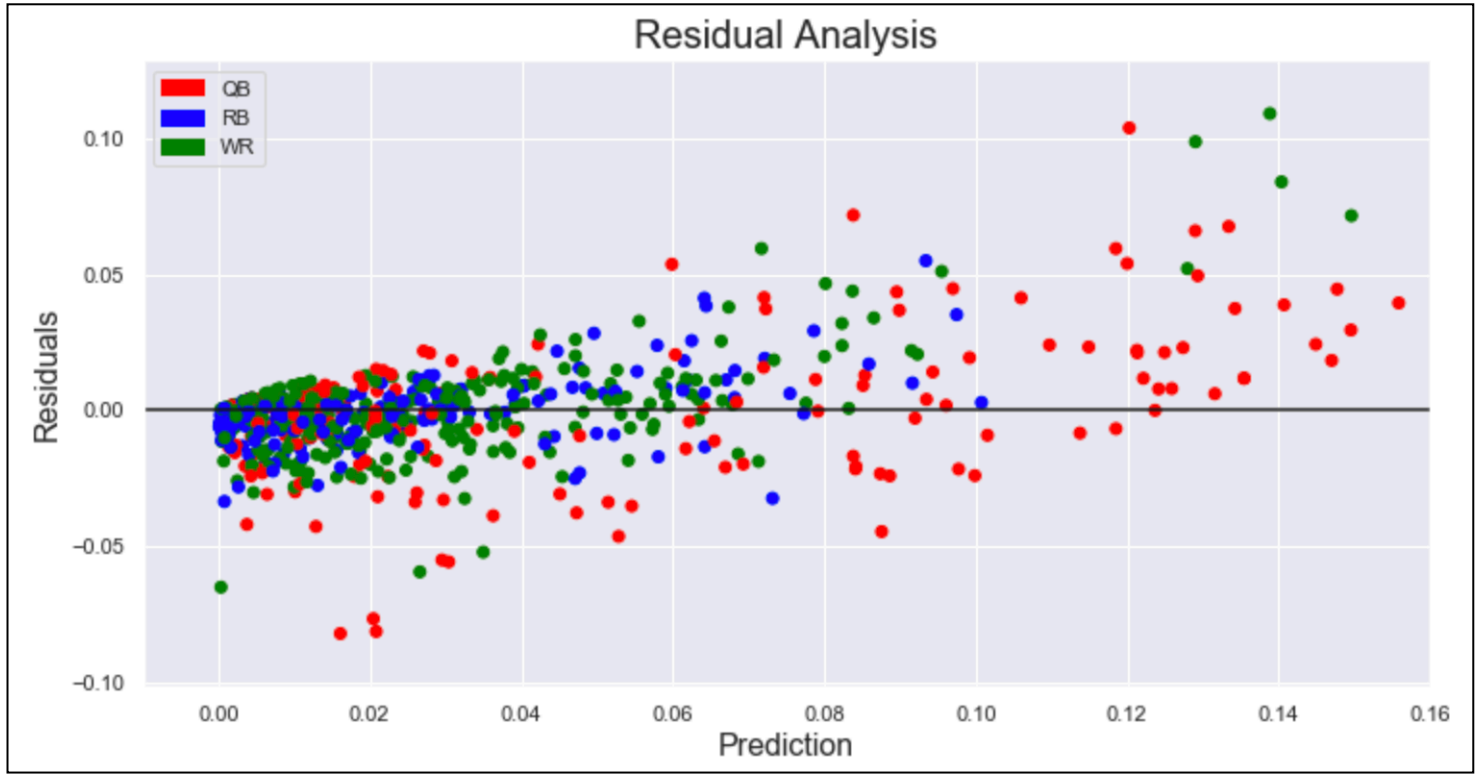
- Distribution has a right tail due to franchise players
  Enhancement : "Superstar" classification



Results

Model Metrics	
	R2 ≈ 0.6881
	MAE ≈ 0.0117 of player's % of Salary Cap
	MAE x 2018 Sal Cap ≈ $2.21mm
	Avg compensation is $4.8mm, MAE difference of 46.1%

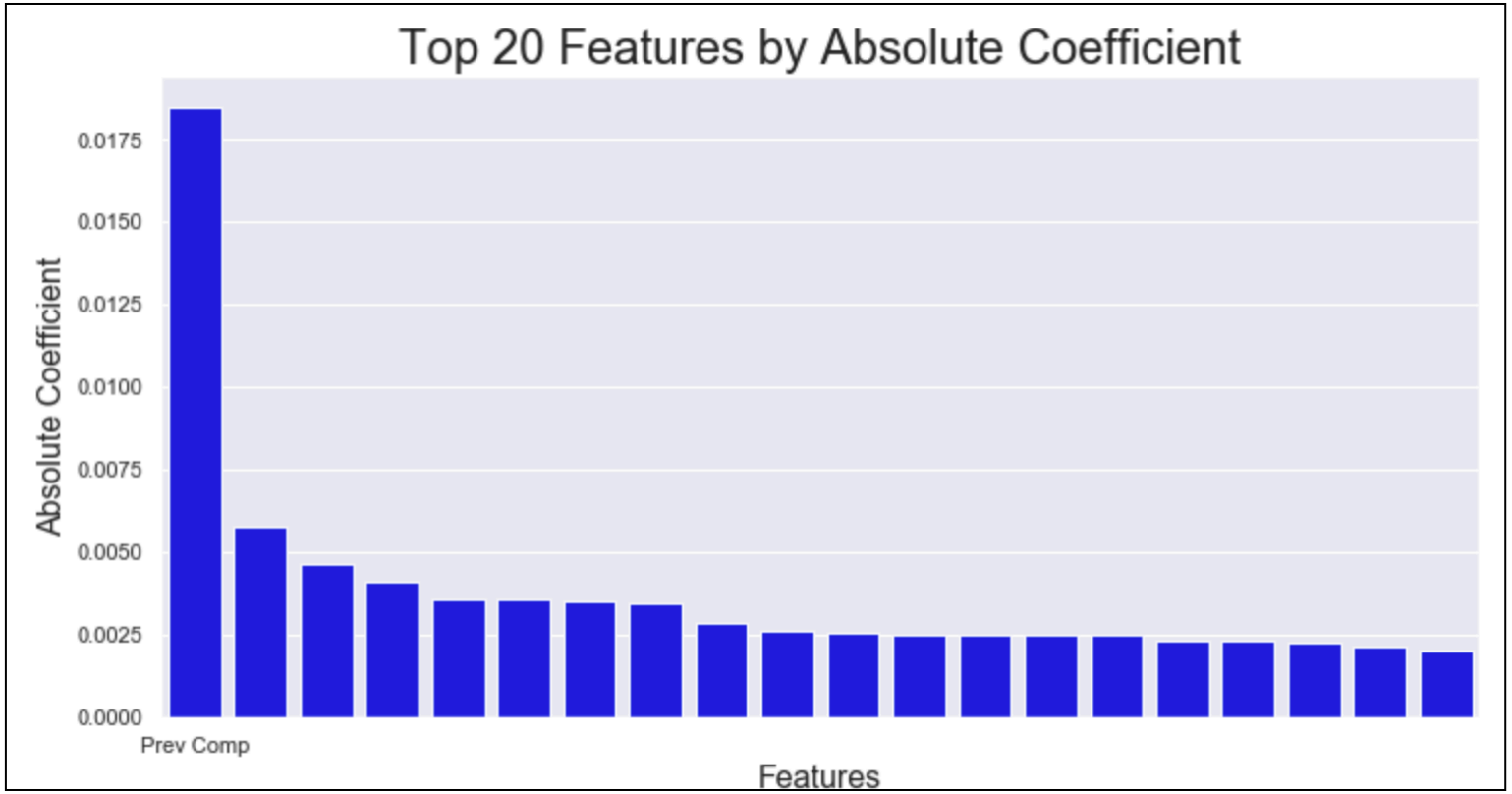




Results

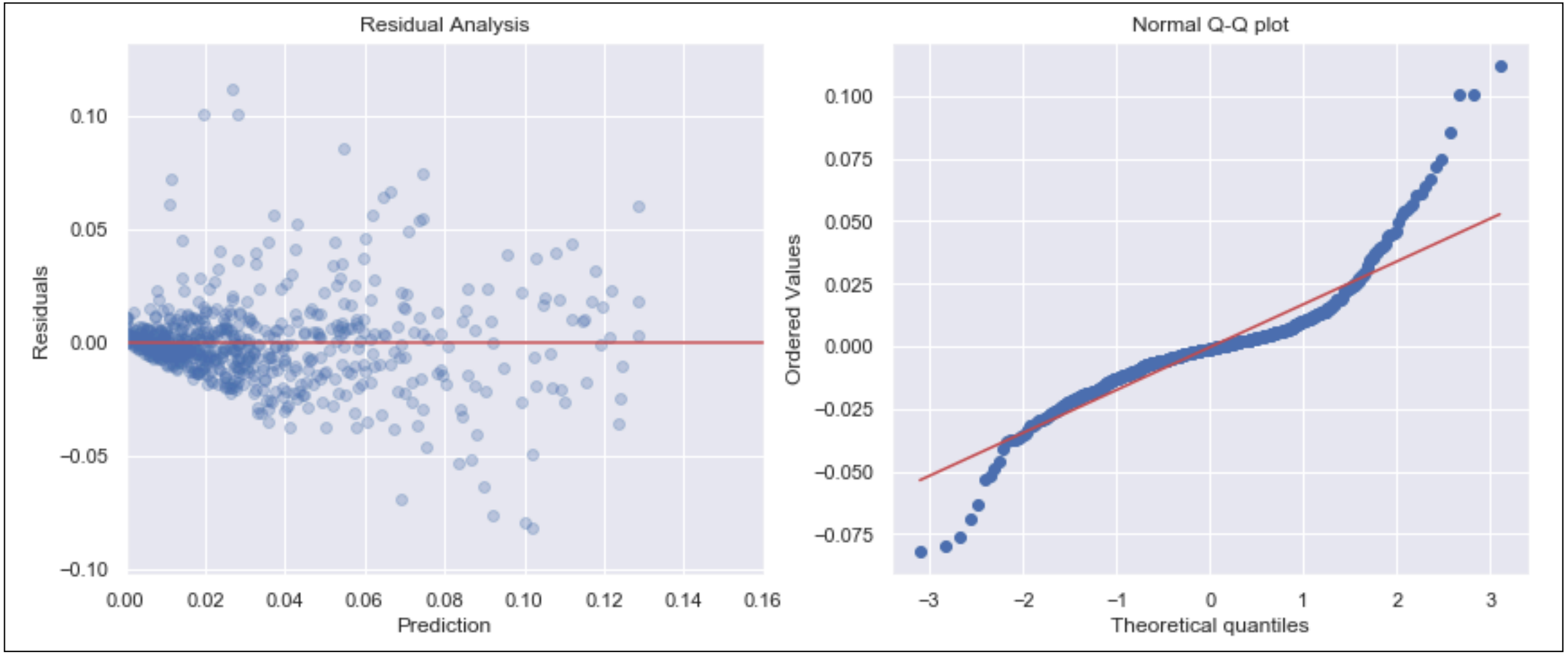
Important Features

- Previous Year's Compensation (***)
- Pass Completions
- QB Game Winning Drives (Adjusted)
- Pass Attempts
- Pass Completions
- Rushing Yards
- Receiving Targets (Adjusted)
- Receiving Yards / Game
- Receiving Targets
- Superstar Status



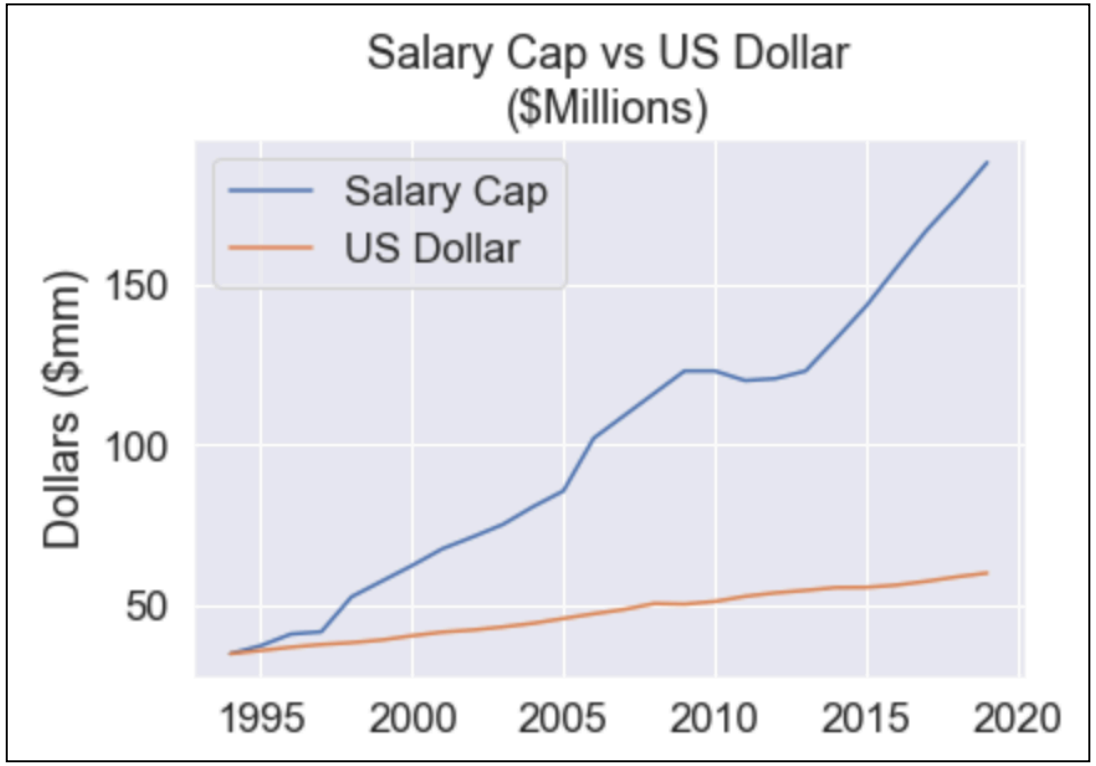
Questions

Appendix A - Final Model plots



Appendix B - Salary Cap

- The NFL Salary Cap is growing at a CAGR of 6.73% (1994 – 2019)
- The US Dollar has a CAGR of 2.13% over the same period of time



Appendix C - Features by Abs Coefficient