WNBA Average Game Analysis

Presented to you by:
Houston Analytics, LLC

Meet The Team

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Overview

- Problem Statement
- Brief League Overview
- Methodology
- EDA & Modeling
- Findings
- Future Uses
- Q&A

Problem Statement:

What’s the number of games we predict a player to play in the upcoming three seasons?

League Differences

Year Founded	• WNBA 1996 | NBA 1946
Average Careers	• WNBA career length ~3.5 years | NBA avg ~4.5
Teams / Rosters	• 12 WNBA teams | 30 NBA teams • 12 players per team | 15 players per team
Play Time	• 10 minute WNBA quarter length | NBA plays 12 minutes • 24 second shot clock (same for both)
Total Games	• 36 game season | NBA plays 82 games

Methodology

Linear Regression

- Ridge
- LASSO

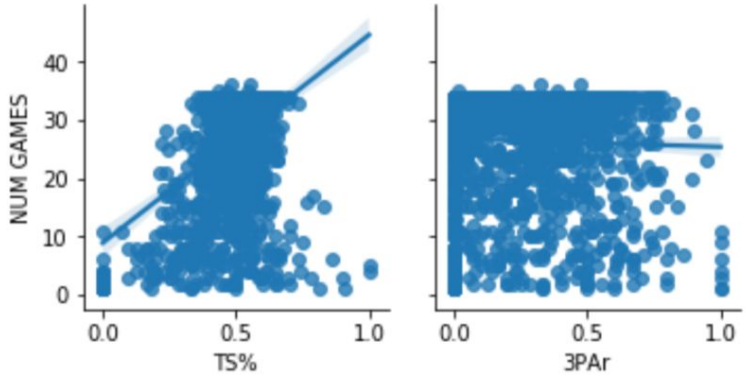
Random Forest

- With and without Gridsearch

EDA & Modeling

- Pairplot and distribution plots didn't provide clear findings
- Scatter plots showed better relationship but on features with already assumed with high correlation

```
#compare variables that could potentially impact my Y
sns.pairplot(df, x_vars=['TS%', '3PAr'], y_vars='NUM GAMES',
```

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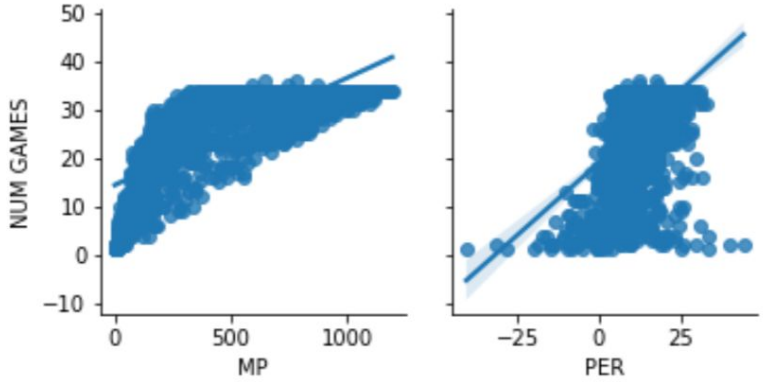
sns.pairplot(df, x_vars=['MP', 'PER'], y_vars='NUM GAMES', ki
```



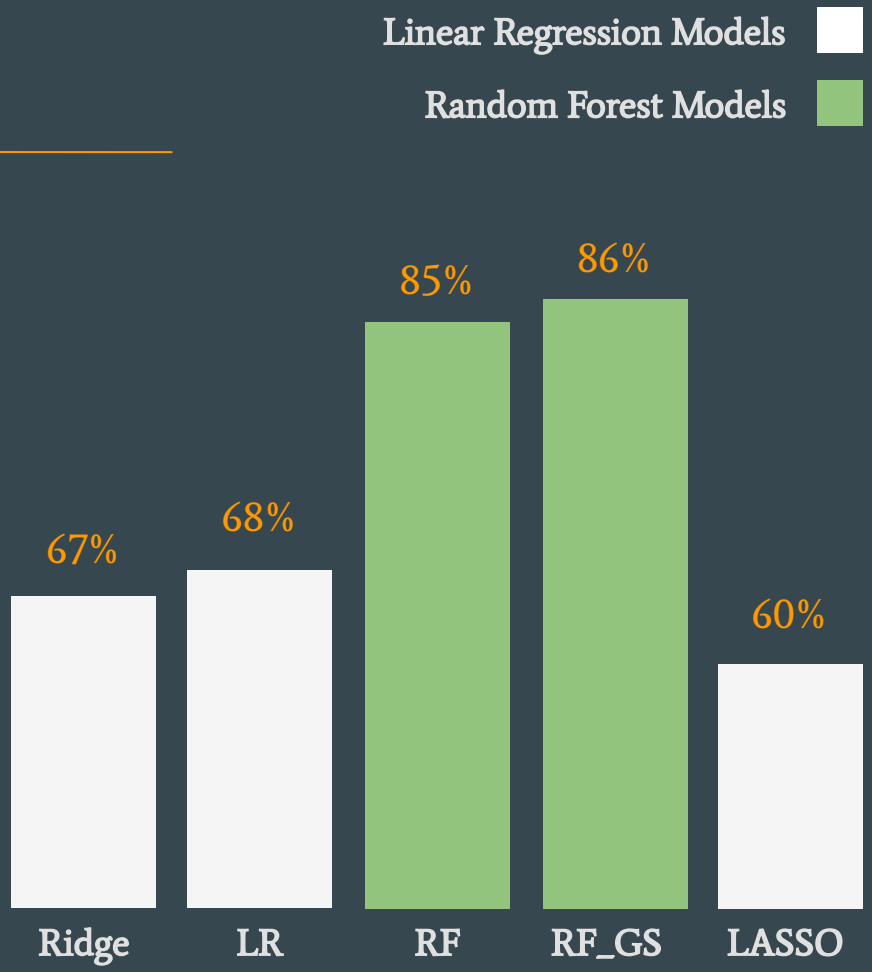
Models and R2 Scores

Linear Regression

- Poor scores all around
- No improvement with added metrics (Ridge/LASSO)
- Calculated coefficient and intercepts values

Random Forest

- Considerably better scores!
- Marginally better with added metrics



Linear Regression Findings

Feature Name = Coefficient Value(coef)

***Intercept** = ~17

Relationship to Number of Games = Intercept + Coefficient value

DWS = 2.157 e+00

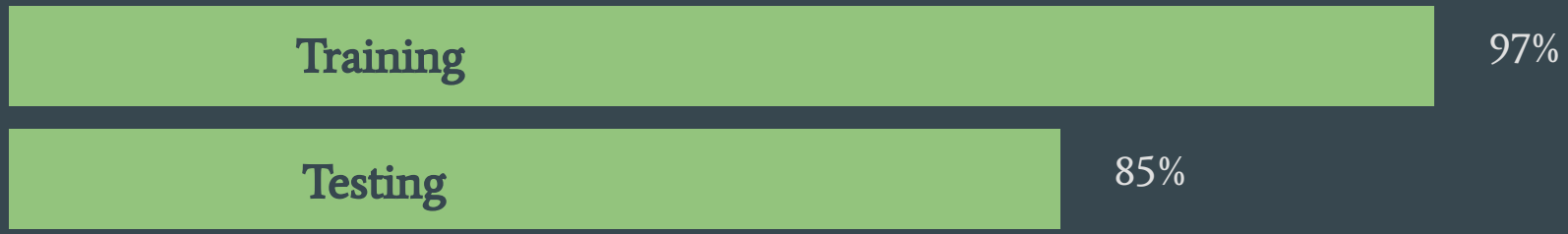
WS_40 = 3.992 e+01

WS = -2.714 e+00

PER = -3.994 e-01

Random Forest Train and Test Scores

Random Forest



Random Forest with Gridsearch

Findings

- Minutes Played per game and Defensive Win Shares were biggest contributors
- Defense Win Share with highest coefficient value
- Average of ~51 games for 3 years

Future Uses

- Use when negotiating future contracts for players
- Highlight areas of improvement/excellence on the court
- Encourage our players that defense wins the game!

Special Thanks to our partners:

https://www.swishappeal.com/2013/11/20/4698820/wnba-draft-success-2008-2012

https://www.basketball-reference.com/wnba/

https://www.wnba.com/faq/

Thank you!

Questions?