

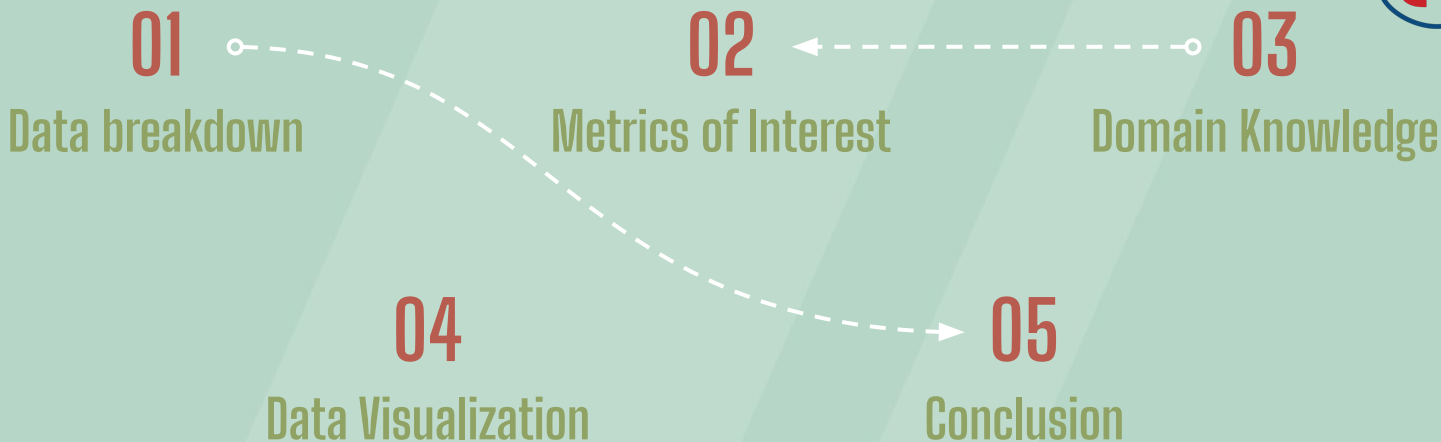
FROM THE SIDELINES TO THE SPREAD

AN ANALYSIS OF NFL PERFORMANCE



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The Data

kaggle™

Spreadspoke scores

Information about every game
Includes weather information, spreads, scores, favorites, etc.

01

Yearly team data

Information about seasonal team statistics
Includes wins, losses, yards, points scored, fg attempts, receptions, etc.

02

Yearly player data

Information about each player's career stats
Includes draft info, win percentages, yards, catches, etc.

03

*Data ranges from 2012-2023

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Metrics of Interest



Weather metrics

- Temperature
- Precipitation



Stadium atmosphere

- Neutrality
- Home Field Advantage



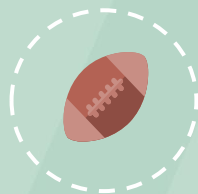
Draft Pick and Success

- Position
- Draft Pick
- Various Stats



Betting odds

- Spreads
- Home Field Advantage
- Win percentage



Passing and Success

- Passing yards
- Win percentage

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Domain Knowledge

What is a betting spread?



Prediction made by bettors on how much one team will outscore the other

The team expected to win is called the favorite, the team expected to lose is called the underdog



The spread is denoted by a negative number ending in .5 for the favorite. This number is subtracted from the favored team's final score, and if they are still ahead, we say they "covered" the spread.

(We are not condoning gambling)

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Domain Knowledge (cont'd)

The Draft

- Big recruiting process
- Annual Event
- NFL teams take turns picking eligible college players to join their teams
 - Worst teams from previous season pick first

Defining "Success"

For QB:

- ≥ 8 seasons played
- $\geq 25,000$ Career Passing Yards
- ≥ 200 Career Passing TDs

For RB:

- ≥ 5 seasons played
- ≥ 5000 Career Rushing Yards
- ≥ 50 Career Rushing TDs

For WR:

- ≥ 6 seasons played
- ≥ 7500 Career Receiving Yards
- ≥ 45 Career Receiving TDs
- ≥ 600 Career Receptions

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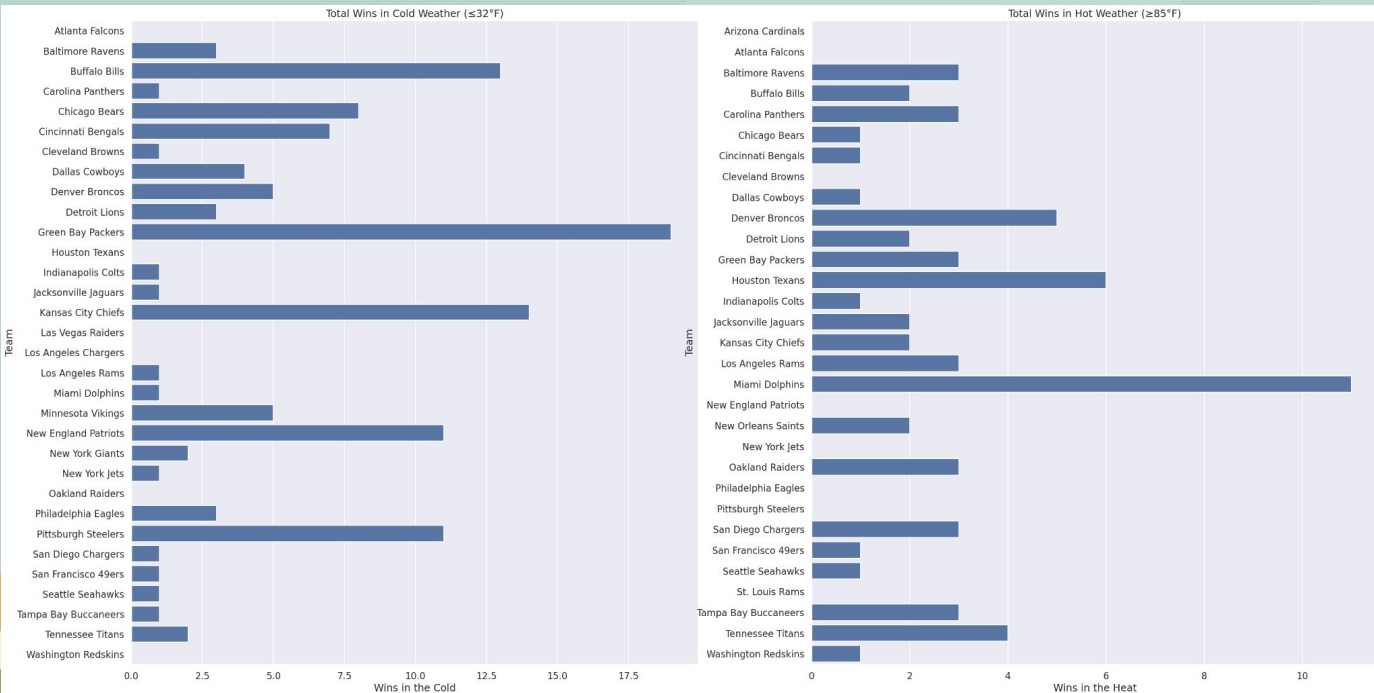
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Chillin' or Grillin'

Do teams acclimated to certain weather conditions perform better in extreme weather than others?

We defined cold games as games under 32° and hot games as games over 85°.



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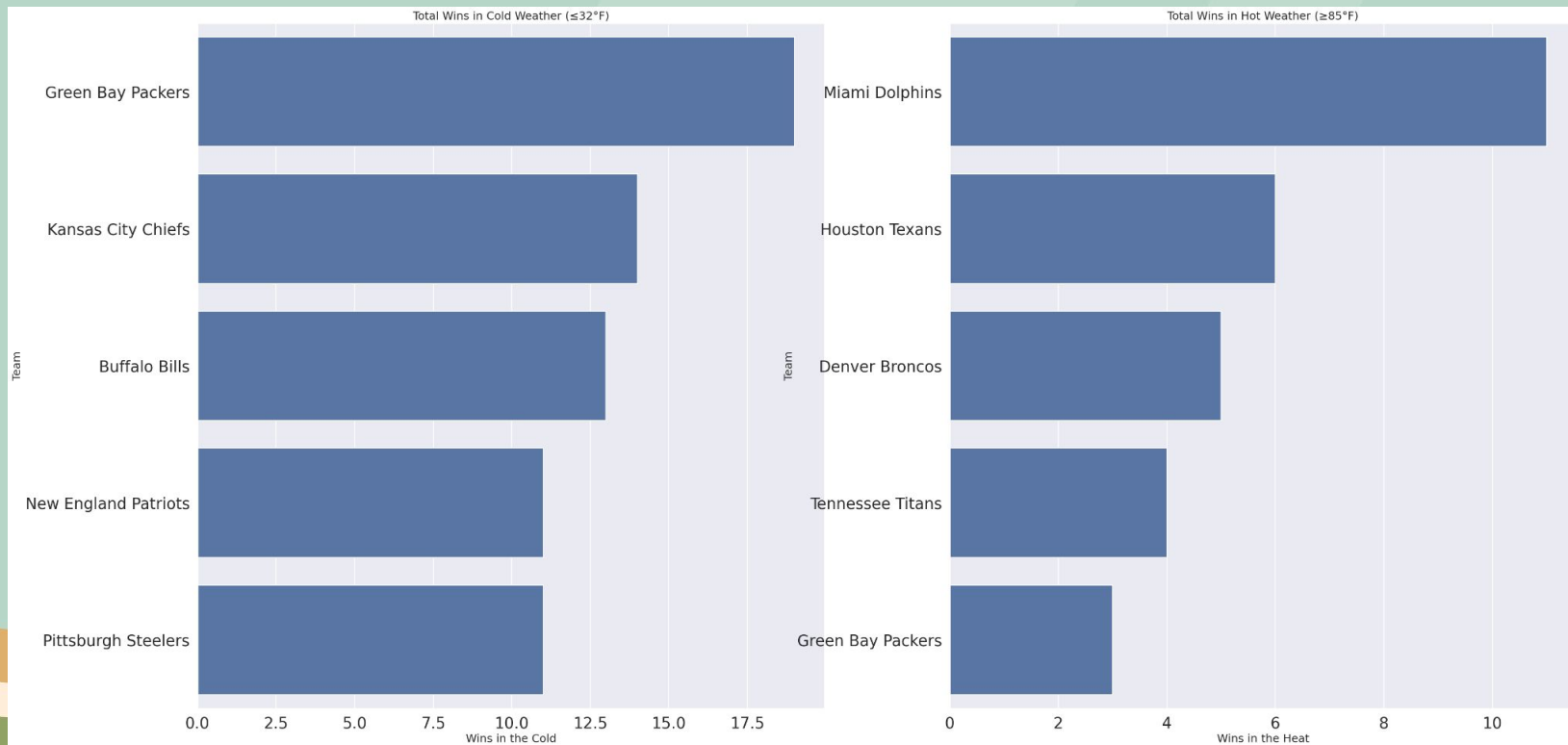
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Chillin' or Grillin' (cont'd)



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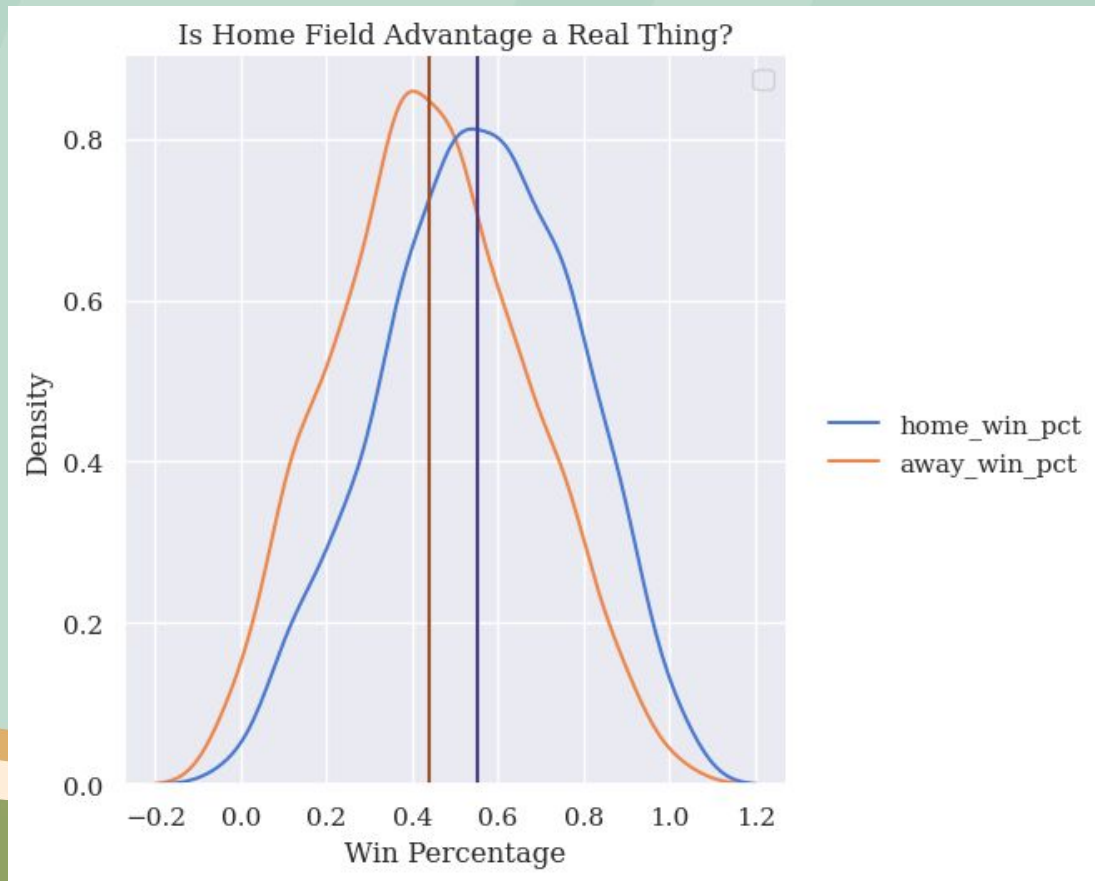
Paying the refs?



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Do teams play better at home/with a home advantage?





You better cover.

Does home field advantage impact betting spreads?



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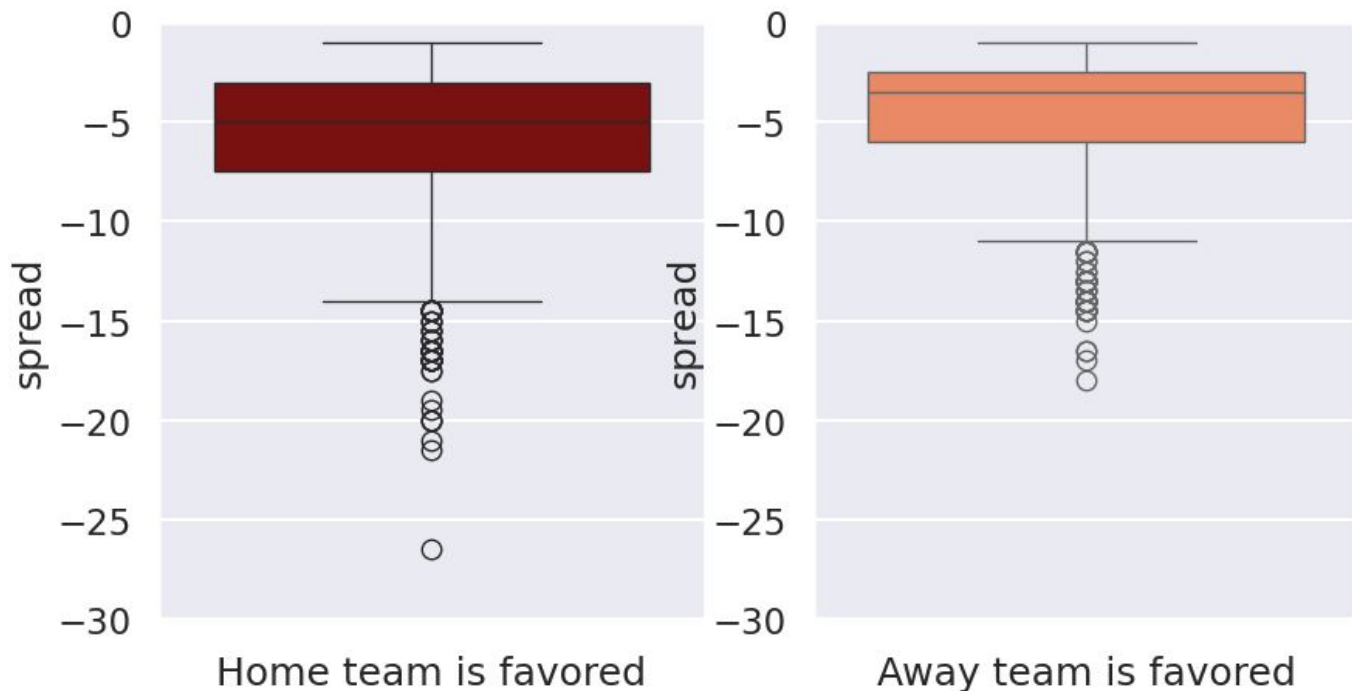
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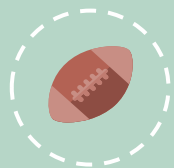
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What Team is Favored?



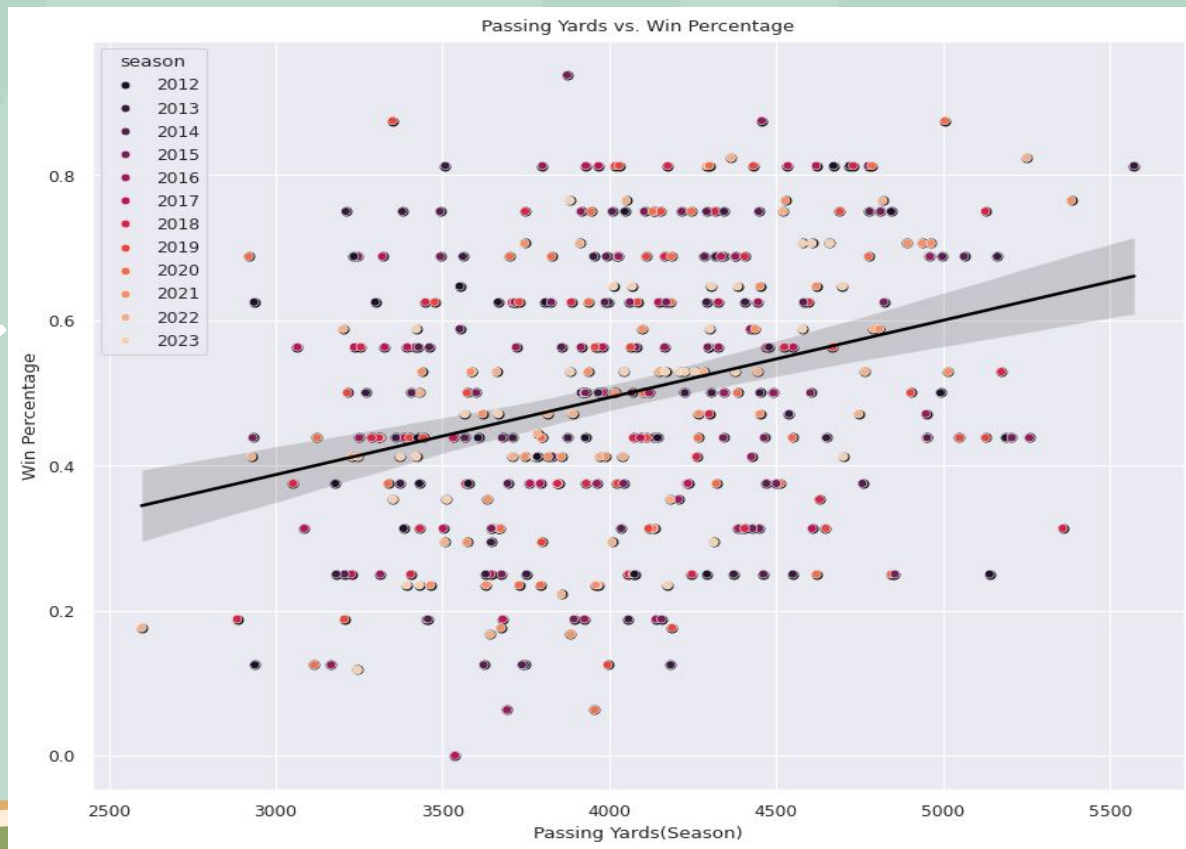


He's Down There Somewhere

Is passing correlated with more success/more wins?

Slope: 0.0001063

Correlation Coefficient: 0.3



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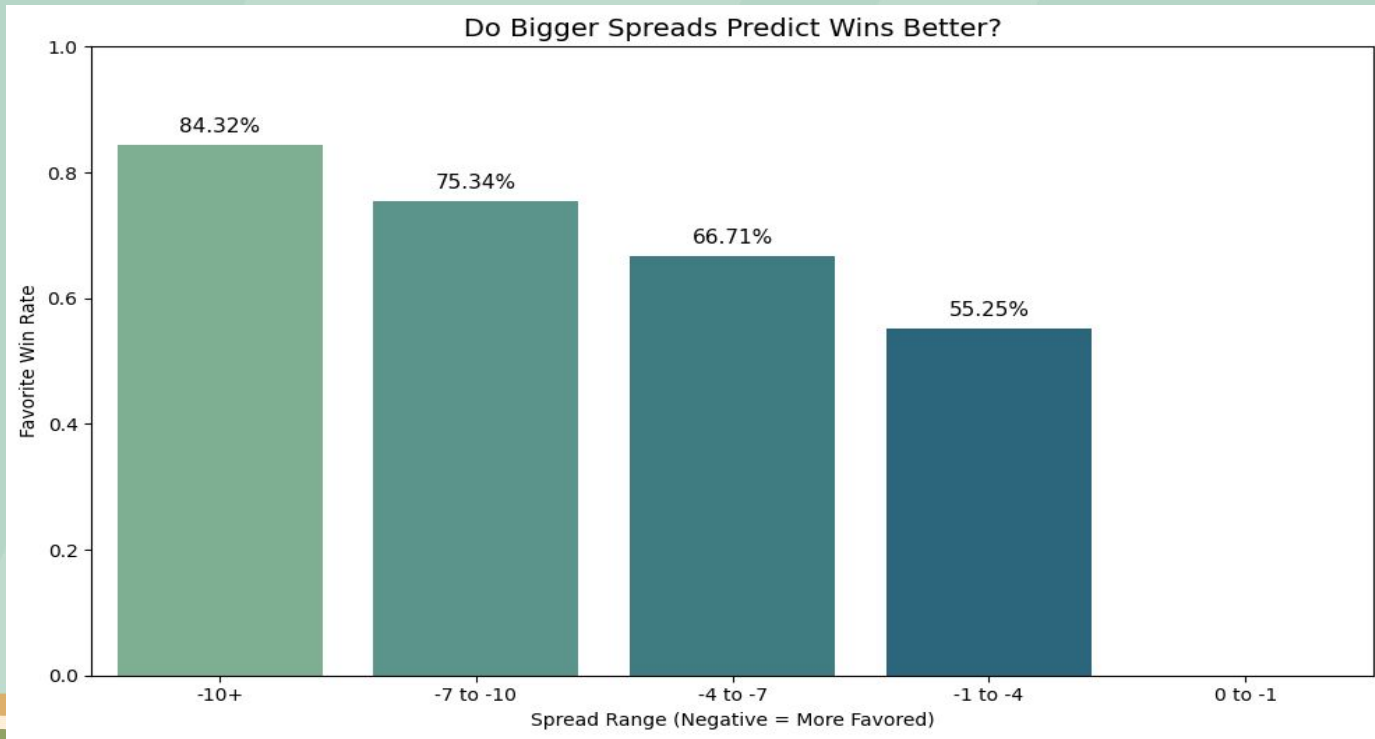
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Big spread, Win big?

Do Larger Point Spreads Improve Win Predictions?



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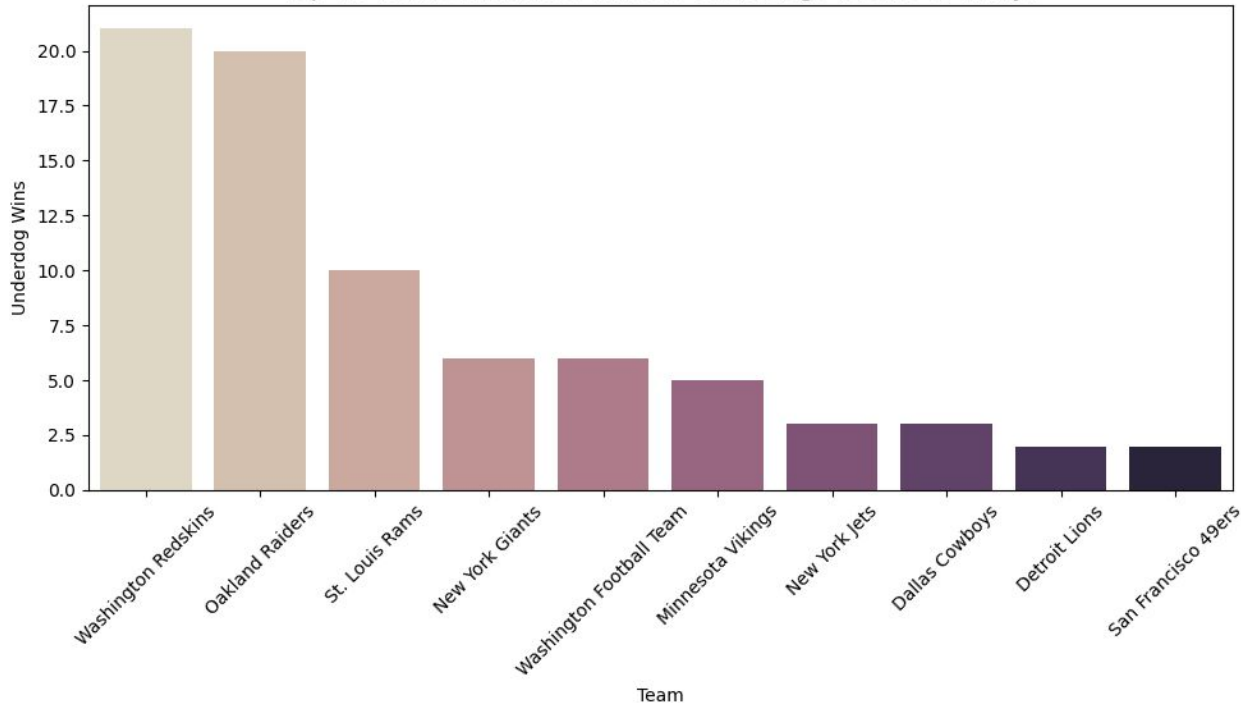
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Sneaky Underdogs?

What teams play above expectations and win as underdogs?

Top 10 Teams with Most Wins as Underdogs (Home or Away)



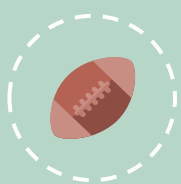
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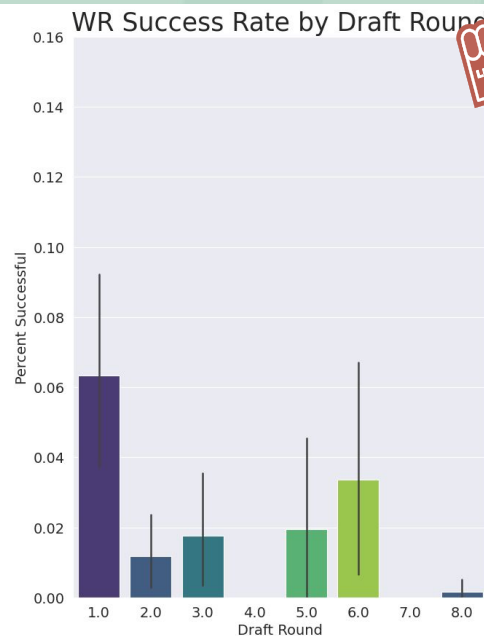
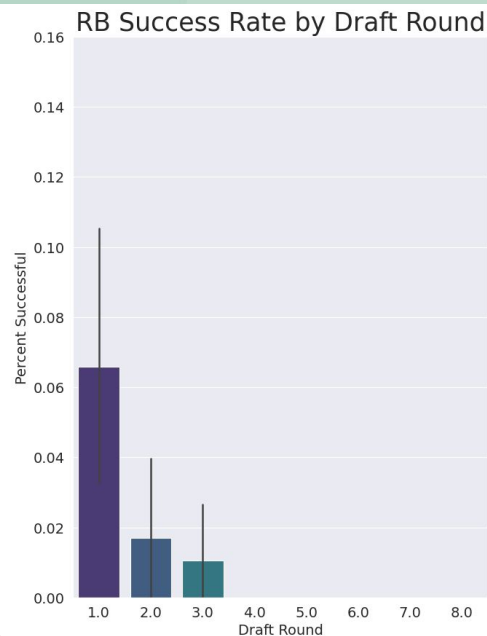
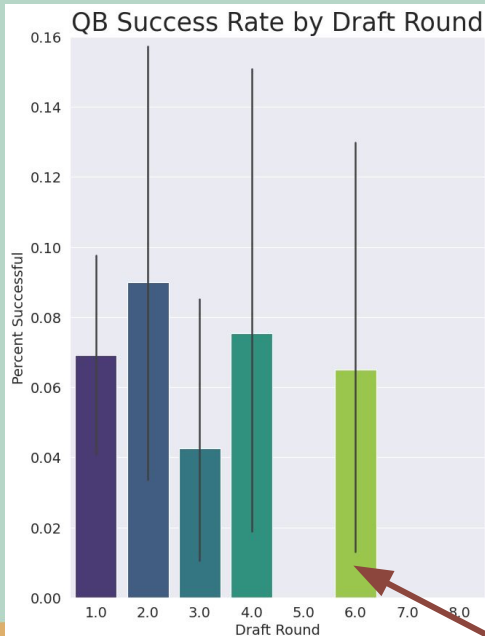
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You're a Bust

How does draft round impact success rates?



Tom Brady

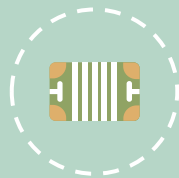
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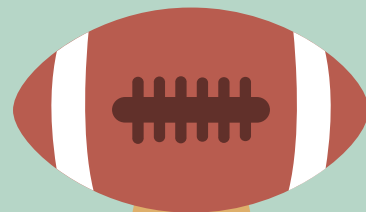
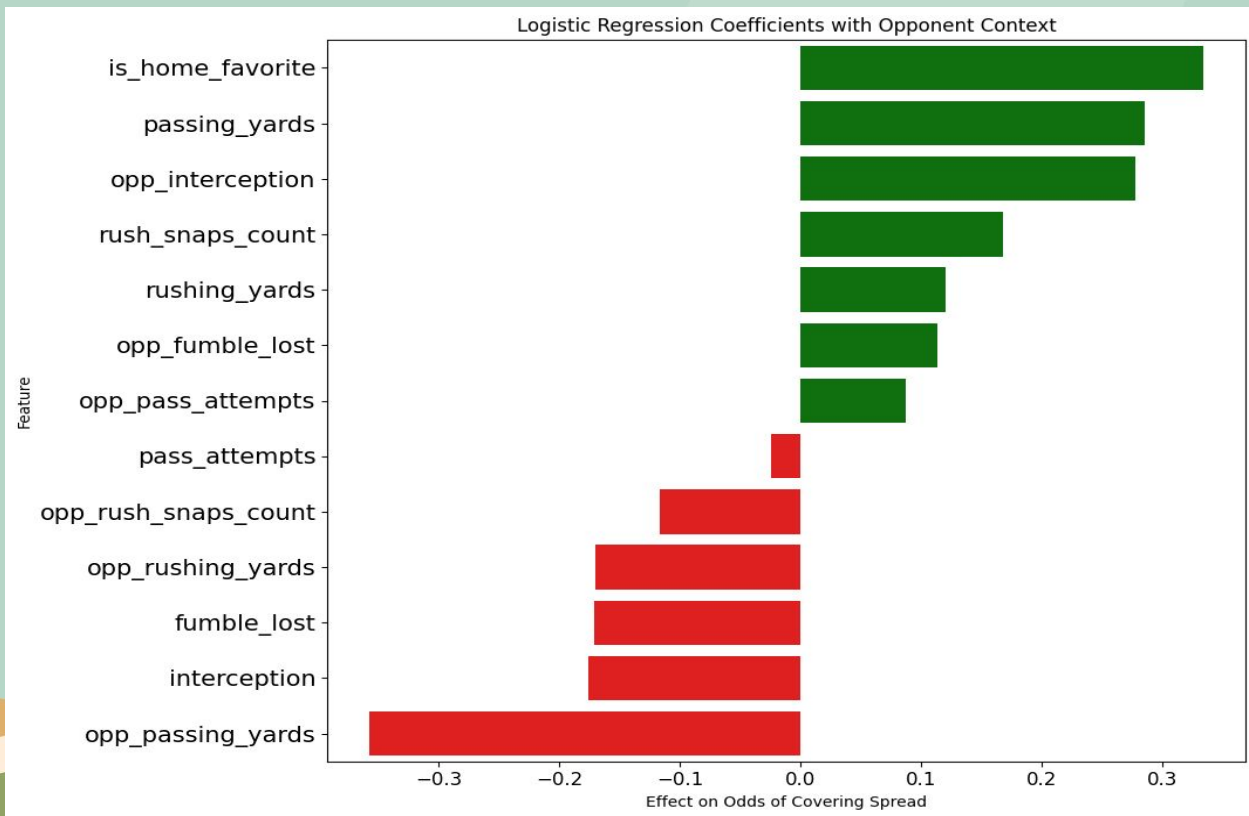
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Are you gonna win?

What factors affect the odds of covering the point spread?



Conclusion & Future Work



Key Insights:

- Weather matters
- Home field advantage exists and is impactful
- Spreads are larger when the favorite is at home
- Passing yards is correlated with winning



Disclaimer:

- These factors do not guarantee wins, there are many other influences on who wins games and on which bets hit



Future Work:

- Predicting NFL Success based on college stats
- Use machine learning to predict the Superbowl
- Use Multiple Regression to predict wins between division rivals

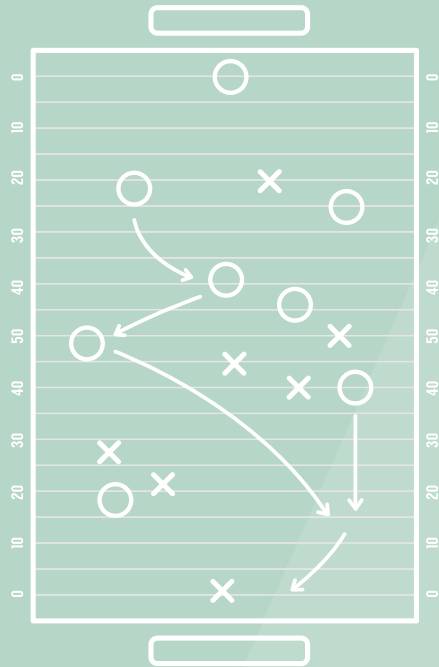
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THANK YOU!

Do you have any questions?

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