PLACE 'SURE' BETS
Machine Learning to Support Fantasy Football Drafts

Chandler, Jon, Sam, Steve and Tracy

Project Summary

Team Members:

- Sam Eberts
- Tracy Kellison Emory
- Jon Mitchell
- Chandler Schaak
- Steven Shelton

Software / Libraries:

- Pandas
- sklearn
- numpy
- Amazon Web Services
- Stathead.com
- fantasypros.com

Fantasy football has become a multi-billion dollar industry, and data is used on a daily basis to make decisions regarding drafts, player starts, daily fantasy, etc.

Our Team decided to use machine learning and Streamlit to build the framework for an application that will help users select a player to draft based on position and historical results.
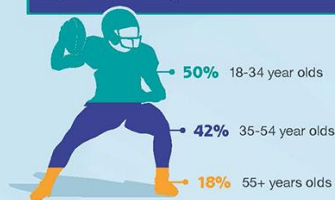
THE ECONOMICS

$18.6 Billion Dollar Market

AMERICA'S MOST POPULAR SPORT CONTINUES TO GROW!

Baseball may be America's favorite pastime **BUT** Football is most popular in U.S.

Fantasy football continues popularity, especially among millennials

- **50%** 18-34 year olds
- **42%** 35-54 year olds
- **18%** 55+ years olds

What's America watching?

	Total U.S.	Fantasy Football Participant
Home games	21%	37%
Away games	5%	6%
Both	31%	54%
Neither	43%	3%
Weekend games	27%	44%
Weeknight games	4%	9%
Both	29%	46%
Neither	40%	1%

Fantasy football fun facts

- Americans think participants spend an average of **$210** per season
- **1-2** people typically do not pay up in a league each season
- **2/3** think fantasy football is good luck versus **1/3** saying it's a skill set
- Approximately **25%** of participants are women
- **37%** participating say trash talk goes on a lot/all the time

Following fantasy football team would choose to manage

28% Victorious Secrets	**14%** Make America Gronk Again
23% Swift Kick in the Grass	**11%** Cranium Krushers
19% Backfields and McCoys	**5%** I'm with Hurns

Ipsos

Want more information about what Americans think about fantasy football? Contact us at NAOmni@Ipsos-NA.com for more detailed data or go to http://www.ipsos-na.com/products-tools/omnibus/ for more information about other omnibus tools.

Data for this infographic were generated by an Ipsos eNation online omnibus survey of 1,005 Americans conducted October, 2016.

The Process

1. Source fantasy points by player by position for 2020 & 2021 season
   a. https://www.fantasypros.com/nfl/stats/qb.php
2. Filter results by position
   a. QB, RB, WR, TE, and K
3. Average the total points per season and establish per game average
4. Run KMeans Algorithm to categorize players
   a. Group 2- High Performers
   b. Group 1 - Mid-level players
   c. Group 0 - Only draft if desperate
5. Create a chatbot on AWS(Initial goal but failed)
6. Created a Strealmit app (Open source app framework)
7. Integrate Lambda code(Initial goal but failed)
8. Test working bot(Initial goal but failed)

Data Modeling:

Data

Modeling

- Data for Modeling:
  - Average of Fantasy Points over all seasons
  - Average of Fantasy Points per game over all seasons

- K-Means Algorithm
  - Used to segment players into 3 (
    - High Performance Players
    - Mid Performance Players
    - Expendable Players

Results

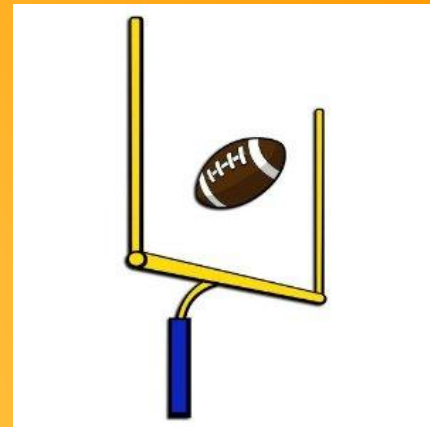- Present the Sure Bet Application

Future Improvements

1. More historical data
2. Improve interactivity
3. Increased visualizations

Lessons Learned

1. Don't let perfection prevent progress
2. Data wins championships
3. If you have a gambling problem call 1-800-sure-bet

Remember, Always
Place 'Sure' Bets

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