FANTASY PREMIER LEAGUE
TEAM OPTIMAZATION USING
GUIDED LEARNING MODELS AND SOCIAL MEDIA SENTIMENT ANALYSIS

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UNDER THE GUIDANCE OF:
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ABSTRACT

- FPL, based on the English Premier League, poses challenges due to biases, fixture complexities, and budget constraints.
- Data engineering, machine learning, and AI help overcome these challenges by providing insights and optimizing team selection.
- FPL managers face a budget cap of 100 million, position limits, and specific scoring metrics for players.
- Fixture variations include blank game weeks, double fixtures, and limited transfers, requiring strategic team building.
- A platform aims to support FPL managers with visualizations, predictive analytics, and transfer tips.
- It plans to create optimal teams for the season and each game week while training an AI model for decision-making.
- The platform's goal is to empower FPL players to make informed decisions and compete effectively in the FPL.

PROBLEM DEFINITION

Creating a Fantasy Premier League (FPL) Assistant that optimizes team selection for FPL managers, considering insights from player performance in past sessions and already played matches, budget constraints, fixture prioritization, and sentiment analysis of players. This assistant aims to maximize the winning possibility of FPL managers by efficiently utilizing available resources and providing personalized recommendations tailored to individual team compositions and preferences.

OBJECTIVE

The primary objective of the Fantasy Premier League (FPL) Assistant project is to develop a comprehensive platform that leverages data engineering, machine learning, and artificial intelligence to provide FPL managers with actionable insights and tools to optimize their team management strategies.

The key objectives include:

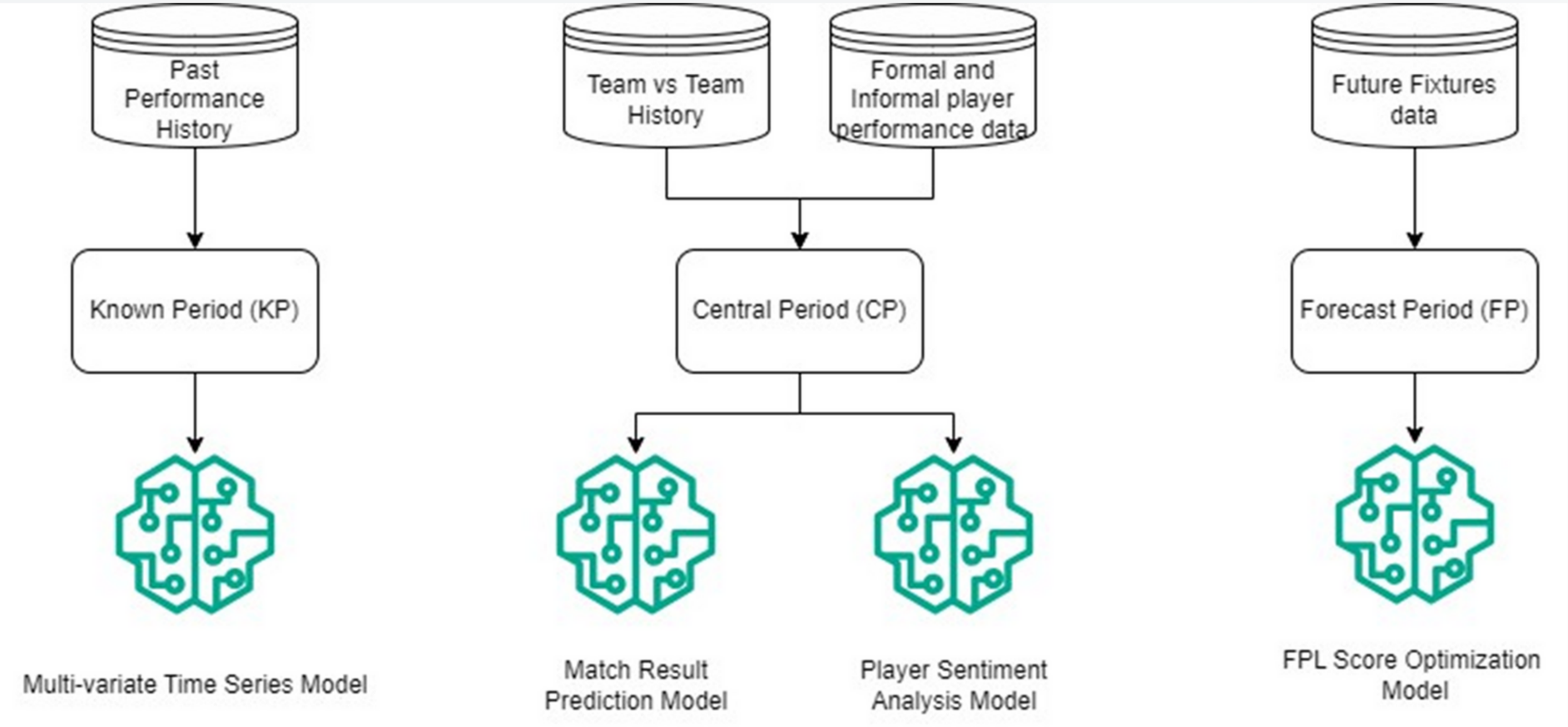
- To analyse and predict player performance and points for each game week based on historical data, fixture difficulty ratings, and other relevant factors.
- To assist FPL managers in making informed decisions regarding player selection, transfers, and team formation.
- To prioritize fixtures and plan strategies for maximizing points while adhering to budget constraints.
- To enhance user experience and engagement by providing intuitive interfaces and personalized recommendations.
- To continually improve and refine the platform through feedback and iteration, ensuring its relevance and effectiveness for FPL managers.

SYSTEM ARCHITECTURE

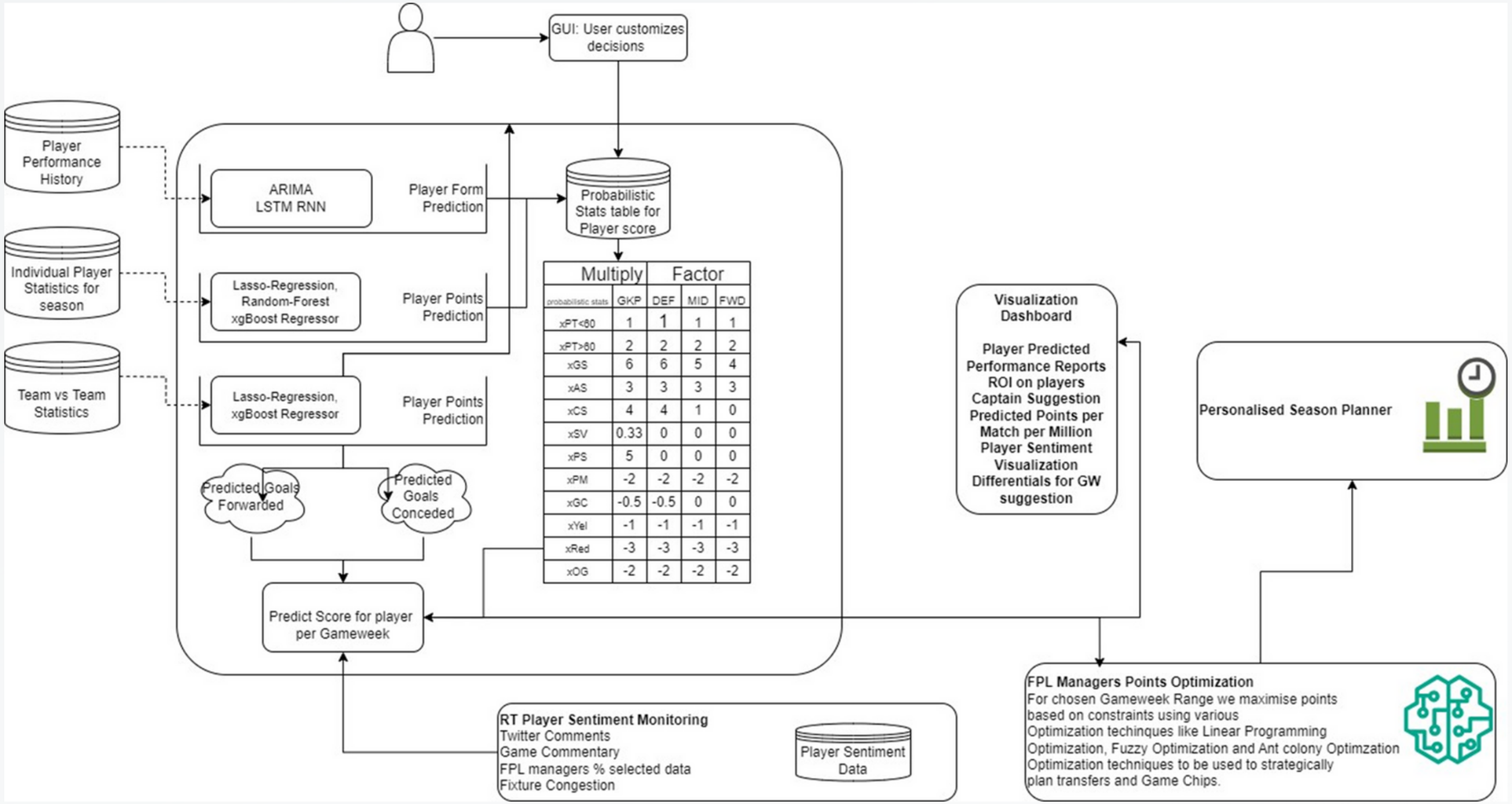
Before each Game week, the Model plans for future Game week fixtures with decreasing order of priority to each successive fixture, and for each player calculates Team Form and Predicted Team Scoring Index (xGfor) and Predicted Team Conceding Index (xGagnst) by using :

- Form
- Attack Index
- Defense Index
- Fixture Difficulty Rating
- FPL API data
- Previous history from FPLAnalytics.com and whoscored.com
- Time-series forecasting from previous season data
- Team fatigue Index from other Fixtures from whoscored.com

SYSTEM ARCHITECTURE



SYSTEM ARCHITECTURE



METHODOLOGY

- For each player, a player Selection popularity Model is considered where we using % selected, % captained data from FPLAnalystics and FPL API and using Sentiment Analysis on social media data on threads for Sentiment analysis for players and formulate Popularity Metric

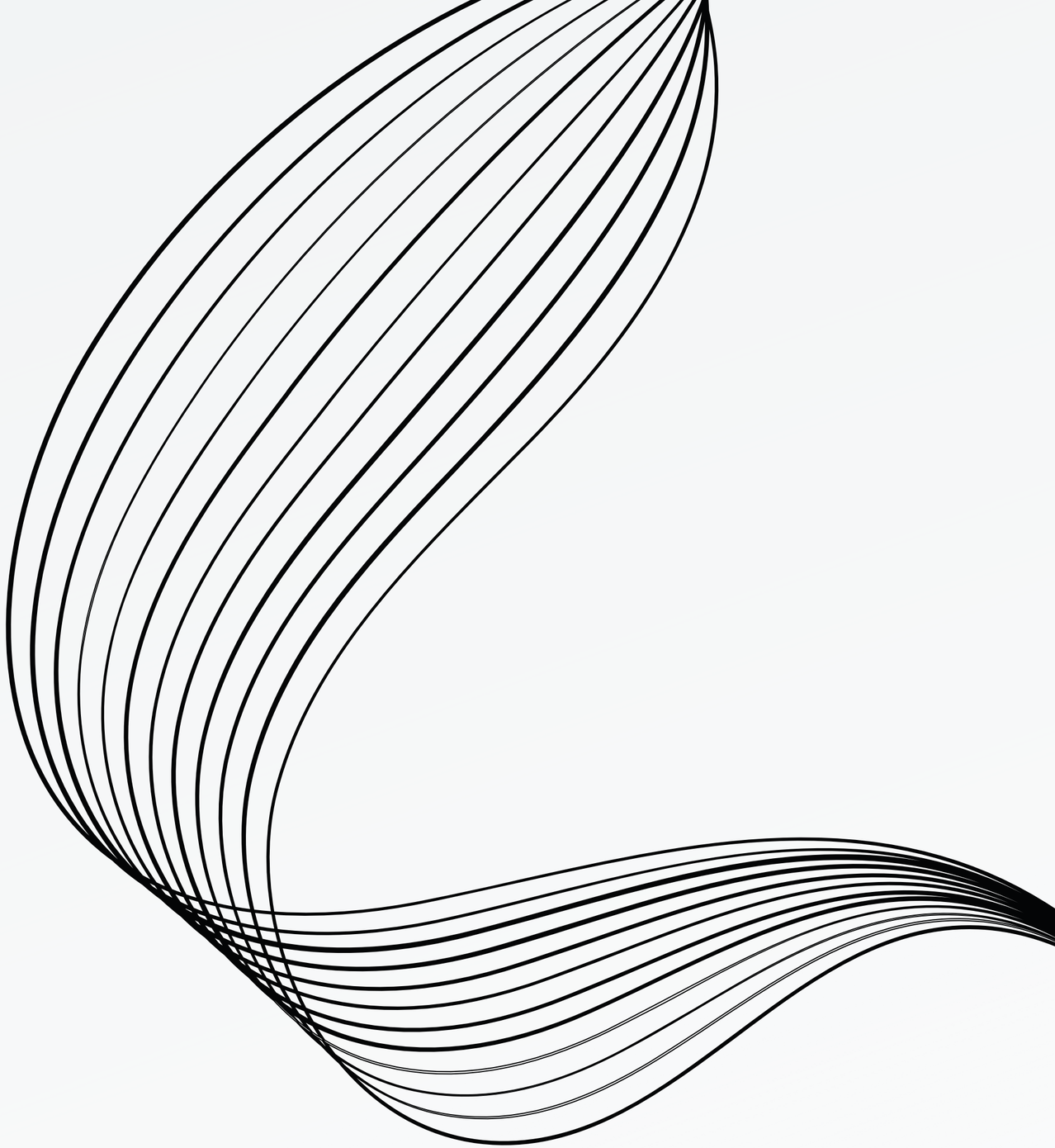
- We then design a statistical model that predicts the best permutations of team (playing XI + 4 bench players) with formation using Predicted points per Cost Unit (Million) and create best possible team that maximizes the score for the upcoming fixtures.

- For Time-Series Modelling we will be using a hybrid of Autoregressive Integrated Moving Average (ARIMA) known as SARIMAX to account for the seasonality for time series prediction and effect of exogenous regressors of player stats and subsequent maximization of total points using Linear Programming (LPP).

- For Prediction of Fixture results and points for same season we will be using Random Forest Regressors with extreme Gradient Boosting (xgBoost). We have chosen LightGBM as an improvement over xgboost as LightGBM uses a novel technique of Gradient-based One-Side Sampling (GOSS) to filter out the data instances for finding a split value while XGBoost uses pre-sorted algorithm & Histogram-based algorithm for computing the best split.

- We aim to feed trained data to an LLM model to create a chat interface for user with the data.

PROJECT MODULES



DATA SCRAPPING

- **worldfootballR :**
  - **FBref.com - a whole host of data to analyse, including results, match stats, season long stats, player and team stats, etc.**
  - **Transfermarkt.com - player market values, team transfer history, player transfer history.**
  - **Understat.com - shot locations data for matches played in the major leagues.**

- **Fantasy Premier League API :**
  https://fantasy.premierleague.com/api

- **Github Repository fir Premier League previous year statistics:**
  https://github.com/vaastav/Fantasy-Premier-League

DATA SCRAPPING

- **worldfootballR :**

	team_name	league	country	season	transfer_type	player_name	player_url	player_position	player_age	player_nati
1	Manchester City	Premier League	England	2023	Arrivals	Josko Gvardiol	https://www.transfermarkt.com/josko-gvardiol/profil/spieler...	Centre-Back	21	Croatia
2	Manchester City	Premier League	England	2023	Arrivals	Matheus Nunes	https://www.transfermarkt.com/matheus-nunes/profil/spiel...	Central Midfield	25	Portugal
3	Manchester City	Premier League	England	2023	Arrivals	Jérémy Doku	https://www.transfermarkt.com/jeremy-doku/profil/spieler/...	Left Winger	21	Belgium
4	Manchester City	Premier League	England	2023	Arrivals	Mateo Kovacic	https://www.transfermarkt.com/mateo-kovacic/profil/spieler...	Central Midfield	29	Croatia
5	Manchester City	Premier League	England	2023	Arrivals	James McAtee	https://www.transfermarkt.com/james-mcatee/profil/spieler...	Central Midfield	20	England
6	Manchester City	Premier League	England	2023	Arrivals	Oscar Bobb	https://www.transfermarkt.com/oscar-bobb/profil/spieler/6...	Right Winger	19	Norway
7	Manchester City	Premier League	England	2023	Arrivals	João Cancelo	https://www.transfermarkt.com/joao-cancelo/profil/spieler/...	Right-Back	29	Portugal
8	Manchester City	Premier League	England	2023	Arrivals	Taylor Harwood-Bellis	https://www.transfermarkt.com/taylor-harwood-bellis/profil...	Centre-Back	22	England
9	Manchester City	Premier League	England	2023	Arrivals	Issa Kaboré	https://www.transfermarkt.com/issa-kabore/profil/spieler/6...	Right-Back	23	Burkina F
10	Manchester City	Premier League	England	2023	Arrivals	Issa Kaboré	https://www.transfermarkt.com/issa-kabore/profil/spieler/6...	Right-Back	22	Burkina F
11	Manchester City	Premier League	England	2023	Arrivals	Yangel Herrera	https://www.transfermarkt.com/yangel-herrera/profil/spieler...	Central Midfield	25	Venezue
12	Manchester City	Premier League	England	2023	Arrivals	Josh Wilson-Esbrand	https://www.transfermarkt.com/josh-wilson-esbrand/profil/...	Left-Back	21	England
13	Manchester City	Premier League	England	2023	Arrivals	Nahuel Bustos	https://www.transfermarkt.com/nahuel-bustos/profil/spieler...	Centre-Forward	24	Argentin
14	Manchester City	Premier League	England	2023	Departures	Cole Palmer	https://www.transfermarkt.com/cole-palmer/profil/spieler/5...	Attacking Midfield	21	England
15	Manchester City	Premier League	England	2023	Departures	Riyad Mahrez	https://www.transfermarkt.com/riyad-mahrez/profil/spieler/...	Right Winger	32	Algeria
16	Manchester City	Premier League	England	2023	Departures	Aymeric Laporte	https://www.transfermarkt.com/aymeric-laporte/profil/spiel...	Centre-Back	29	Spain
17	Manchester City	Premier League	England	2023	Departures	Yangel Herrera	https://www.transfermarkt.com/yangel-herrera/profil/spieler...	Central Midfield	25	Venezue
18	Manchester City	Premier League	England	2023	Departures	İlkay Gündoğan	https://www.transfermarkt.com/ilkay-gundogan/profil/spiel...	Central Midfield	32	Germany

DATA SCRAPPING

Fantasy-Premier-League API

```
id_df = df.loc[:, id_vars]
id_df
```

	code	element_type	first_name	second_name	squad_number	team	team_code	web_name	id
0	232223	4	Folarin	Balogun	None	1	3	Balogun	1
1	58822	2	Cédric	Alves Soares	None	1	3	Cédric	2
2	153256	3	Mohamed	Elneny	None	1	3	M.Elneny	3
3	438098	3	Fábio	Ferreira Vieira	None	1	3	Fábio Vieira	4
4	226597	2	Gabriel	dos Santos Magalhães	None	1	3	Gabriel	5
...	...	...	...	...	...	...	...	...	...
827	490095	3	Ty	Barnett	None	20	39	Barnett	770
828	449133	3	Harvey	Griffiths	None	20	39	Griffiths	787
829	501837	2	Yerson	Mosquera	None	20	39	Mosquera	788
830	550833	3	Noha	Lemina	None	20	39	N.Lemina	800
831	613467	2	Wesley	Okoduwa	None	20	39	Okoduwa	832

Connected to Python 3 Google Compute Engine backend

DATA SCRAPPING

https://github.com/vaastav/Fantasy-Premier-League

previous_seasons.csv (20.13 MB) /kaggle/input/previous-seasons/previous_seasons.csv Copy 10 of 66 columns

#	name	position	team	xP	assists	bonus	b
0	Aaron Connolly	FWD	Brighton	0.5	0	0	-3
1	Aaron Cresswell	DEF	West Ham	2.1	0	0	11
2	Aaron Mooy	MID	Brighton	0.0	0	0	0
3	Aaron Ramsdale	GK	Sheffield Utd	2.5	0	0	12
4	Abdoulaye DoucourÃ©	MID	Everton	1.3	0	0	20
5	Aboubakar Kamara	MID	Fulham	0.4	0	0	-2
6	Adama TraorÃ©	MID	Wolves	2.2	0	0	6
7	Adam Forshaw	MID	Leeds	0.0	0	0	0
8	Adam Lallana	MID	Brighton	1.2	0	0	6
9	Adam Webster	DEF	Brighton	0.6	0	0	14
10	Adrien Silva	MID	Leicester	2.0	0	0	0
11	AdriÃ¡n San Miguel del Castillo	GK	Liverpool	3.3	0	0	0
12	Ahmed El-Sayed Hegazy	DEF	West Brom	0.6	0	0	0

DATA CLEANING

- Removing Duplicates
- Interpolating to fill missing data
- Mapping Teams to Team ID
- Mapping Players to Player ID
- Merging Season stats

cleaned_merged_seasons.csv (15.63 MB) /kaggle/input/fantasy-football/cleaned_merged_seasons.csv Copy 10 of 37 column

season_x	name	position	team_x	assists	bonus	bps	cl
2016-17	Aaron Cresswell	DEF		0	0	0	0
2016-17	Aaron Lennon	MID		0	0	6	0
2016-17	Aaron Ramsey	MID		0	0	5	0
2016-17	Abdoulaye Doucouré	MID		0	0	0	0
2016-17	Adam Forshaw	MID		0	0	3	0
2016-17	Adam Lallana	MID		1	2	33	0
2016-17	Adam Smith	DEF		0	0	23	0
2016-17	Adrián San Miguel del Castillo	GK		0	0	16	0
2016-17	Alex Iwobi	MID		1	0	12	0
2016-17	Alex McCarthy	GK		0	0	0	0
2016-17	Alex Oxlade-Chamberlain	MID		0	0	23	0
2016-17	Andreas Pereira	MID		0	0	0	0
2016-17	Andrew Robertson	DEF		0	0	14	0

DATA ASSIMILATION

- Merging opponent data
- Creating mapping between Tables.
- Converting from raw API data to structured data
- Combining data collected from various sources.

	PlayerFBref	UrlFBref	UrlTmarkt	TmPos
1	AJ. DeLaGarza	https://fbref.com/en/players/171b3c37/AJ-DeLaGarza	https://www.transfermarkt.com/a-j-delagarza/profil/spieler/...	Right-Back
2	AJ Marcucci	https://fbref.com/en/players/20c86a38/AJ-Marcucci	https://www.transfermarkt.com/aj-marcucci/profil/spieler/8...	Goalkeeper
3	Aapo Halme	https://fbref.com/en/players/02b952ce/Aapo-Halme	https://www.transfermarkt.com/aapo-halme/profil/spieler/3...	Centre-Back
4	Aaron Bastiaans	https://fbref.com/en/players/fb979733/Aaron-Bastiaans	https://www.transfermarkt.com/aaron-bastiaans/profil/spiel...	Left Winger
5	Aaron Connolly	https://fbref.com/en/players/27c01749/Aaron-Connolly	https://www.transfermarkt.com/aaron-connolly/profil/spiele...	Centre-Forward
6	Aaron Cresswell	https://fbref.com/en/players/4f974391/Aaron-Cresswell	https://www.transfermarkt.com/aaron-cresswell/profil/spiel...	Left-Back
7	Aaron Herrera	https://fbref.com/en/players/d86e3070/Aaron-Herrera	https://www.transfermarkt.com/aaron-herrera/profil/spieler/...	Right-Back
8	Aaron Herzog	https://fbref.com/en/players/565c3fe4/Aaron-Herzog	https://www.transfermarkt.com/aaron-herzog/profil/spieler/...	Attacking Midfield
9	Aaron Hickey	https://fbref.com/en/players/1780bb4a/Aaron-Hickey	https://www.transfermarkt.com/aaron-hickey/profil/spieler/...	Left-Back
10	Aaron Hunt	https://fbref.com/en/players/5f9f0531/Aaron-Hunt	https://www.transfermarkt.com/aaron-hunt/profil/spieler/46...	Attacking Midfield
11	Aaron Kamardin	https://fbref.com/en/players/54d161a7/Aaron-Kamardin	https://www.transfermarkt.com/aaron-kamardin/profil/spiel...	Centre-Back
12	Aaron Lennon	https://fbref.com/en/players/2ff964a0/Aaron-Lennon	https://www.transfermarkt.com/aaron-lennon/profil/spieler/...	Right Winger
13	Aaron Leya Iseka	https://fbref.com/en/players/29ef0f49/Aaron-Leya-Iseka	https://www.transfermarkt.com/aaron-leya-iseka/profil/spiel...	Centre-Forward
14	Aaron Long	https://fbref.com/en/players/46b89640/Aaron-Long	https://www.transfermarkt.com/aaron-long/profil/spieler/27...	Centre-Back
15	Aaron Malouda	https://fbref.com/en/players/4fe2648c/Aaron-Malouda	https://www.transfermarkt.com/aaron-malouda/profil/spiele...	Left Winger
16	Aaron Meijers	https://fbref.com/en/players/3cd63173/Aaron-Meijers	https://www.transfermarkt.com/aaron-meijers/profil/spieler/...	Left-Back
17	Aaron Menelik	https://fbref.com/en/players/7d5c83ef/Aaron-Menelik	https://www.transfermarkt.com/aaron-menelik/profil/spieler...	Central Midfield
18	Aaron Mooy	https://fbref.com/en/players/47b7e3af/Aaron-Mooy	https://www.transfermarkt.com/aaron-mooy/profil/spieler/1...	Central Midfield
19	Aaron Pressley	https://fbref.com/en/players/0d832e3f/Aaron-Pressley	https://www.transfermarkt.com/aaron-pressley/profil/spieler...	Centre-Forward
20	Aaron Ramsdale	https://fbref.com/en/players/466fb2c5/Aaron-Ramsdale	https://www.transfermarkt.com/aaron-ramsdale/profil/spiel...	Goalkeeper

	id	name	cost	position	home_team	away_team	kickoff_time	is_home	team_x
799	351	Tommy Doyle	44	MID	Burnley	Wolves	2023-08-11T19:00:00Z	False	Wolves
800	545	Rayan Aït-Nouri	47	DEF	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
801	546	Daniel Bentley	39	GKP	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
802	547	Bendegúz Bolla	40	DEF	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
803	548	Hugo Bueno López	44	DEF	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
804	549	Francisco Jorge Tomás Oliveira	45	MID	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
805	550	Luke Cundle	45	MID	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
806	551	Craig Dawson	45	DEF	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
807	552	Fábio Silva	52	FWD	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
808	554	Gonçalo Manuel Ganchinho Guedes	54	MID	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
809	555	Joe Hodge	44	MID	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
810	556	Ki-Jana Hoever	40	DEF	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
811	557	Hwang Hee-chan	54	MID	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
812	559	João Victor Gomes da Silva	49	MID	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
813	560	Jonathan Castro Otto	43	DEF	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
814	561	Bruno Cavaco Jordão	43	MID	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves
815	562	Sasa Kalajdzic	49	FWD	Man Utd	Wolves	2023-08-14T19:00:00Z	False	Wolves

FEATURE ENGINEERING

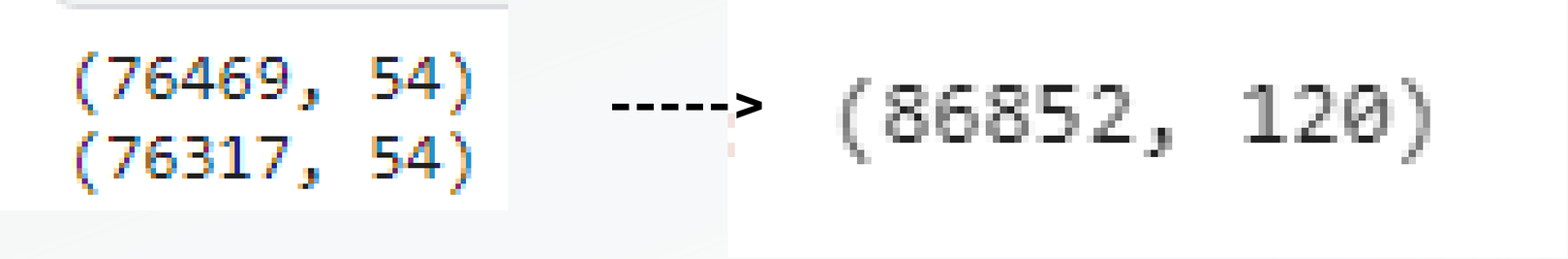
- **Last N Week Stats Calculation:**
  Implemented in functions get_last_stats, get_players_last_stats_test, and get_all_players_last_stats.Calculates statistics for each player from the last N gameweeks.The statistics considered are specified in the history_stats list.

- **All Stats Calculation:**
  Implemented in functions get_all_stats and get_all_players_all_stats. Calculates all statistics for each player across all gameweeks in a season.

- **Mean and Standard Deviation Calculation:**
  - Implemented in function create_features.
  - Calculates the mean and standard deviation of selected statistics (mean_features and std_features) from the last N gameweeks.
  - Appends these mean and standard deviation features to the dataframe.

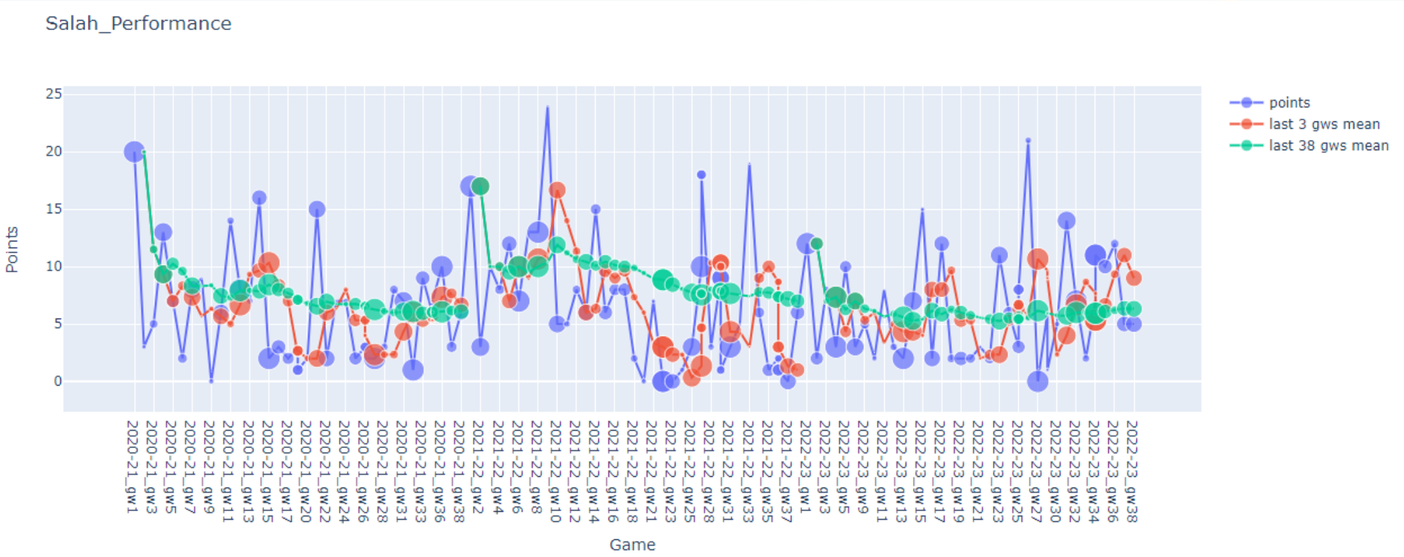
FEATURE ENGINEERING

- **Percentage Value to Team and Position Rank Calculation:**
  - Implemented within the loop iterating over each gameweek.
  - Calculates the percentage value of each player relative to the total value of their team.
  - Calculates the position rank of each player within their position and team based on value.
- **Opponent Team and Last Season Position Extraction:**
  - Implemented in the loop iterating over each year and gameweek.
  - Extracts the opponent team for each match and their position in the previous season.
  - Merges this information with the main dataframe.

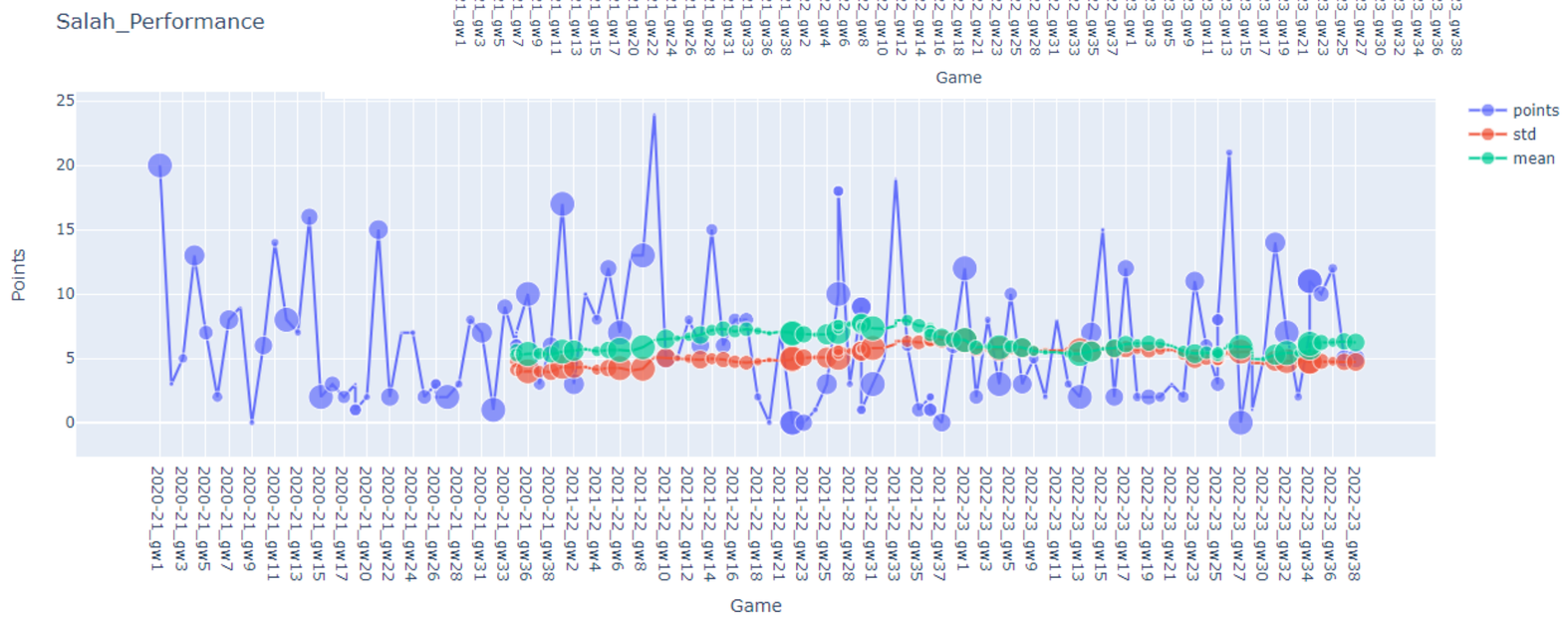


FEATURE ENGINEERING

- **Last N Week Stats Calculation:**
- **All Stats Calculation:**

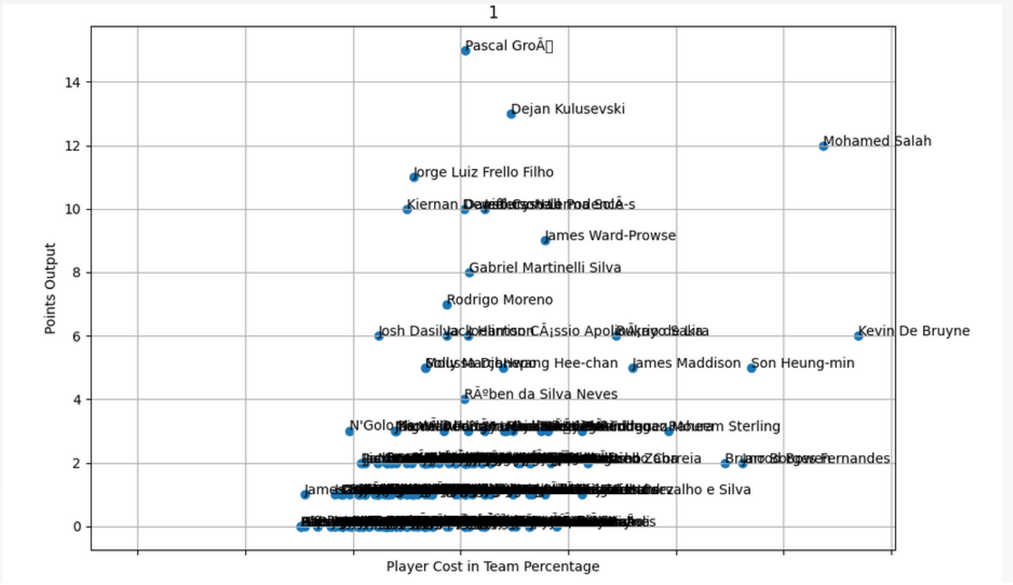


- **Mean and Standard Deviation Calculation:**

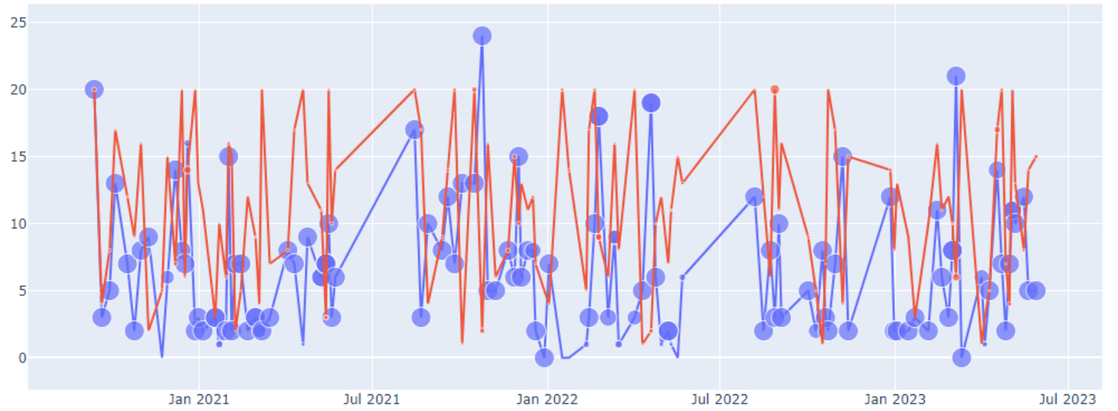


FEATURE ENGINEERING

- **Percentage Value to Team and Position Rank Calculation:**



- **Opponent Team and Last Season Position Extraction:**



MODEL TRAINING

COMPLETION STATUS

LGBM (TRAINED FOR LAST 3 SEASONS + FIRST 10 GWS OF NEW SEASON)
SARIMAX (DFT TESTING COMPLETE + MODEL DATA ASSIMILATED)

- **SARIMAX:**

Seasonal AutoRegressive Integrated Moving Average with eXogenous factors is a time series forecasting model that extends the traditional ARIMA model to handle seasonality and exogenous variables

$$d_t = c + \sum_{n=1}^{p} \alpha_n d_{t-n} + \sum_{n=1}^{q} \theta_n \epsilon_{t-n} + \sum_{n=1}^{r} \beta_n x_{n_t} + \sum_{n=1}^{P} \phi_n d_{t-sn} + \sum_{n=1}^{Q} \eta_n \epsilon_{t-sn} + \epsilon_t$$

MODEL TRAINING

- **Light GBM:**

Gradient boosting framework that uses tree based learning algorithms. It is designed to be distributed and efficient with the following advantages: Faster training speed and higher efficiency, Lower memory usage, Better accuracy, Support of parallel, distributed, and GPU learning and Capable of handling large-scale data.

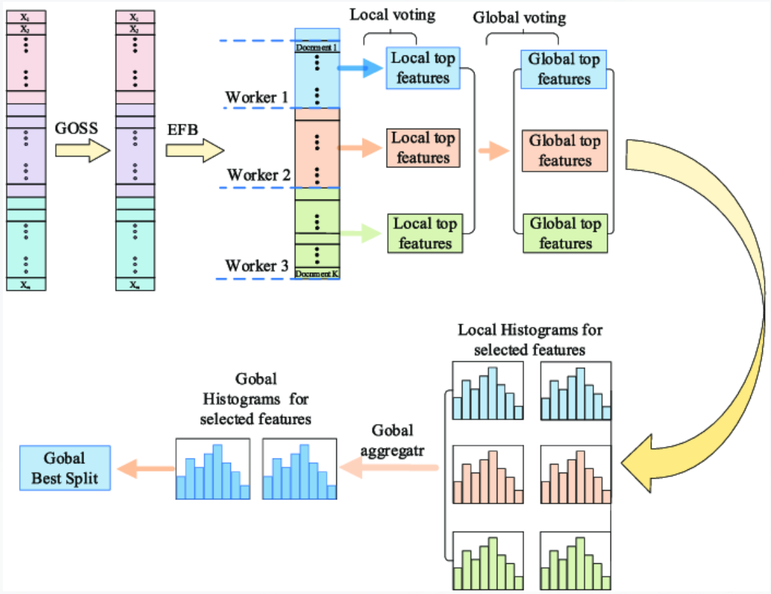
```
    print(i+1)
    prediction=model.predict(test.drop(leak_columns, axis=1))
    predictions_df[i]=prediction
    rmse_val.append(mean_squared_error(model.predict(val_fold),y_val_fold,squared=False))
    rmse_X.append(mean_squared_error(model.predict(train_fold),y_fold,squared=False))
print(rmse_val)
print(rmse_X)
```

```
1
2
3
4
5
6
7
8
[2.052616913885072, 2.0016556334366253, 2.066816131406712, 2.0000855526763415, 2.0595955584557304, 2.041648646777974, 1.995619341788085, 2.0442852988741986]
[1.7557239221098666, 1.798848746752882, 1.694325413342262, 1.8052218489372907, 1.668365224381373, 1.721015739246082, 1.6881309613008646, 1.740048919002671]
```

+ Code + Markdown

```
[83]:
print(np.mean(rmse_val))
print(np.mean(rmse_X))
```

```
2.0327903846625928
```



PENDING WORK

MODEL TESTING & VALIDATION

SEASON OPTIMIZATION MODEL

SENTIMENT ANALYSIS

- Initial plan was to use Twitter API to collect Twitter data for each player
- Use player data to Sentiment Analyze using BERT model
- Twitter API V2 forbidden access to recent tweets
- Aim to scrape News website for Latest news

RESULTS

```
test[test["position"]=="MID"].sort_values(by="points",ascending=False).head(11)[["name","opponent_last_se
```

[188...

index	name	opponent_last_season_position	was_home	points	team	value
Mohamed Salah2023-08-13T15:30:00Z	Mohamed Salah	12	1	10.182815	Liverpool	125
Martin Ødegaard2023-08-12T12:00:00Z	Martin Ødegaard	16	0	6.500668	Arsenal	85
Bukayo Saka2023-08-12T12:00:00Z	Bukayo Saka	16	0	6.240895	Arsenal	85
Bruno Borges Fernandes2023-08-14T19:00:00Z	Bruno Borges Fernandes	13	0	5.791867	Man Utd	85
Kevin De Bruyne2023-08-11T19:00:00Z	Kevin De Bruyne	20	1	5.638430	Man City	105
Gabriel Martinelli Silva2023-08-12T12:00:00Z	Gabriel Martinelli Silva	16	0	5.130547	Arsenal	80
Marcus Rashford2023-08-14T19:00:00Z	Marcus Rashford	13	0	4.194368	Man Utd	90
Pascal Groß2023-08-12T14:00:00Z	Pascal Groß	20	0	4.002104	Brighton	65
Solly March2023-08-12T14:00:00Z	Solly March	20	0	3.555792	Brighton	65
Eberechi Eze2023-08-12T14:00:00Z	Eberechi Eze	20	1	3.088195	Crystal Palace	65
Son Heung-min2023-08-13T13:00:00Z	Son Heung-min	9	1	3.034857	Spurs	90

```
test[test["position"]=="DEF"].sort_values(by="points",ascending=False).head(10)[["name","opponent_last_seas
```

[189...

index	name	opponent_last_season_position	was_home	points	team	value
Kieran Trippier2023-08-12T16:30:00Z	Kieran Trippier	7	0	4.389531	Newcastle	65
Trent Alexander-Arnold2023-08-13T15:30:00Z	Trent Alexander-Arnold	12	1	4.257807	Liverpool	80
Andrew Robertson2023-08-13T15:30:00Z	Andrew Robertson	12	1	2.742380	Liverpool	65
Ben Mee2023-08-13T13:00:00Z	Ben Mee	8	0	2.606454	Brentford	50
Pervis Estupiñán2023-08-12T14:00:00Z	Pervis Estupiñán	20	0	2.451813	Brighton	50
Virgil van Dijk2023-08-13T15:30:00Z	Virgil van Dijk	12	1	2.421160	Liverpool	60
Lewis Dunk2023-08-12T14:00:00Z	Lewis Dunk	20	0	2.408961	Brighton	50
Lisandro Martínez2023-08-14T19:00:00Z	Lisandro Martínez	13	0	2.341776	Man Utd	50
William Saliba2023-08-12T12:00:00Z	William Saliba	16	0	2.321176	Arsenal	50
Gabriel dos Santos Magalhães2023-08-12T12:00:00Z	Gabriel dos Santos Magalhães	16	0	2.318982	Arsenal	50

[191]:
```
test[test["position"]=="GKP"].sort_values(by="points",ascending=False).head(10)[["name","opponent_last_s
```

[191...

index	name	opponent_last_season_position	was_home	points	team	value
Aaron Ramsdale2023-08-12T12:00:00Z	Aaron Ramsdale	16	0	3.653835	Arsenal	50
Alisson Ramses Becker2023-08-13T15:30:00Z	Alisson Ramses Becker	12	1	3.400355	Liverpool	55
David Raya Martin2023-08-13T13:00:00Z	David Raya Martin	9	0	3.256289	Arsenal	50
José Malheiro de Sá2023-08-14T19:00:00Z	José Malheiro de Sá	3	1	3.143887	Wolves	50
Emiliano Martínez Romero2023-08-12T16:30:00Z	Emiliano Martínez Romero	4	1	2.944158	Aston Villa	50
Nick Pope2023-08-12T16:30:00Z	Nick Pope	7	0	2.715660	Newcastle	55
Lukasz Fabianski2023-08-12T14:00:00Z	Lukasz Fabianski	15	1	2.629725	West Ham	45
Ederson Santana de Moraes2023-08-11T19:00:00Z	Ederson Santana de Moraes	20	1	2.539753	Man City	55
Bernd Leno2023-08-12T14:00:00Z	Bernd Leno	17	1	2.145955	Fulham	45
Jordan Pickford2023-08-12T14:00:00Z	Jordan Pickford	10	0	2.092276	Everton	45

[192]:
```
test[test["position"]=="FWD"].sort_values(by="points",ascending=False).head(10)[["name","opponent_last_sea
```

[192...

index	name	opponent_last_season_position	was_home	points	team	value
Erling Haaland2023-08-11T19:00:00Z	Erling Haaland	20	1	10.194150	Man City	140
Harry Kane2023-08-13T13:00:00Z	Harry Kane	9	1	9.730697	Spurs	125
Ivan Toney2023-08-13T13:00:00Z	Ivan Toney	8	0	4.462744	Brentford	80
Aleksandar Mitrović2023-08-12T14:00:00Z	Aleksandar Mitrović	17	1	3.465743	Fulham	75
Gabriel Fernando de Jesus2023-08-12T12:00:00Z	Gabriel Fernando de Jesus	16	0	3.355168	Arsenal	80
Dominic Solanke2023-08-12T14:00:00Z	Dominic Solanke	14	0	3.088639	Bournemouth	65
Ollie Watkins2023-08-12T16:30:00Z	Ollie Watkins	4	1	2.984169	Aston Villa	80
Callum Wilson2023-08-12T16:30:00Z	Callum Wilson	7	0	2.849204	Newcastle	80
Darwin Núñez Ribeiro2023-08-13T15:30:00Z	Darwin Núñez Ribeiro	12	1	2.730184	Liverpool	75
Alexander Isak2023-08-12T16:30:00Z	Alexander Isak	7	0	2.350178	Newcastle	75

REFERENCES (API)

- https://fantasy.premierleague.com/api
- https://github.com/JaseZiv/worldfootballR
- https://github.com/vaastav/Fantasy-Premier-League