

# College **Football** team recommender system





# About Me

*I am* **De'Varus May**

I am here because I love NFL & College Football and I **LOVE** Data Science.



## Problem and Opportunity

- Football is a popular and lucrative sport in America
- There is a large popularity gap between NFL teams and College Football teams. NFL leads the pack
- My goal is to bridge this gap by creating a recommender system for NFL fans to become aware of the awesome college teams!



# Data Collection

## Scraper

I used a program named selenium to access and scrape statistics from many pages on the website sportsreference.com

NFL Reference:

<https://www.pro-football-reference.com/>

CFB Reference: <https://www.sports-reference.com/cfb/>

## Info

- Obtained 1,477 teams and 68 unique statistical categories about the NFL dating back to 1970.
- Obtained 2,428 teams and 66 unique statistical categories about college football dating back to 1985.



# Data Wrangling

## Engineer/Standardize

- Created columns of interest.
- Standardize each column to a per game basis.

## Limit

Though I have data dating back to 1970, I believe it was important to analyze the current period. So I reduced my data to no earlier than 2014.

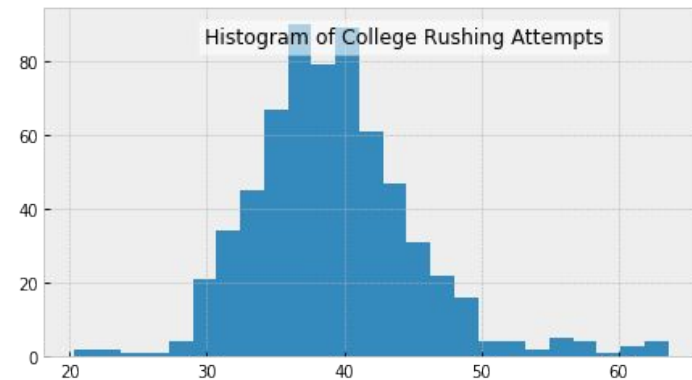
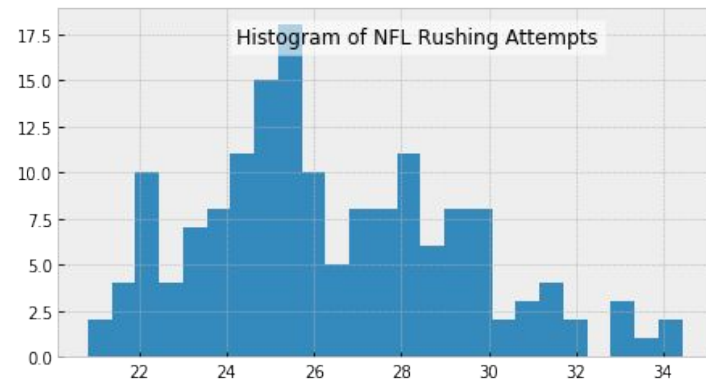
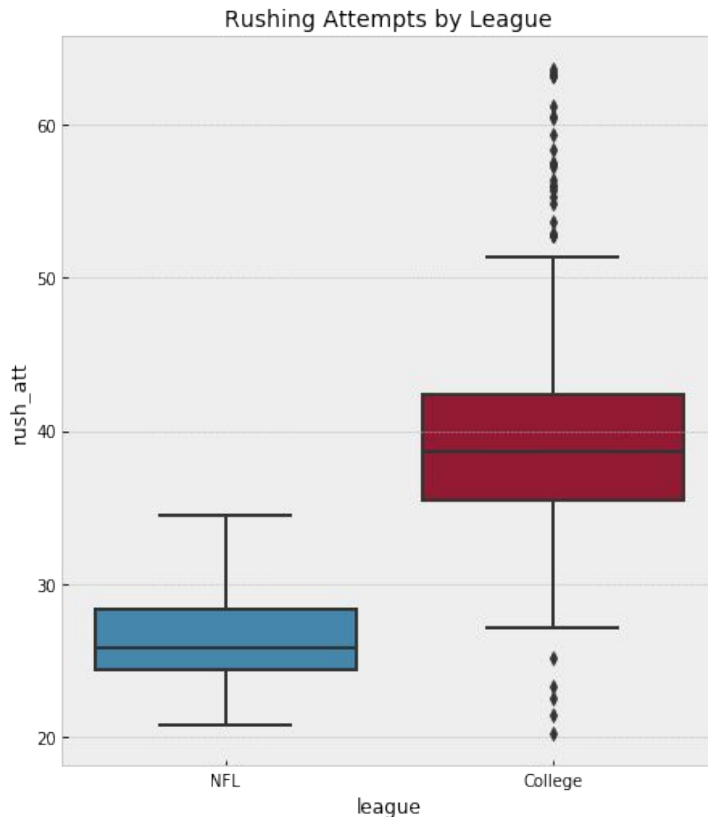
## Align

In order to compare NFL to college in my recommender I made sure that each column aligned properly with the same statistics.



# Data Analysis

- NFL has lower rush attempts.
- College has a larger spread of attempts. (plus outliers)





## Recommender Creation

**Perform  
Min-Max  
Scaler**

Normalized each column to values between 0 and 1.

**Calculate  
pairwise  
distance**

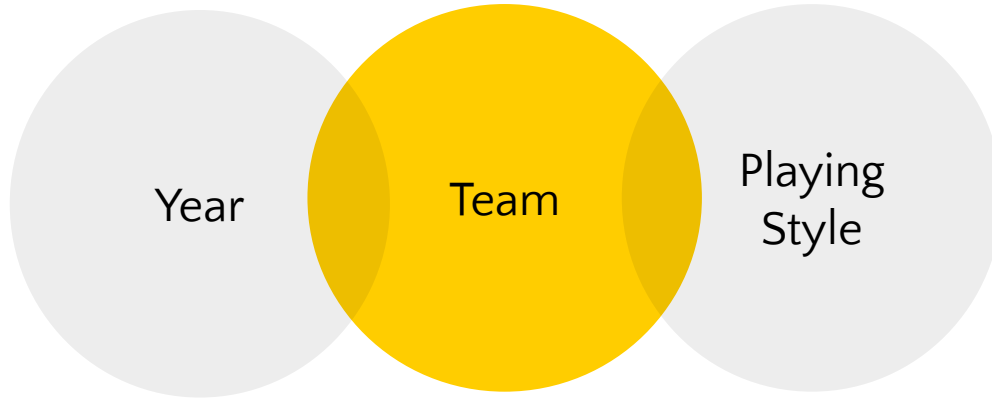
Calculated similarity scores between every team using columns.

**Compare  
Teams**

Newly formed matrix is used to compare NFL team to every college.



## What is feeding the system?



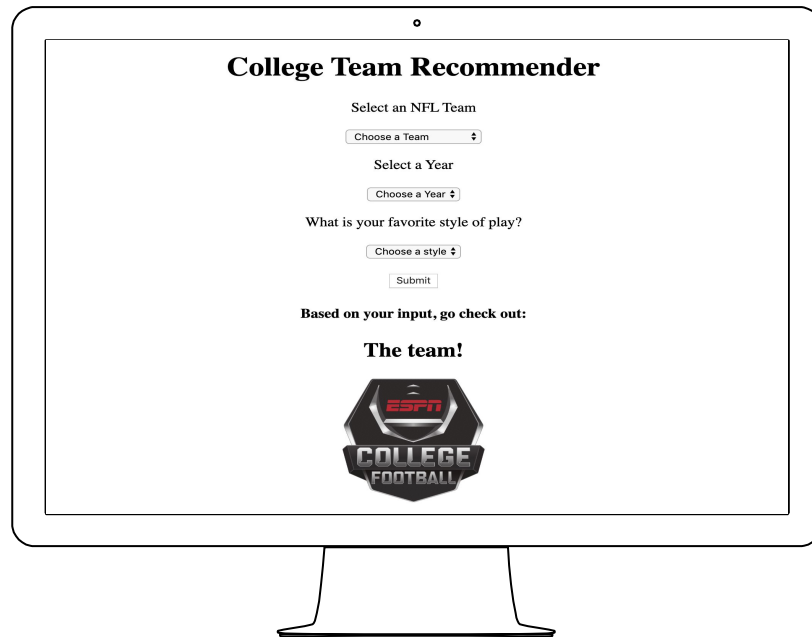
Input	Description
Team	User's favorite NFL team
Year	NFL season (2014–2018)
Playing Style	Offense, defense, passing, rushing, etc.



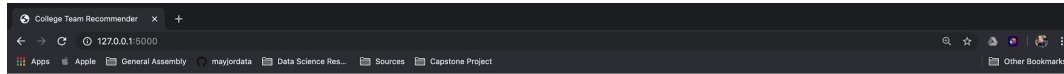


# Flask Web App

The foundation of the recommender system have been implemented into a functioning application!



# Demo



## College Team Recommender

Select an NFL Team

Baltimore Ravens

Select a Year

2018

What is your favorite style of play?



Based on

check out:

The team!





# Conclusion

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- ◉ Measure effectiveness of system from user engagement to each college team. Achieved by measuring click rate over time and collecting user feedback.
- ◉ Improvements to recommender system by adding more features and statistics.
- ◉ Improve application to include team specific content (links to team page, event information, team stores)
- ◉ Expand the functionality of system to older years and other sports.



# Thanks!

*Any questions ?*