Fantasy Football Data Analysis

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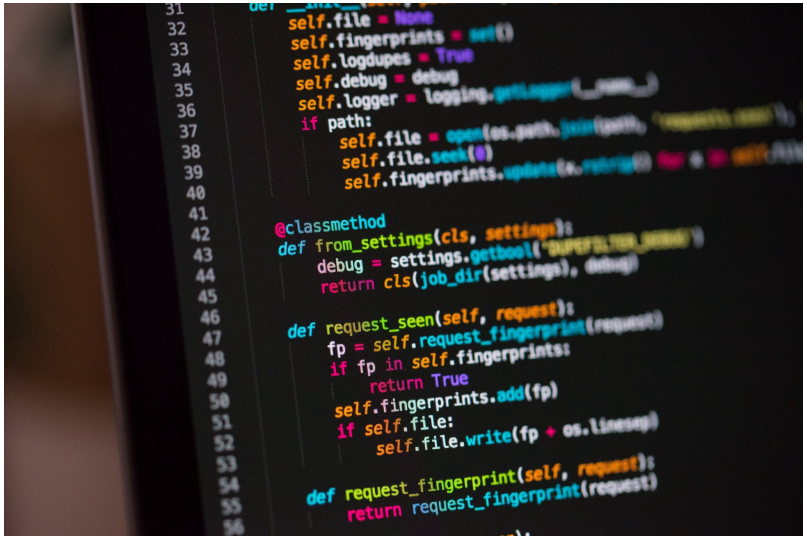
Core Message and Hypothesis

- We are attempting to use historical football and fantasy football statistics in order to derive conclusions about individual players, teams, and trends.
- We can then analyze, visualize, and then present this data using Python as well as creating our own library in an organized fashion.
- Our hypothesis is that by analyzing this data we can better understand what football players provide more value and ultimately better allow users to draft competitively.



A Quick Primer on Basic Fantasy Football

- Teams/users will join a league at the beginning of the of the season and prior to the season starting will draft real players.
  - These drafts are typically ‘snake drafts’ where draft positions are determined at random.
  - e.g if you have 4th, you will pick 4th in the first round and 4th from last in the second, etc.
- Leagues are typically 10-16 teams.
- Most leagues will last 14-15 weeks and at the end of this ‘regular season’ will play in a multi-week playoff. (For a 14 team league, the playoffs typically include the top 6 regular season teams).
- League settings can vary immensely, but for our analysis we are looking at a standard PPR (Point per reception) scoring system and a standard lineup (see next slide) and a default 10-team league.

A Standard Lineup

	STARTERS			NFL WEEK 2							2021 SEASON			
SLOT	PLAYER	ACTION	OPP	STATUS	PROJ	SCORE	OPRK	%ST	%ROST	+/-	PRK	FPTS	AVG	LAST
QB	Aaron Rodgers GB QB	MOVE	Det	Mon 7:15 PM	20.5	--	18th	79.3	98.3	-0.2	35	1.32	1.3	1.32
RB	Alvin Kamara NO RB	MOVE	@Car	Sun 12:00 PM	17.1	--	4th	99.7	99.9	0	10	16.6	16.6	16.6
RB	Clyde Edwards-Helaire KC RB	MOVE	@Bal	Sun 7:20 PM	12.9	--	29th	87.1	99.1	+0.1	32	8.7	8.7	8.7
WR	Brandin Cooks Hou WR	MOVE	@Cle	Sun 12:00 PM	11.2	--	20th	37.9	92.9	+1	22	15.7	15.7	15.7
WR	Brandon Aiyuk SF WR	MOVE	@Phi	Sun 12:00 PM	7.9	--	1st	28.1	92.5	-2.8	122	0.0	0.0	0.0
TE	Darren Waller LV TE	MOVE	@Pit	Sun 12:00 PM	13.0	--	11th	99.0	99.9	0	4	21.5	21.5	21.5
FLEX	Kareem Hunt Cle RB	MOVE	Hou	Sun 12:00 PM	11.4	--	11th	52.1	96.2	+0.8	13	15.6	15.6	15.6
D/ST	Colts D/ST Ind D/ST	MOVE	LAR	Sun 12:00 PM	5.1	--	6th	41.8	57.2	-7.7	18	3.0	3.0	3.0
K	Younghoe Koo Atl K	MOVE	@TB	Sun 3:05 PM	7.3	--	21st	87.0	92.4	-1.7	21	6.0	0.0	6.0
				TOTALS	106.5	0.0						88.42	82.42	88.42
Bench	Leonard Fournette TB RB	MOVE	Atl	Sun 3:05 PM	12.2	--	26th	28.7	90.5	+1.3	35	8.4	8.4	8.4
Bench	Corey Davis NYJ WR	MOVE	NE	Sun 12:00 PM	9.7	--	5th	21.6	87.6	+3.1	5	24.2	24.2	24.2
Bench	Ronald Jones II TB RB	MOVE	Atl	Sun 3:05 PM	6.8	--	26th	6.4	74.5	-4.6	101	-0.6	-0.6	-0.6
Bench	Curtis Samuel IR Wsh WR	MOVE	NYG	Thu 7:20 PM	0.0	--	14th	0.7	67.2	-11.6	--	--	--	--
Bench	Todd Gurley II FA RB	MOVE	--		--	--	--	0.0	1.9	-1.2	--	--	--	--
Bench	Wayne Gallman Atl RB	MOVE	@TB	Sun 3:05 PM	0.0	--	8th	0.1	5.5	-0.2	--	--	--	--
Bench	Latavius Murray Bal RB	MOVE	KC	Sun 7:20 PM	6.9	--	31st	1.9	47.5	+30.8	31	8.8	8.8	8.8
				TOTALS	35.6	0.0						40.8	40.8	40.8
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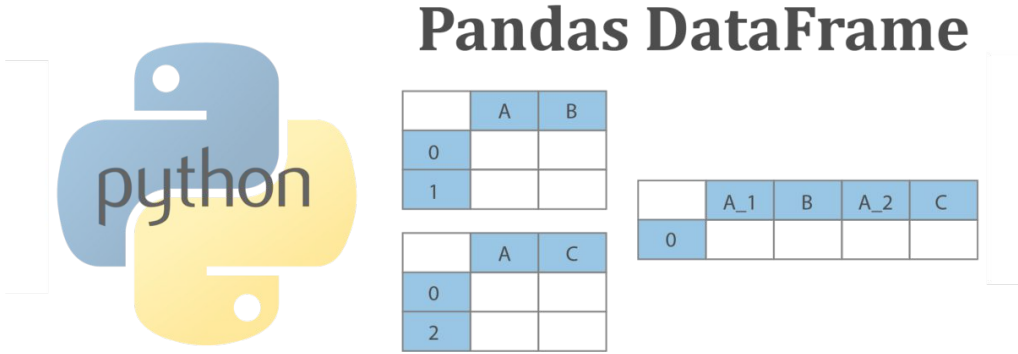
Project overview

- Imported libraries and loaded an API key.
- Imported fantasy football csv data for the last 11 years.
- Converted the data to Data Frames & added a “year’ column.
- Determined which columns we wanted to work with & set the index.
- Merged & cleaned the data.
- Then we began to visualize the data.



Visualizations

- Top players by points
- Players averaging over 15 points/game
- Top teams by points
- Points by positions
- Points by division
- Scatter plot of rushing yards
- Map of points by team

References and Data Sources

- https://www.fantasyfootballdatapros.com/csv_files
- https://www.pro-football-reference.com/
- https://football.fantasysports.yahoo.com/
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- https://stackoverflow.com/questions/17071871/how-do-i-select-rows-from-a-dataframe-based-on-column-values