What affects NBA Teams Win

Python analysis of NBA team performance data set

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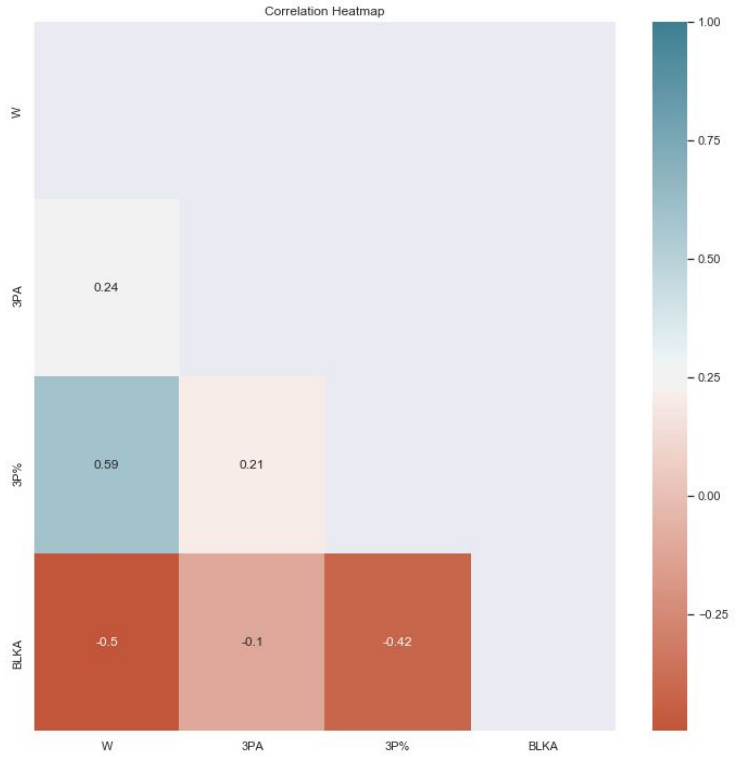
Background Information

- Our data set:
  - Web Scraped from NBA.com
  - 150 observations x 34 variables
  - NBA team statistics during the past 5 years
- Explanation of variables
  - WINS: Games that a team has won
  - 3P%: 3-Point field goals percentage
  - BLKA: Attempt to block shots made (e.g. Goal tending)
  - OREB: Offensive rebounds
  - PACE: Number of possessions per 48 minutes
- Theme Questions:
  - Explore how three pointers affect Wins
  - Find other factors that differ bad teams from good teams
    - Good Teams: Warriors, Spurs, Raptors, Rockets, Clippers
    - Bad Teams: Knicks , Suns , Lakers , Nets , Magic

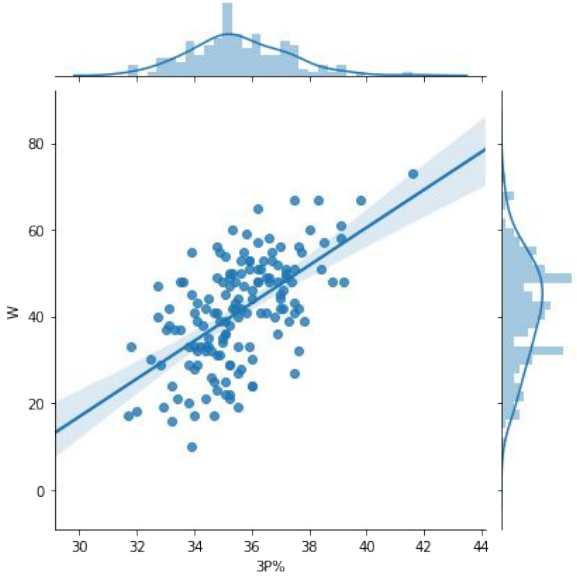
Exploratory Analysis

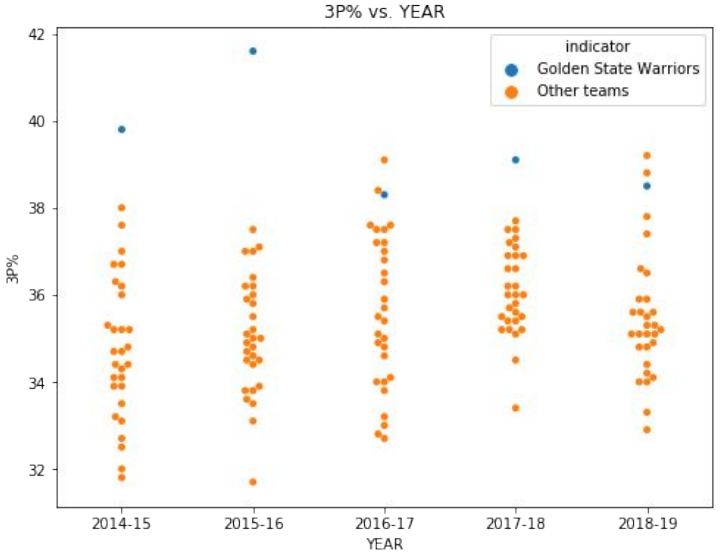
- Visualize by a Pearson correlation heatmap
- Insight
  - WINS is highly positively correlated with 3P%
  - WINS is highly negatively correlated with BLKA
  - 3P% is highly negatively correlated with BLKA
- The heatmap provides a concrete reason to believe that 3P% and BLKA are related to WINS



Exploratory Analysis

- WINS vs. 3P%
- 3P% vs. YEAR (Golden State Warriors vs. Other NBA teams)



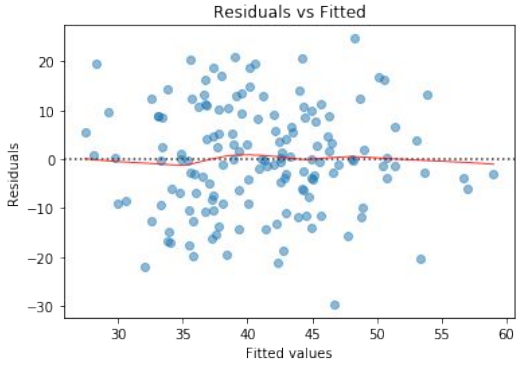


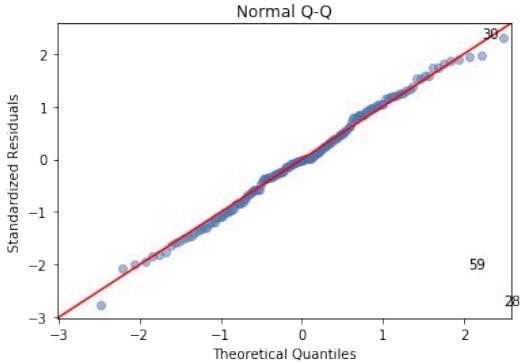
Data Modeling

- Multiple linear regression model based on common knowledge
- R-squared: 0.842, adjusted R-squared: 0.830
- WINS = -134.4476 + 2.3906 * 3P%
  +305.1809*2P%+0.334*FT%+0.0474*REB
  +0.0008*AST-0.0265*TOV+0.0706*STL
  +0.0032*BLK+0.0032*PF-2.8818*PACE

	Coef	P-value
Intercept	-134.4476	0.00
3P%	2.3906	0.00
2P%	305.1809	0.00
FT%	0.334	0.035
REB	0.0474	0.000
AST	0.0008	0.818
TOV	-0.0265	0.000
STL	0.0706	0.000
BLK	0.0032	0.679
PF	0.0032	0.464
PACE	-2.8818	0.000

Data Modeling





	coef	std err	t	P>|t|
Intercept	81.0679	9.471	8.559	0.000
OREB	0.0100	0.010	0.978	0.330
BLKA	-0.1219	0.018	-6.935	0.000

- Model: Wins~OREB+BLKA, data=nba
- Normality and constant variance assumptions not violated.
- P- value = 0.000, so BLKA is a significant factor on Wins.
- Conclusion: if a NBA team wants to win more games, it should avoid trying to block every opponents' shot.