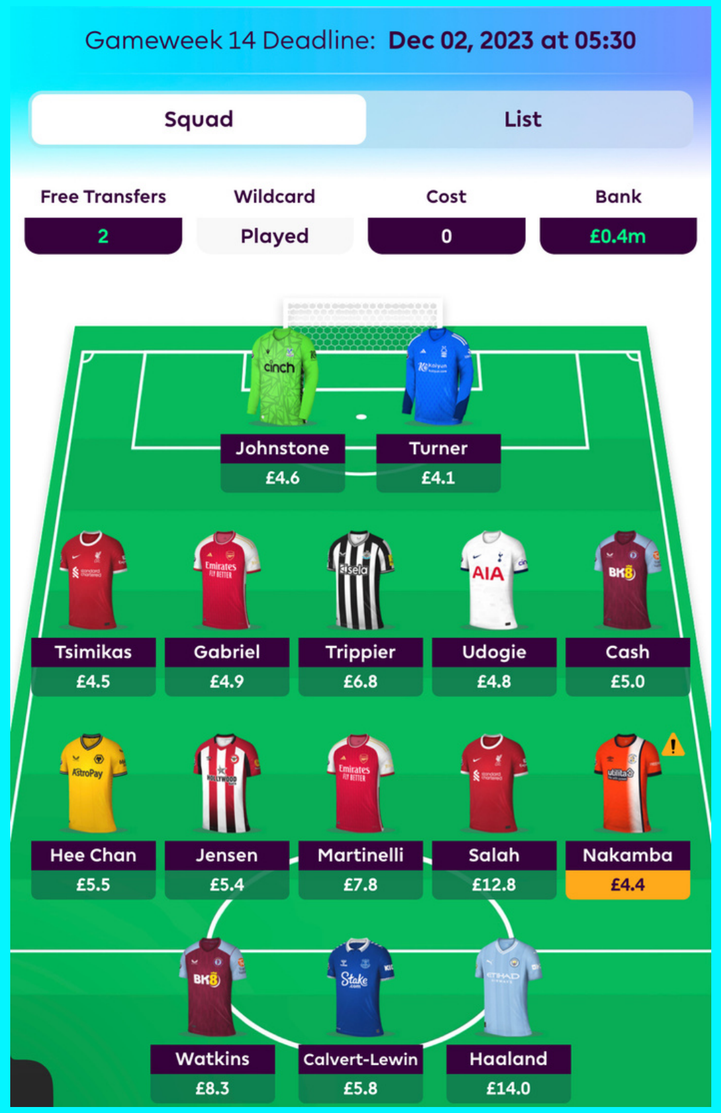
FANTASY FOOTSCORES

Optimizing FPL Success using Predictive Analytics

By: Mu-izz Gbadamosi



FPL PLATFORM

- 100m budget
- 15 total players
- 5 Defenders
- 5 Midfielders
- 3 forwards
- 2 Goalkeepers

FPL INFO

8M

FPL managers in 23/24 season

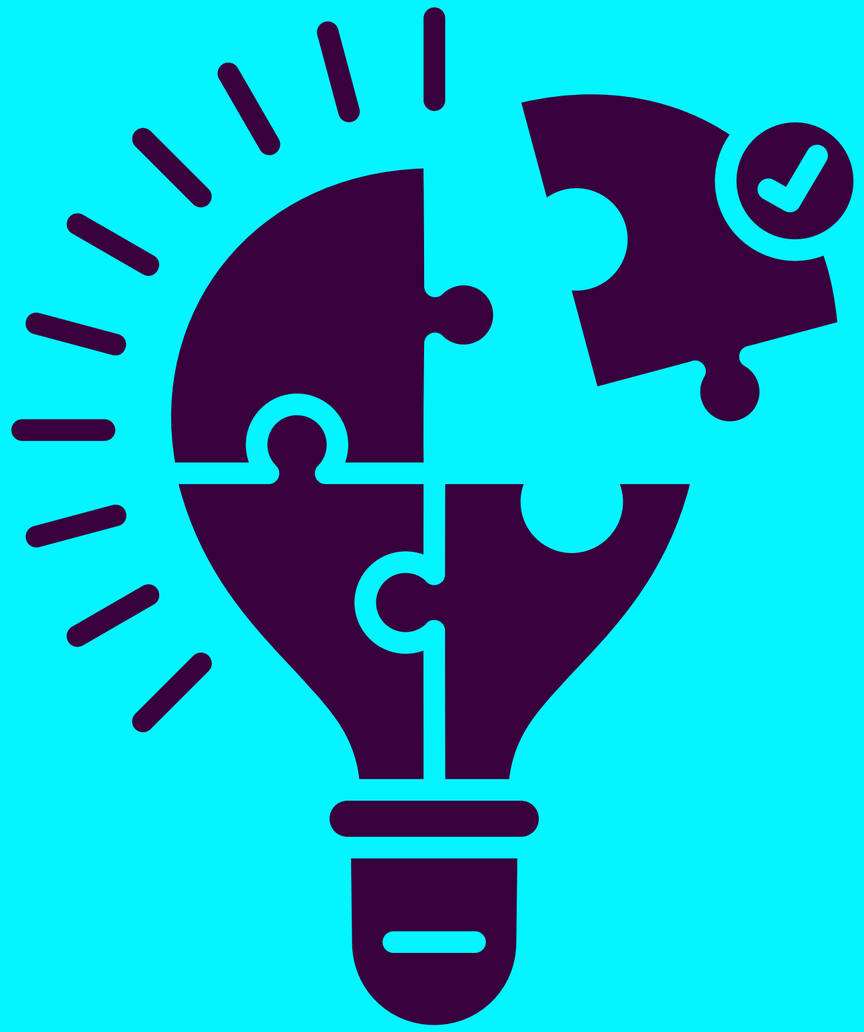
20

FPL managers awarded prizes

1st Place

PROBLEM STATEMENT

Managing a successful team can be challenging due to uncertainty in player performance and strategic decision making.



KEY CHALLENGES

- **Large Historical Data**
- **Trend Analysis Difficulty**

Potential Impact

01 Strategic Advantage for FPL Managers

02 Competitive Spirit

03 Platform Growth and Engagement

04 Improve Betting Companies Algorithm

DATASET

- Anand, Vaastav. (2023). FPL Historical Dataset.https://github.com/vaastav/Fantasy-Premier-League/
- 2022/2023 English Premier League Season
- 26505 rows and 41 columns

QUALITY CONCERNS

- Missing gameweek data
- No incremental data for each gameweek
- Rows with no information
- Player Transfers during the season

INDEPENDENT VARIABLES

- expected_goals_conceded
- fixture
- goals_conceded
- goals_scored
- ict_index
- influence
- kickoff_time
- minutes
- opponent_team
- own_goals
- penalties_missed
- penalties_saved
- red_cards
- GW

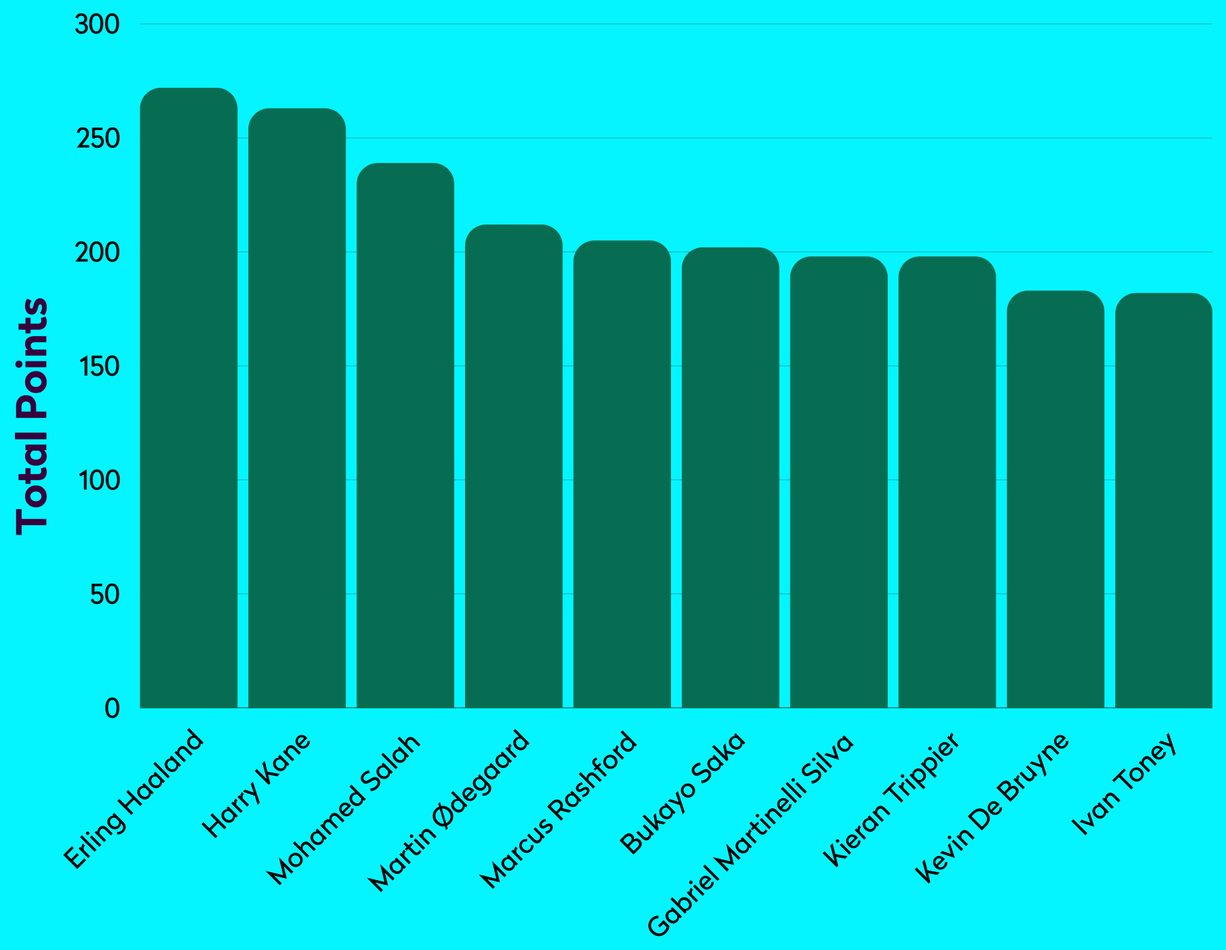
TARGET VARIABLE

- total_points

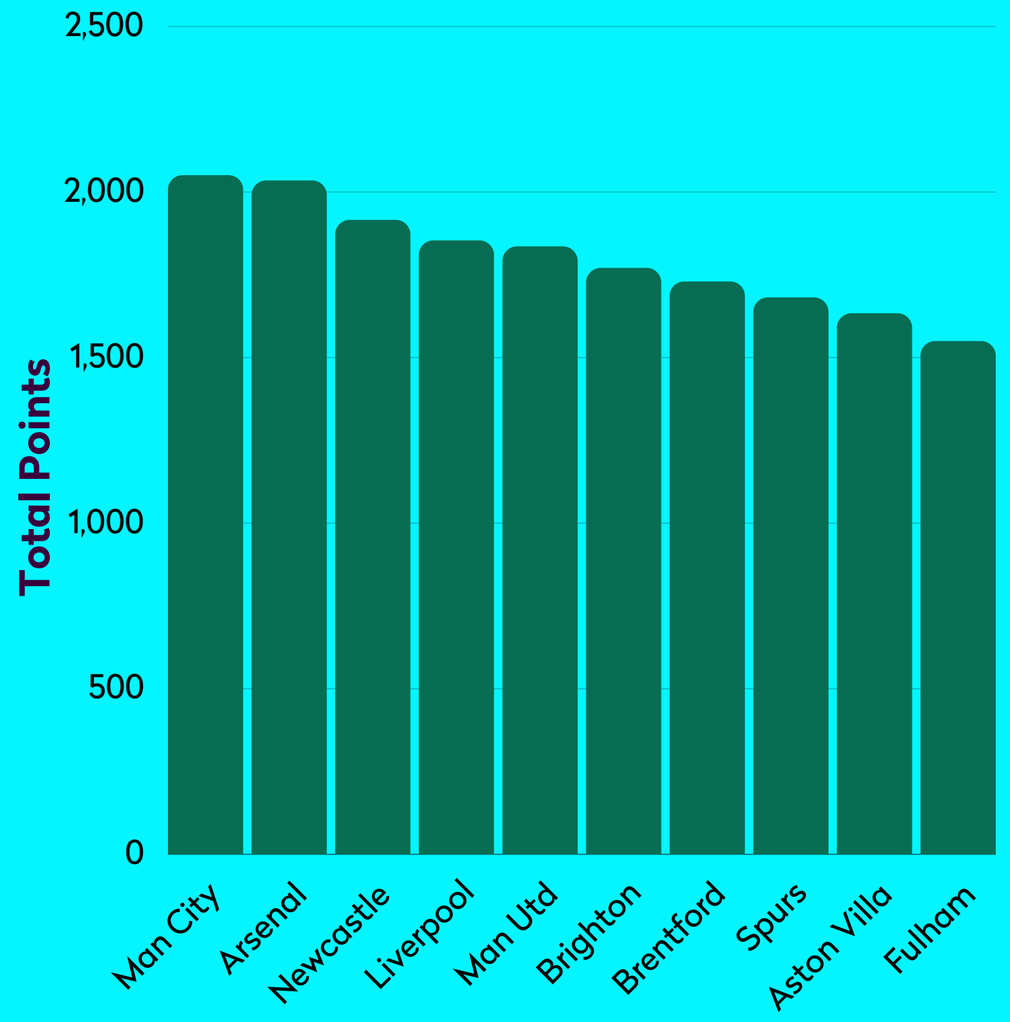
	name	position	team	xP	assists	bonus	bps	clean_sheets	creativity	element	...	team_h_score	threat	total_points	transfers_balance	transfers_in	transfers_out	value	was_home	yellow_cards	GW
0	Nathan Redmond	MID	Southampton	1.5	0	0	3	0	0.0	403	...	4	0.0	1	0	0	0	55	False	0	1
1	Junior Stanislas	MID	Bournemouth	1.1	0	0	3	0	0.0	58	...	2	0.0	1	0	0	0	50	True	0	1
2	Armando Broja	FWD	Chelsea	2.0	0	0	3	0	0.3	150	...	0	19.0	1	0	0	0	55	False	0	1
3	Fabian Schär	DEF	Newcastle	2.4	0	3	43	1	14.6	366	...	2	25.0	15	0	0	0	45	True	0	1
4	Jonny Evans	DEF	Leicester	1.9	0	0	15	0	1.3	249	...	2	0.0	1	0	0	0	45	True	0	1

PRELIMINARY EDA

Top 10 players based on total points for the season



Top 10 teams based on total points for the season



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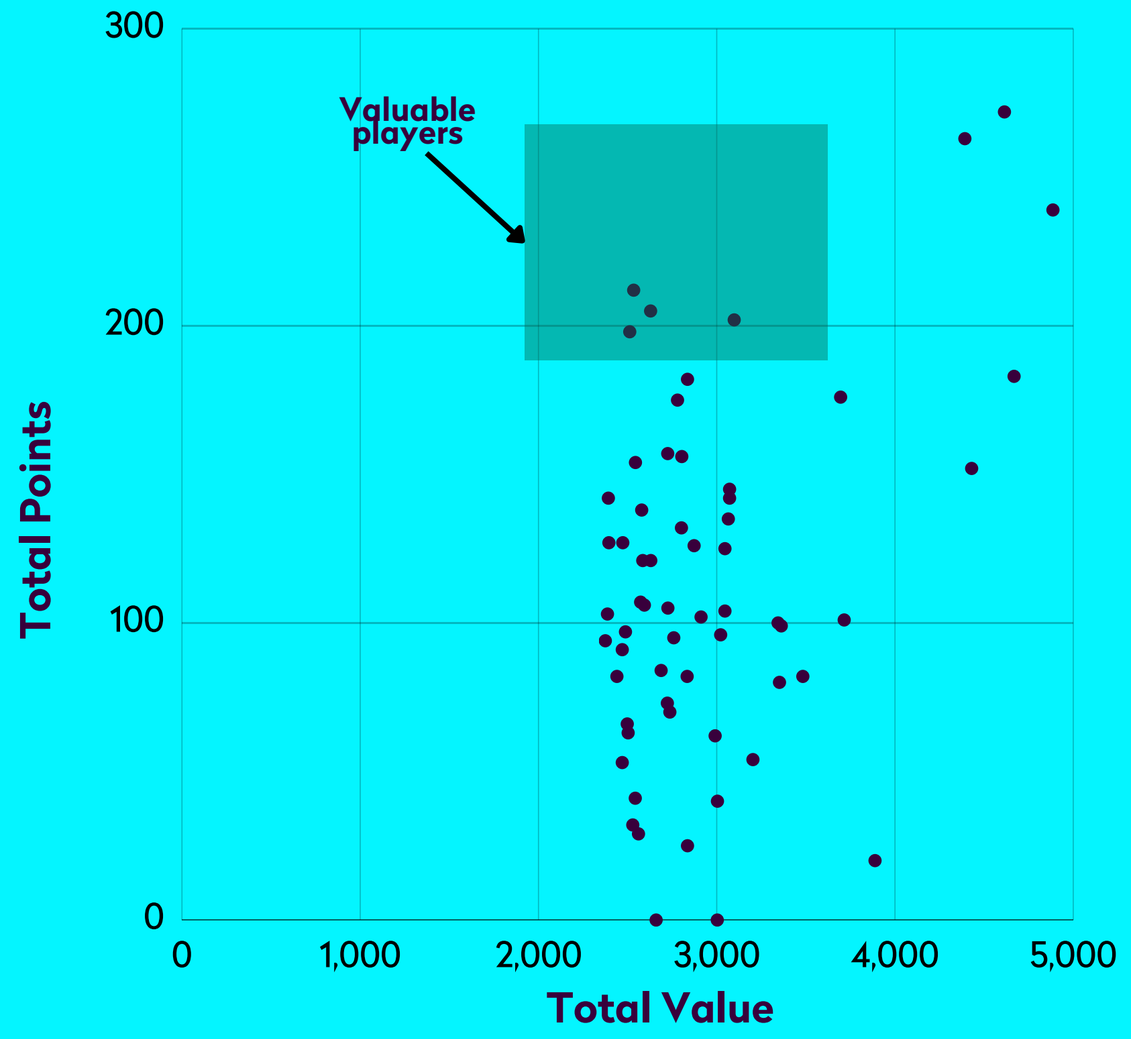
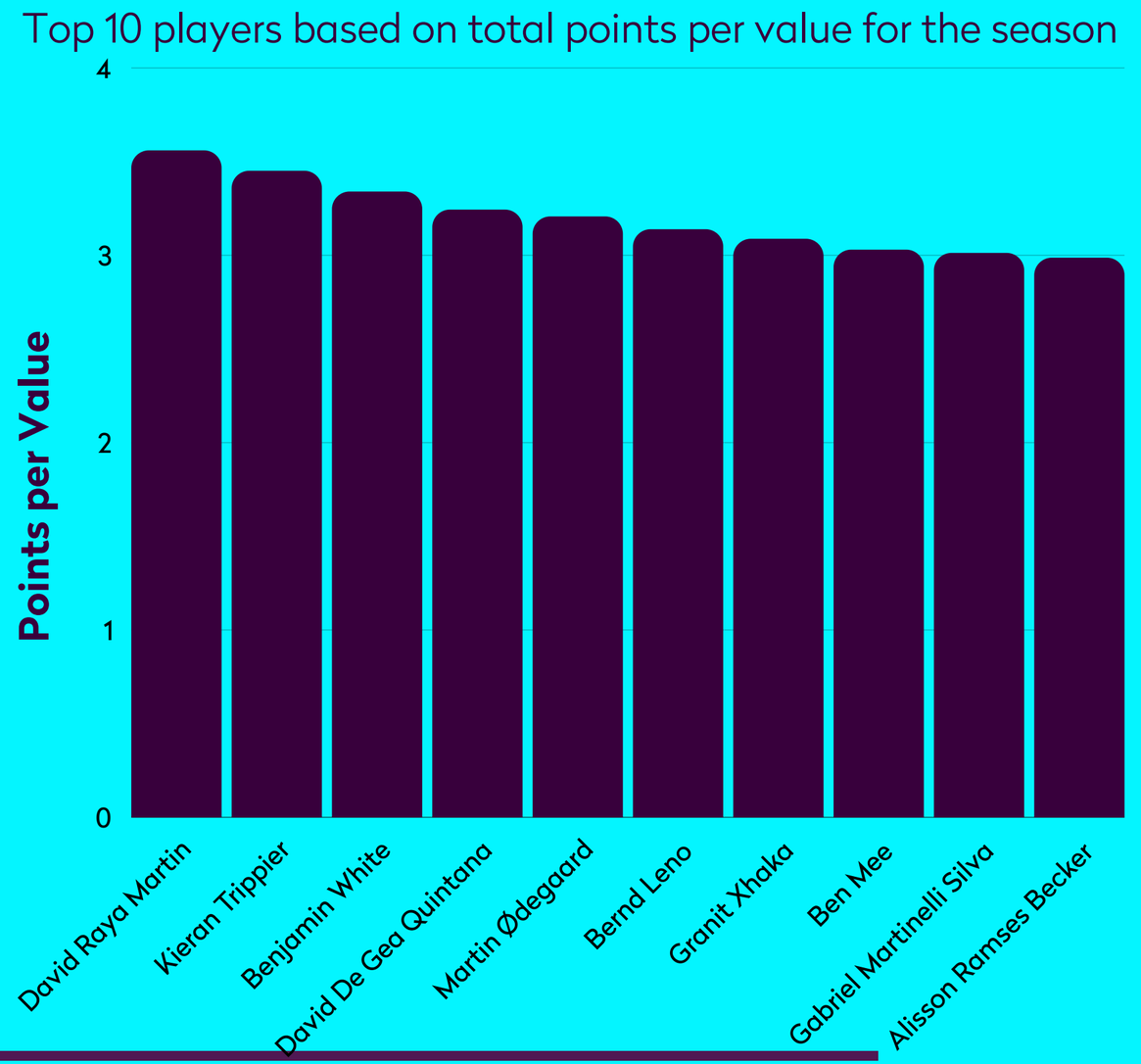




GRADIENT BOOSTING

LINEAR REGRESSION

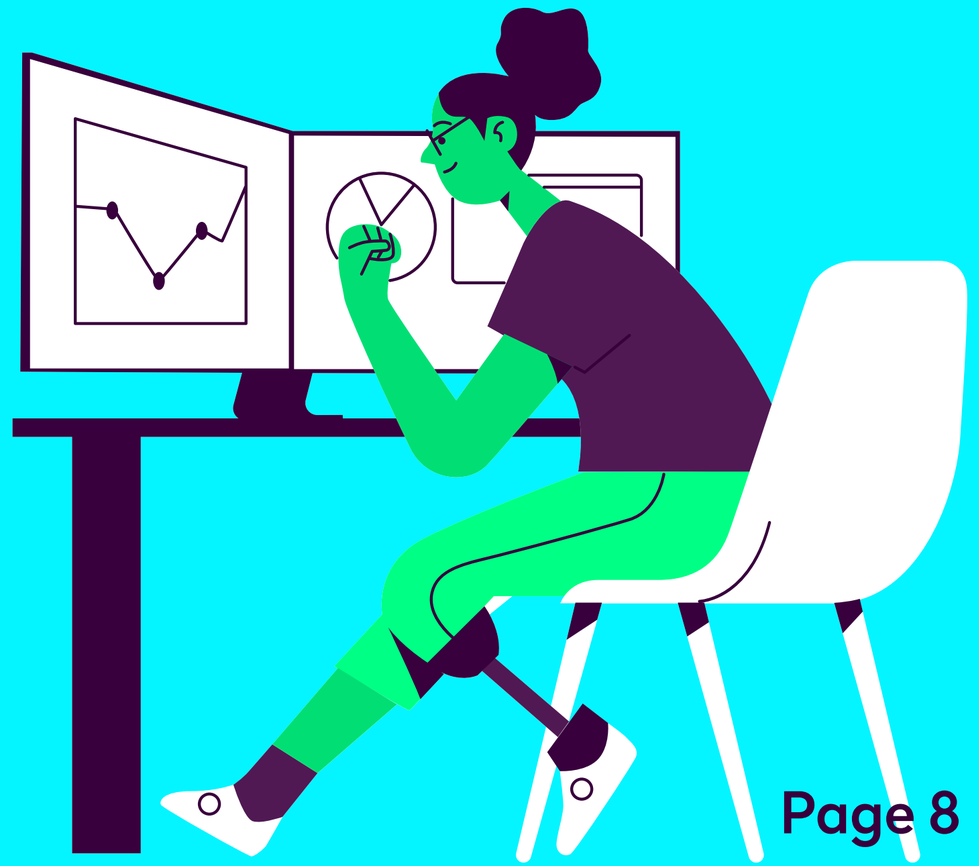
MODELLING APPROACH

DECISION TREE

NEURAL NETWORK

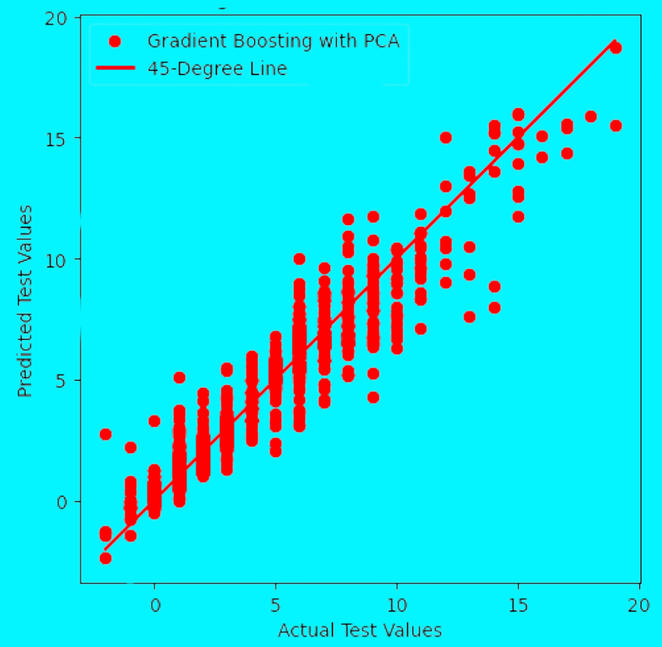
EVALUATION METRICS

- MEAN ABSOLUTE ERROR
- R-SQUARED
- ADJUSTED R-SQUARED

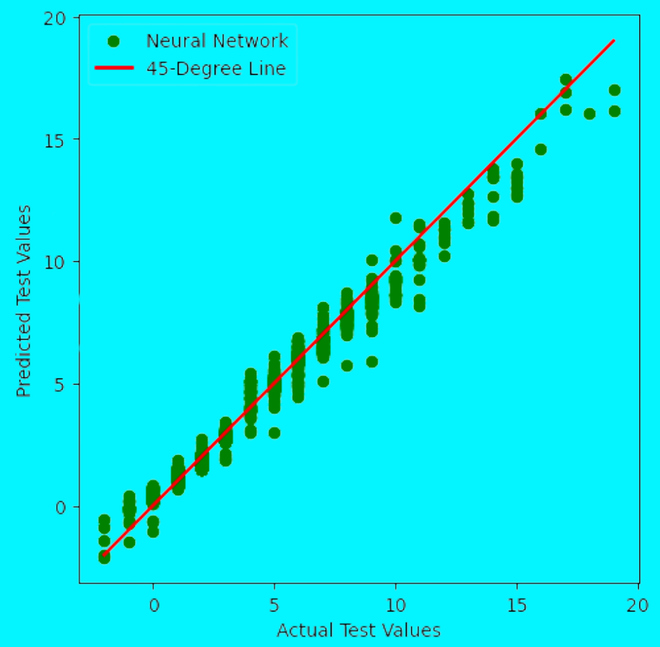


ACTUAL VS PREDICTED VALUE

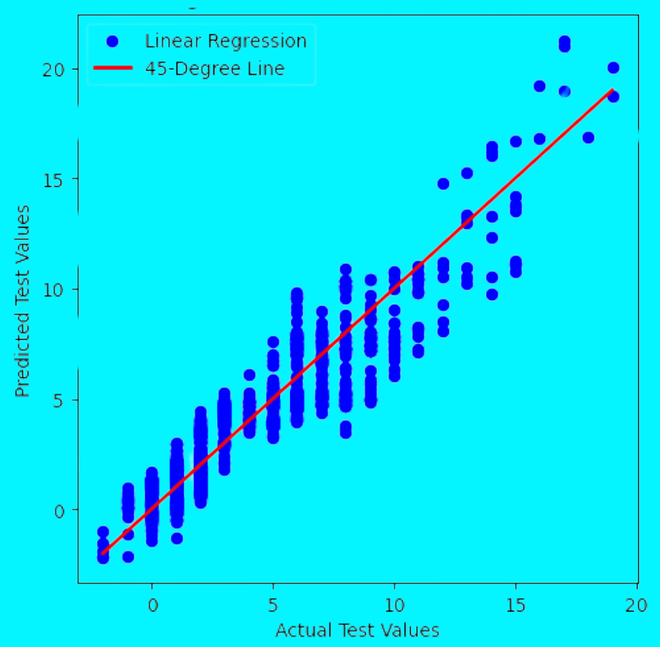
GRADIENT BOOST WITH PCA



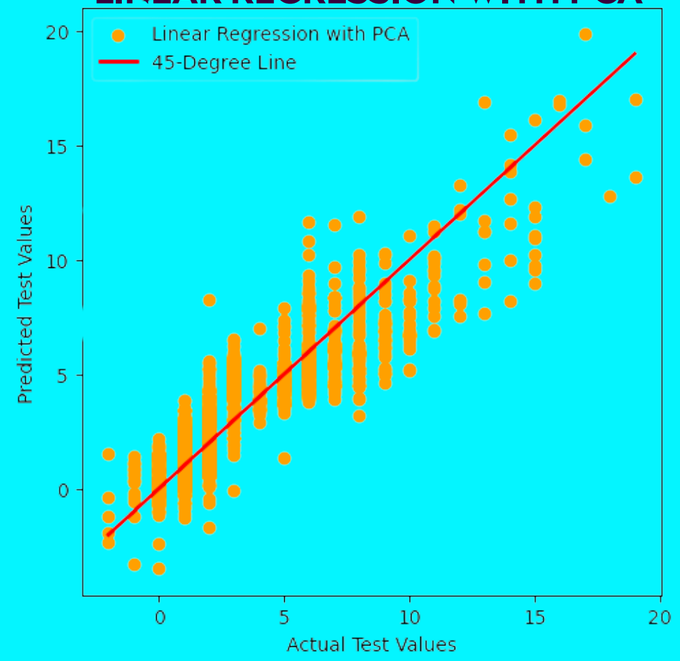
NEURAL NETWORK



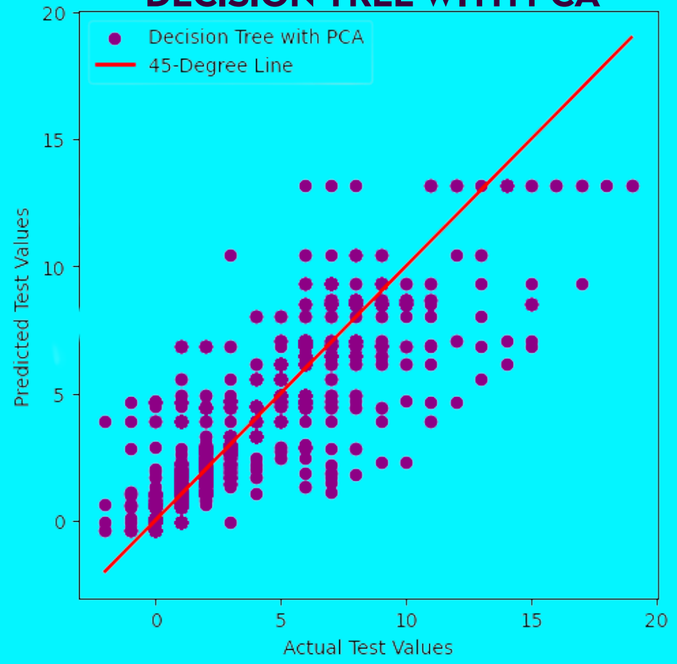
LINEAR REGRESSION



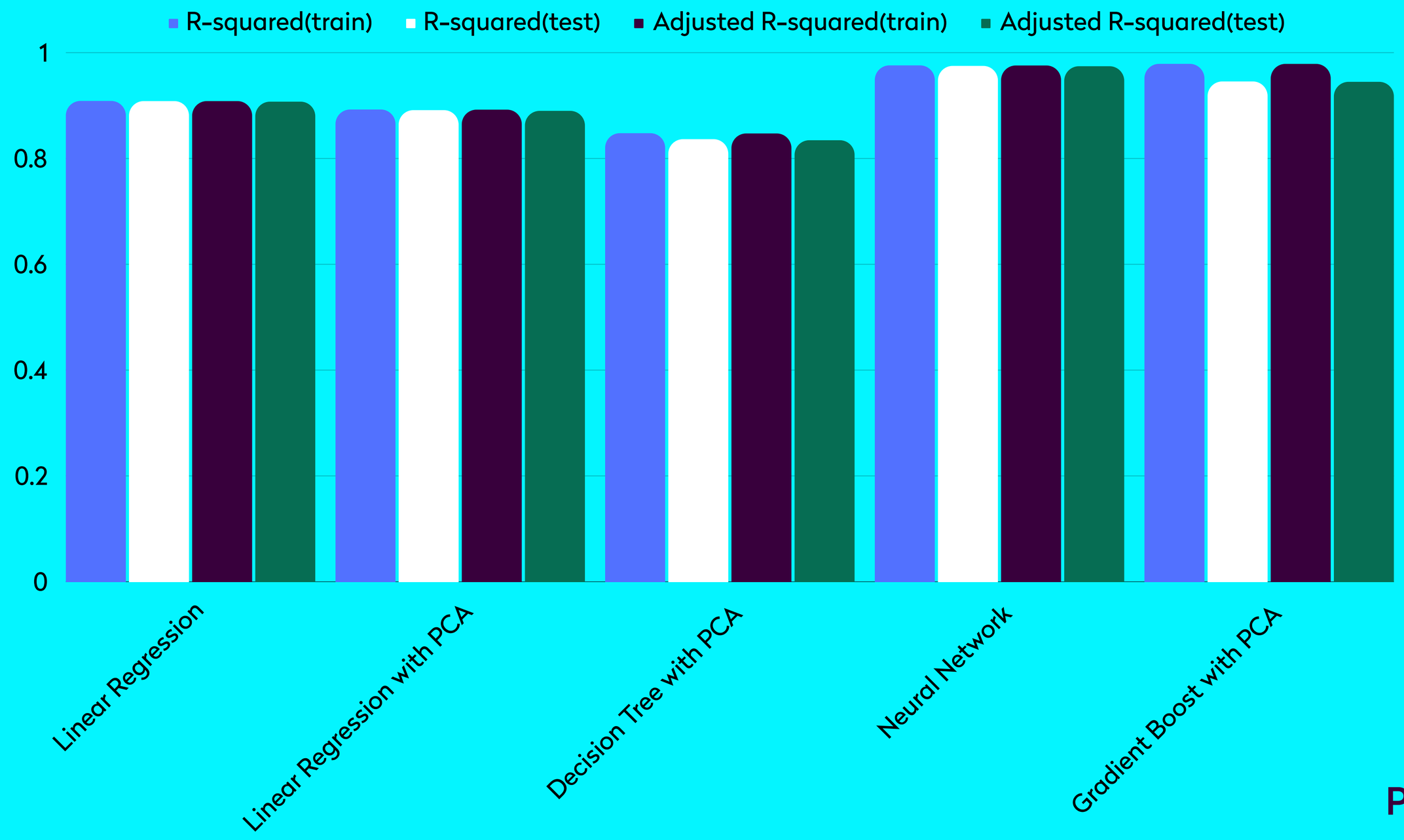
LINEAR REGRESSION WITH PCA



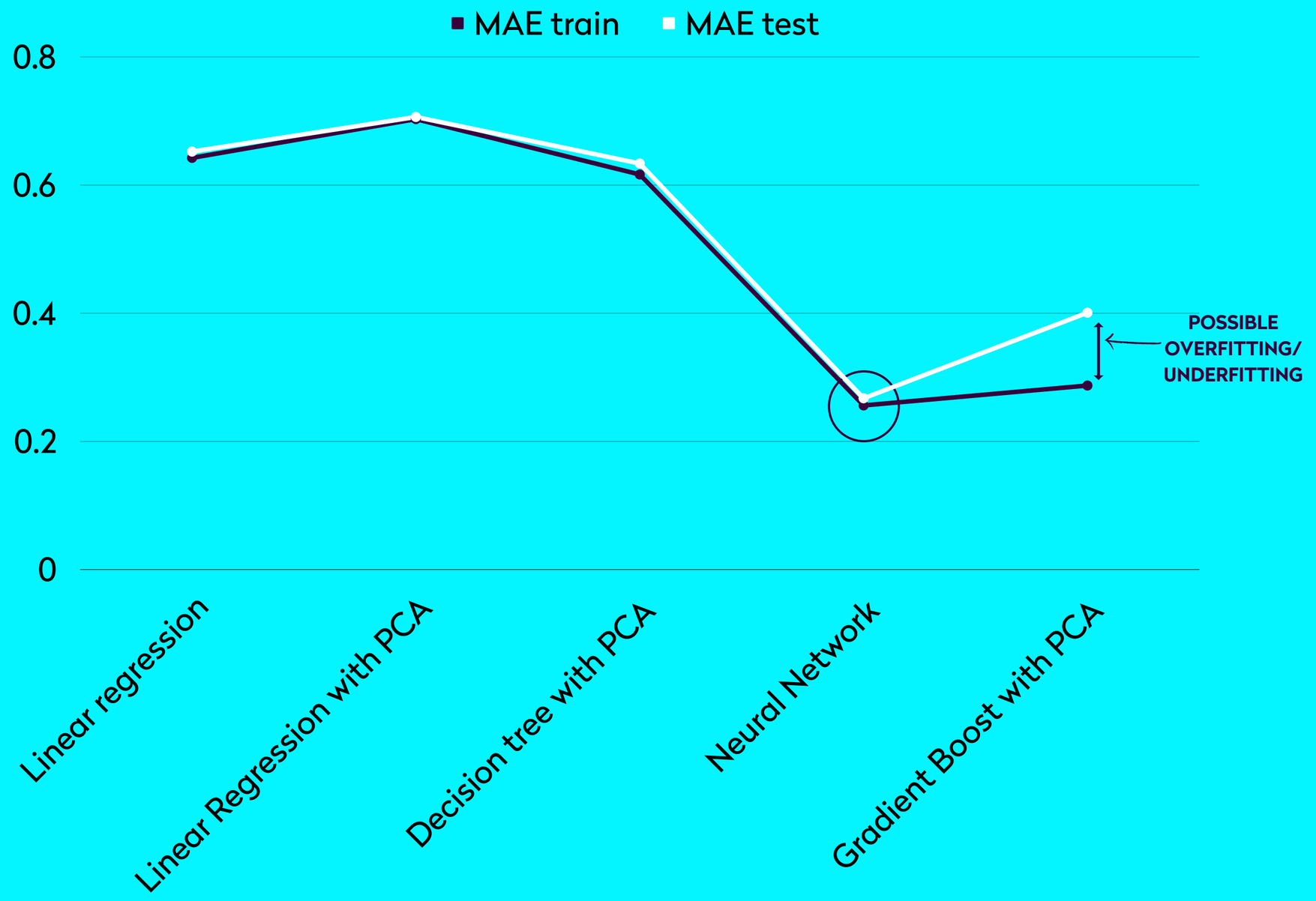
DECISION TREE WITH PCA



MODEL COMPARISON OF R-SQUARED AND ADJUSTED R-SQUARED



MODEL COMPARISON OF MAE FOR TEST AND TRAIN SET



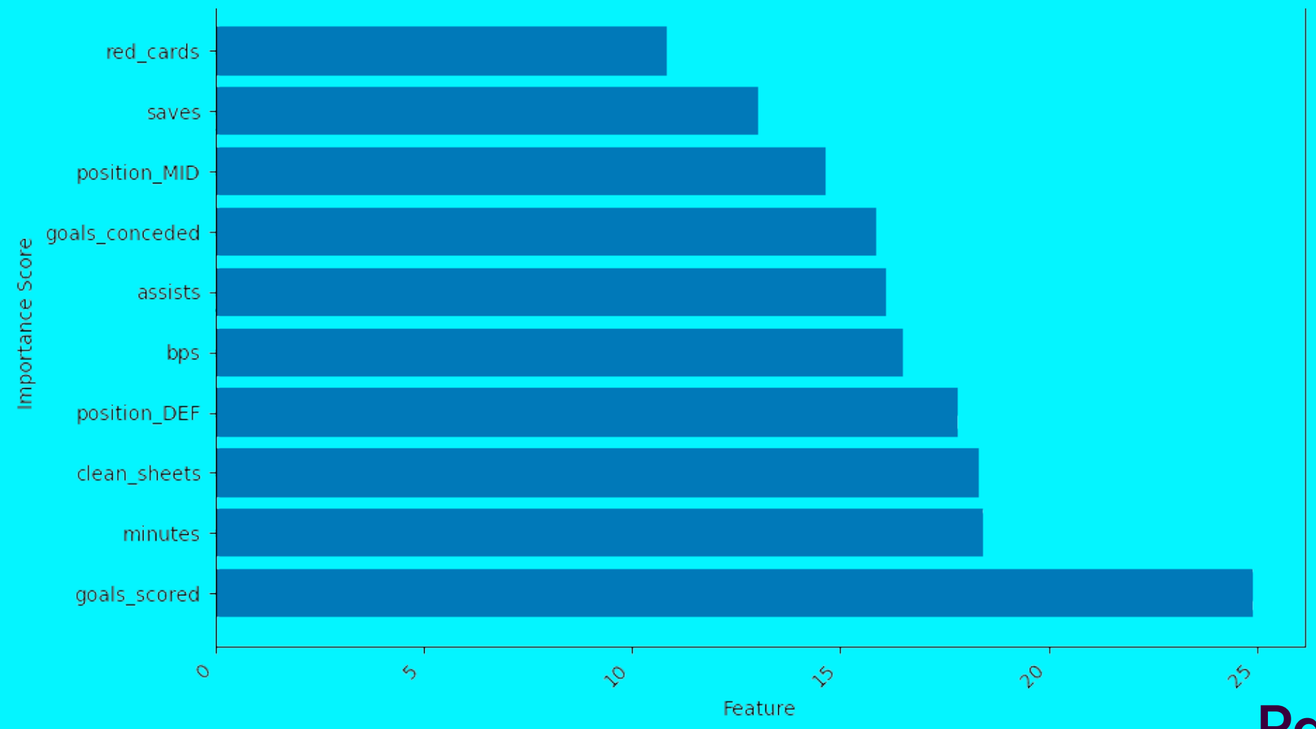
CHOSEN MODEL : NEURAL NETWORK

RSQUARED	98%
ADJ R_SQUARED	98%
MAE ON TRAIN	0.26
MAE ON TEST	0.27

TOP FEATURES

- Goals_scored
- Minutes
- Clean_sheets

CLICK HERE



NEXT STEPS

- Full Team Selection
- Apply Time Series
- Better FPL Prediction App

THANKS

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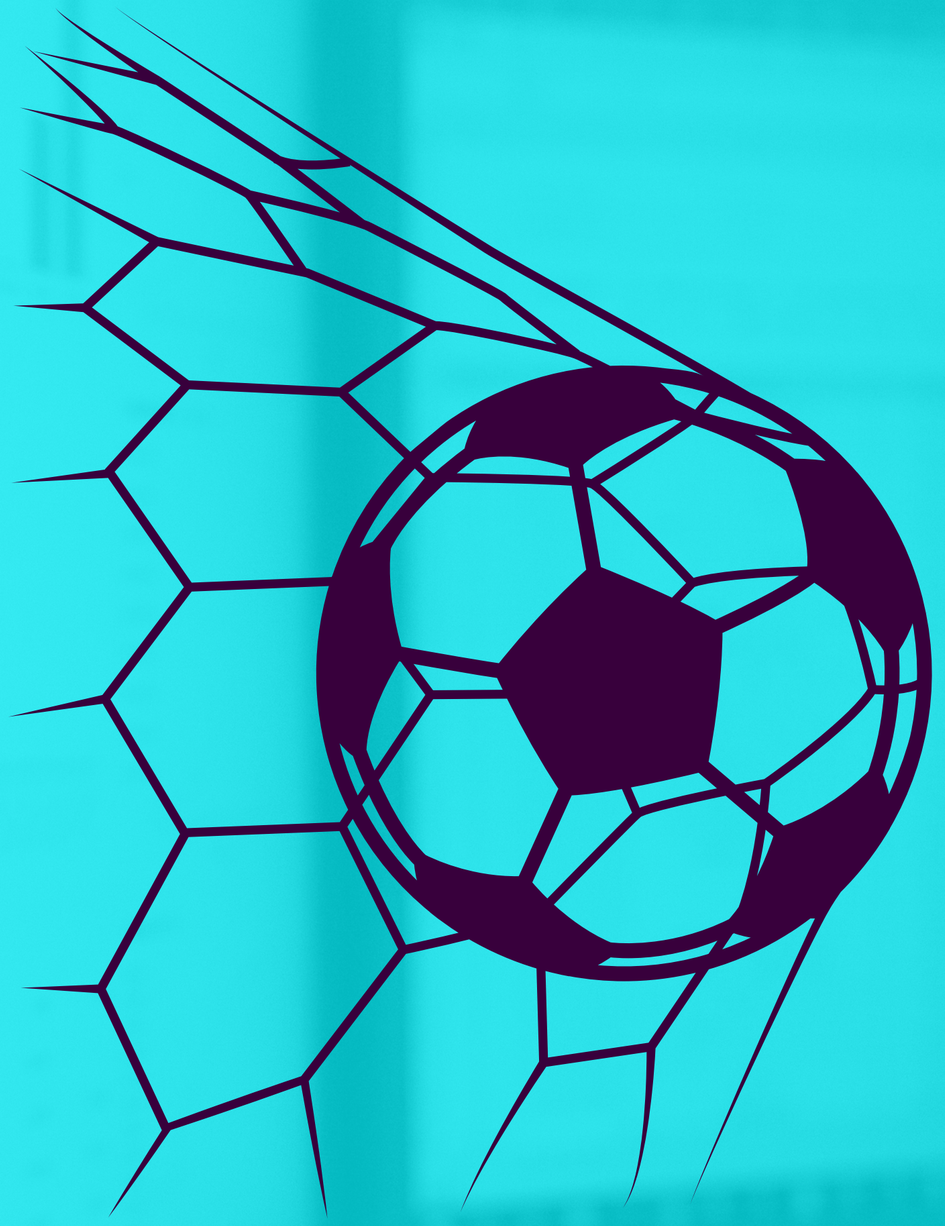
https://github.com/muiz95/

SCAN ME