



NFL 4th Down Efficiency

By Dave Brown

Business Problem

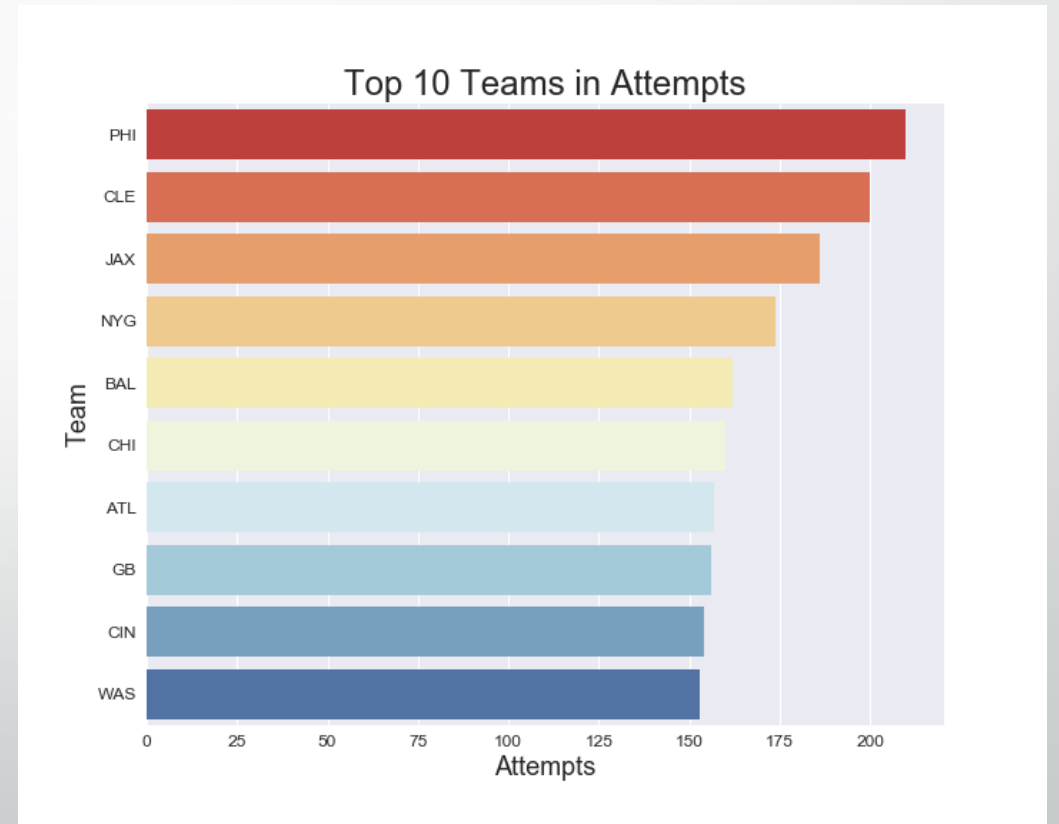
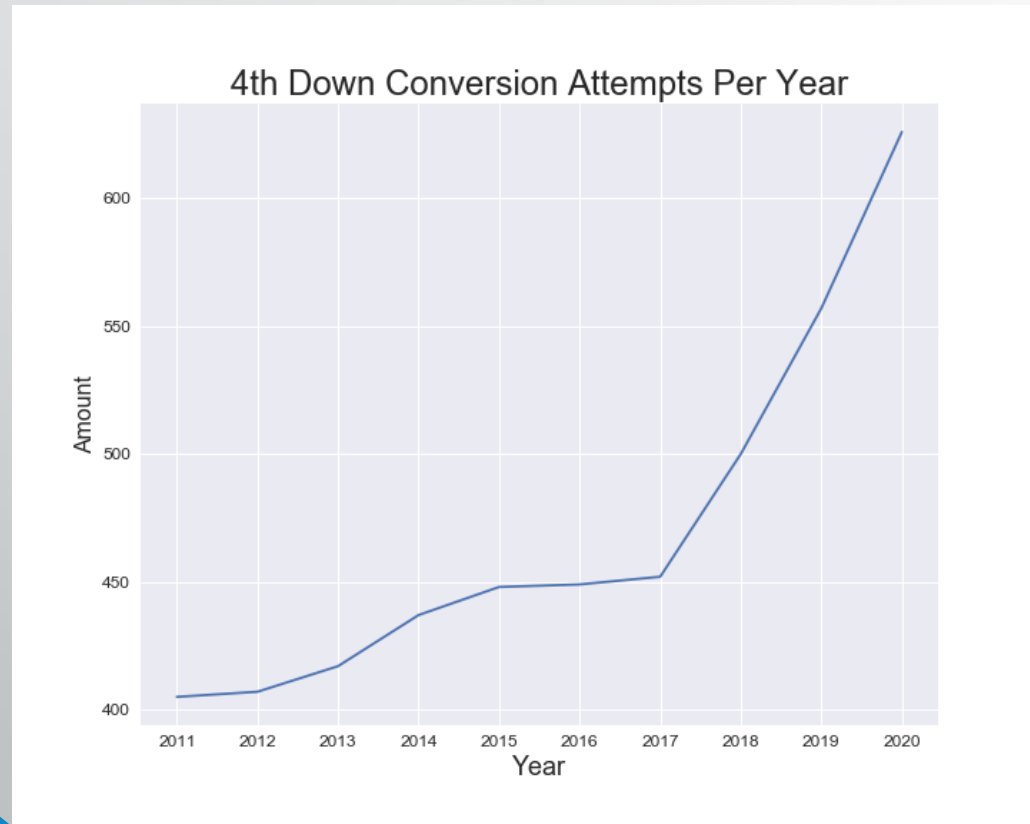
To create a machine learning algorithm that can predict the likelihood of a success or failure on a 4th down conversation attempt.

Steps:

1. Explore
2. Clean
3. Feature engineer
4. Transform
5. Model
6. Best fit



The Importance





Methodology

- nflfastR

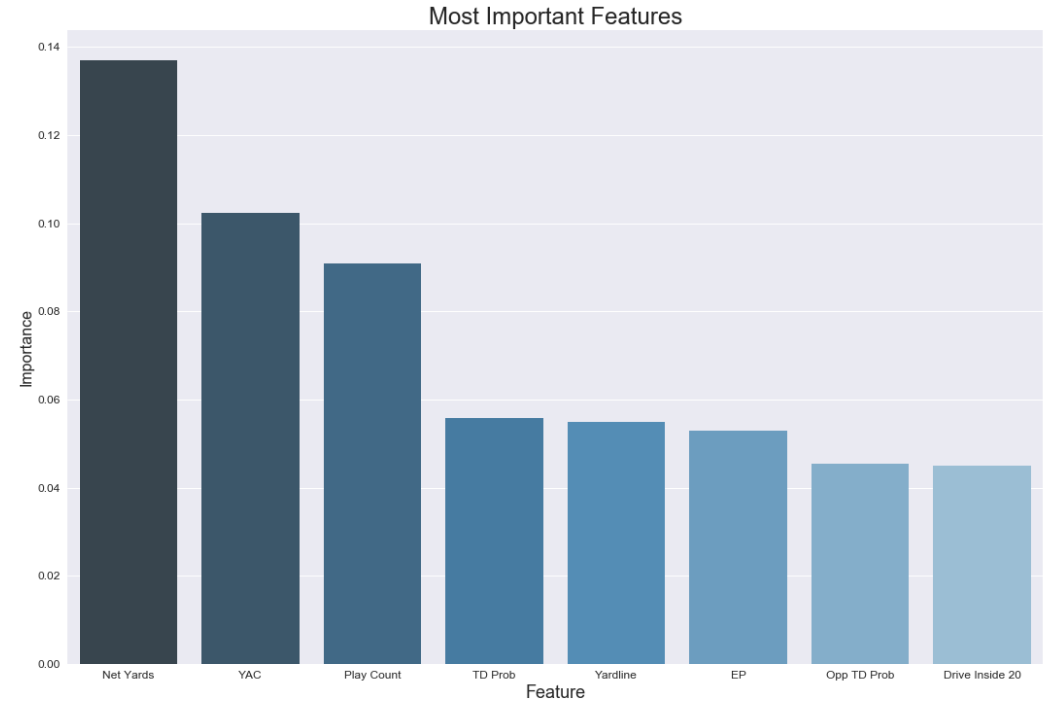
- 2011 to 2020

- No Special Teams

- Offense/Defense Ranks

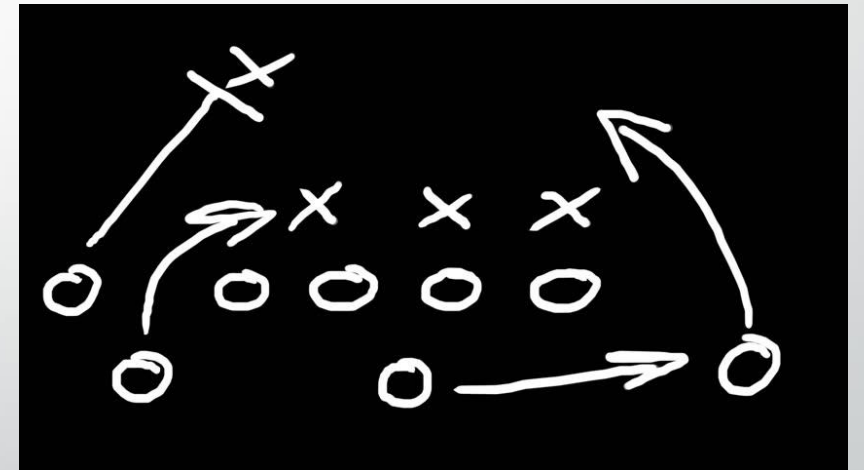
Results

- 83.26% Testing Accuracy
- 87.56% Precision



Recommendations

1. If it's during a sustained drive, go for it
2. Throw the ball
3. Trust the numbers



Limitations

- Organizational change
- New philosophies
- New personnel



Further Research

- Weather, stadium type and surface
- Coaching rank and impact
- Individual player impact
- Regular season vs. postseason
- Game trends



Thank you!

Any questions?

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