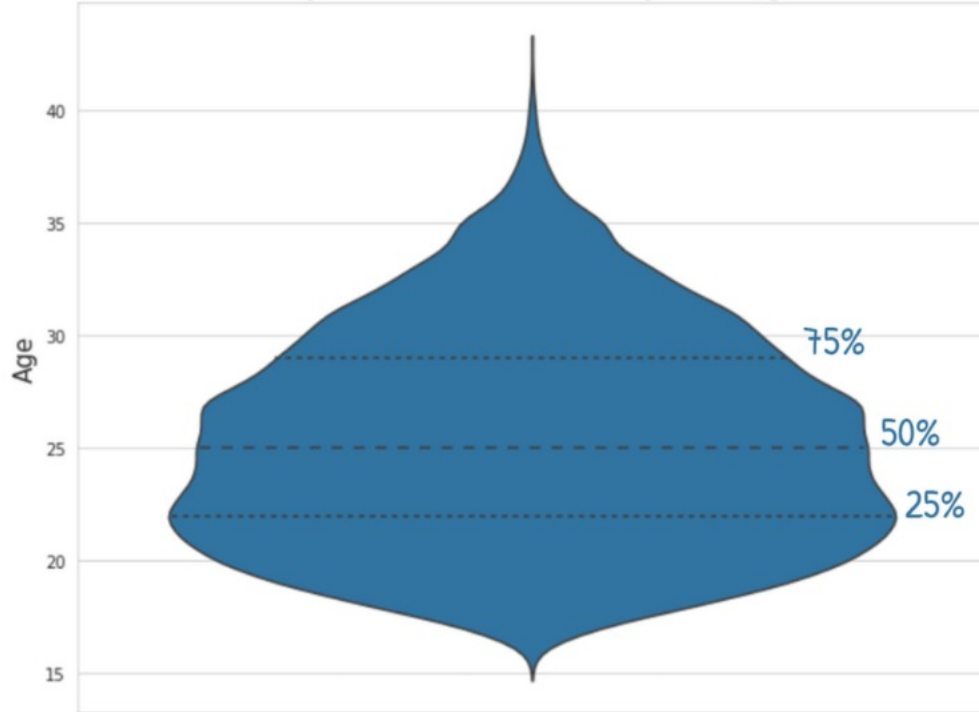# Univ.ai AI-1
Final Project

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FIFA Dataset Analysis
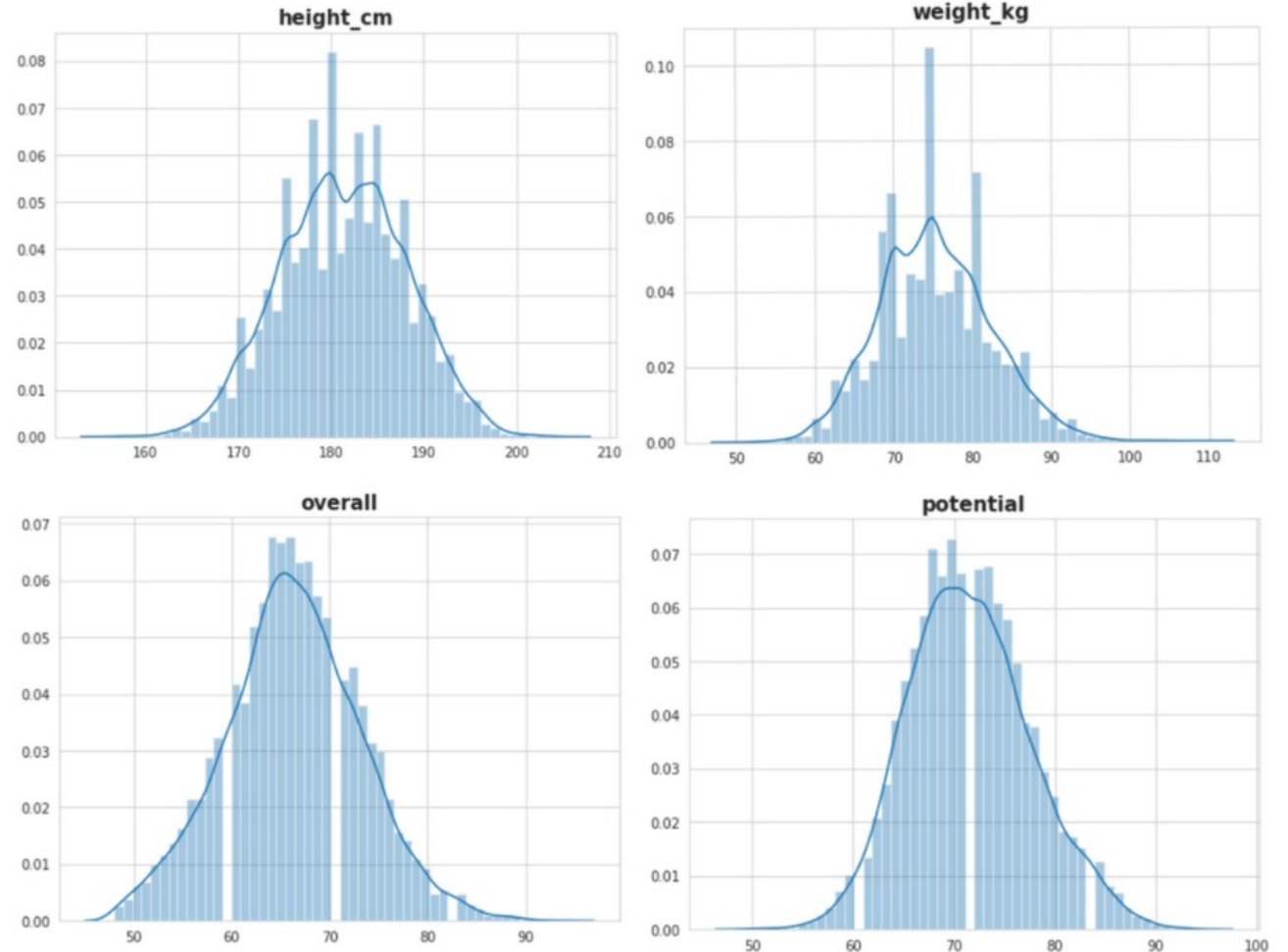
Exploratory Data Analysis

Player's Age

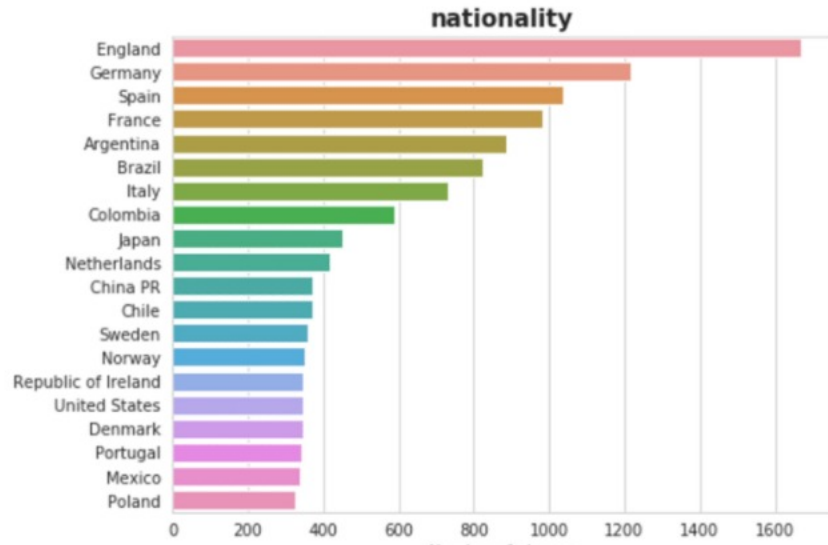**Player Distribution with respect to age**

The median age of a FIFA player is 25 years, and 50% of the players lie in the age bracket of 22-29.
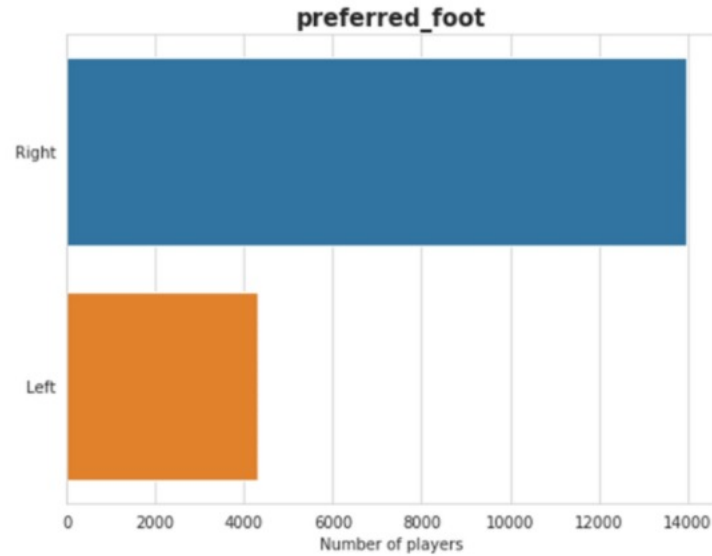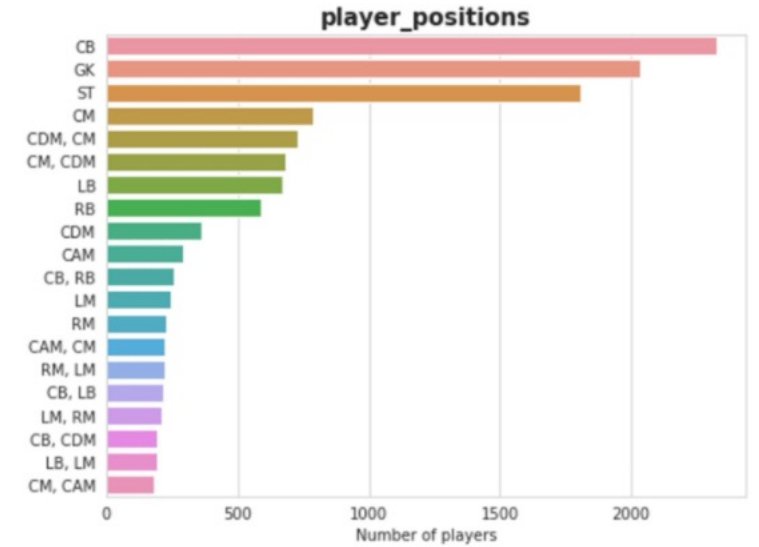
Distribution of Various Attributes

Player Characteristics

nationality

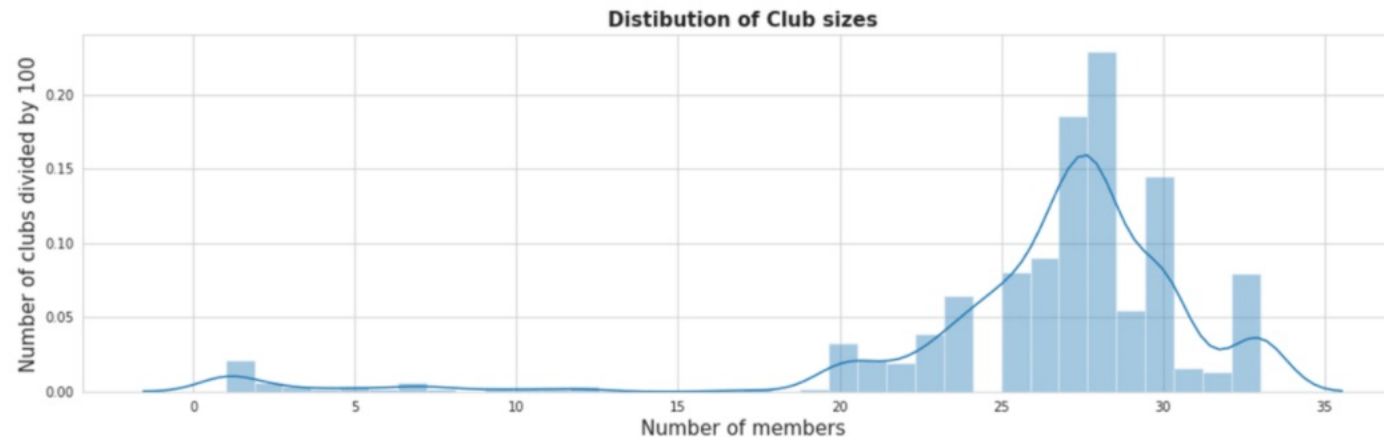Highest number of players belong to England followed by Germany.

preferred_foot

Majority of the players prefer their right foot.

player_positions

Highest number of players play as Centre-Back, followed by Goalkeeper.

Club Size

Distibution of Club sizes

Potential vs Overall Score Comparison

Potential per Age

Potential

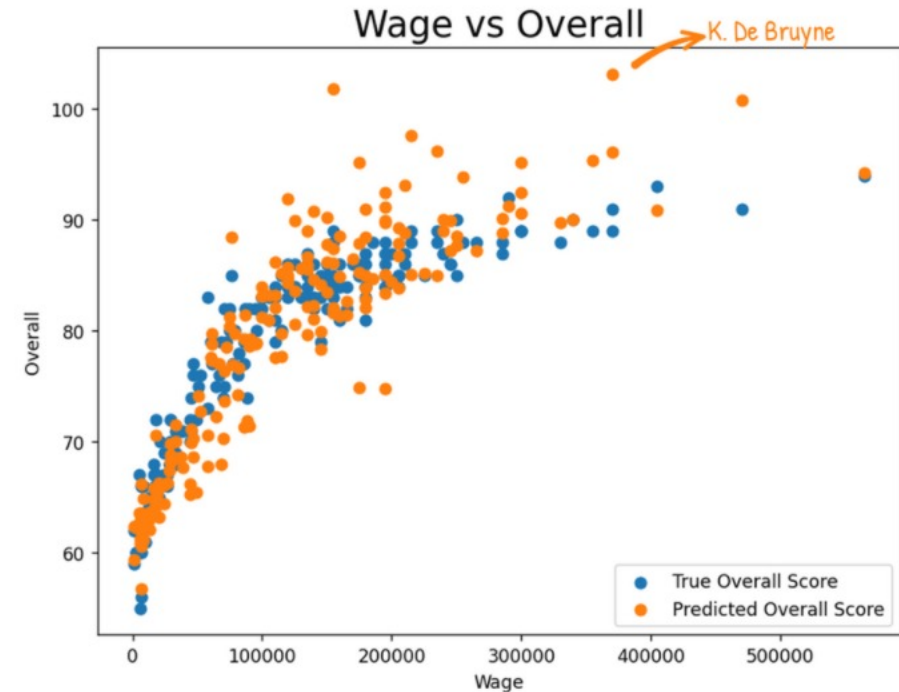Age of player

Overall per Age

Overall

Age of player
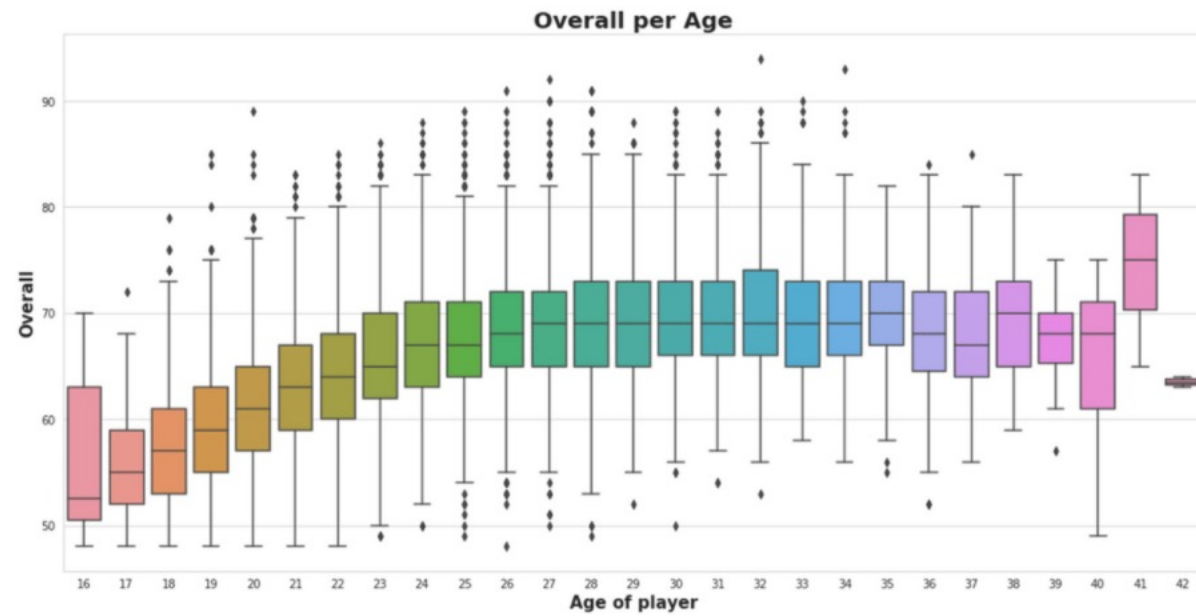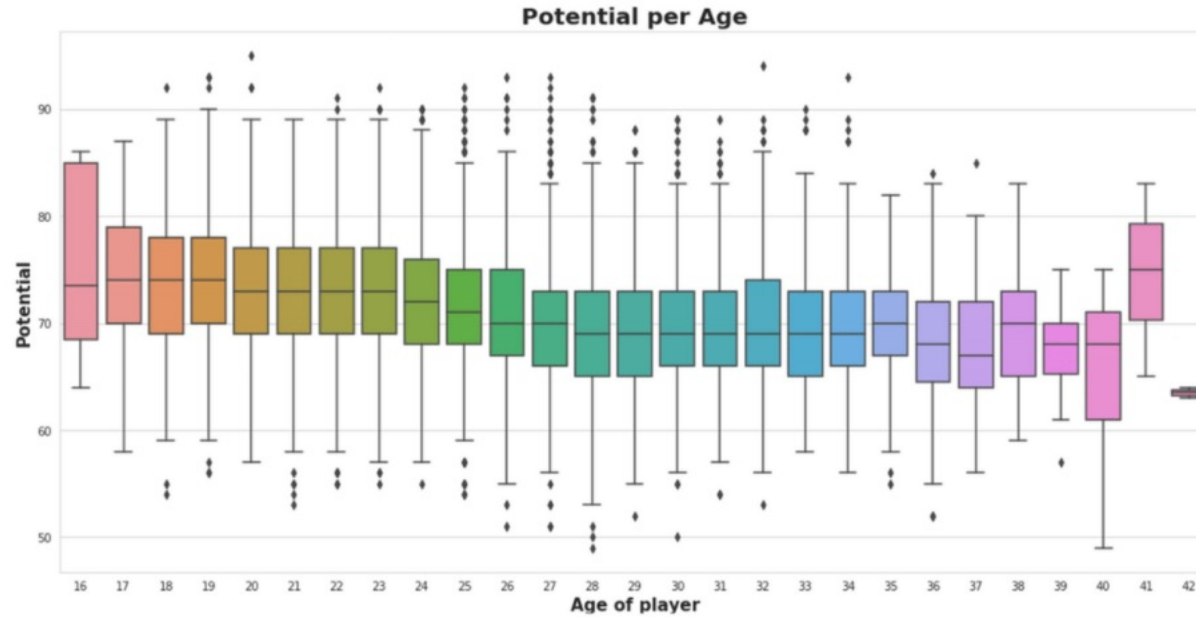
Part A: Rank the Players

- **Data Cleaning & Preprocessing**
  - Handling Null Values
  - Handling Categorical Values

- **Model Fitting**
  - Lasso Regularization
  - Fitting & Prediction
  - MSE against true (FIFA 20) values

```
Train MSE: 5.388
Test  MSE: 13.821
```
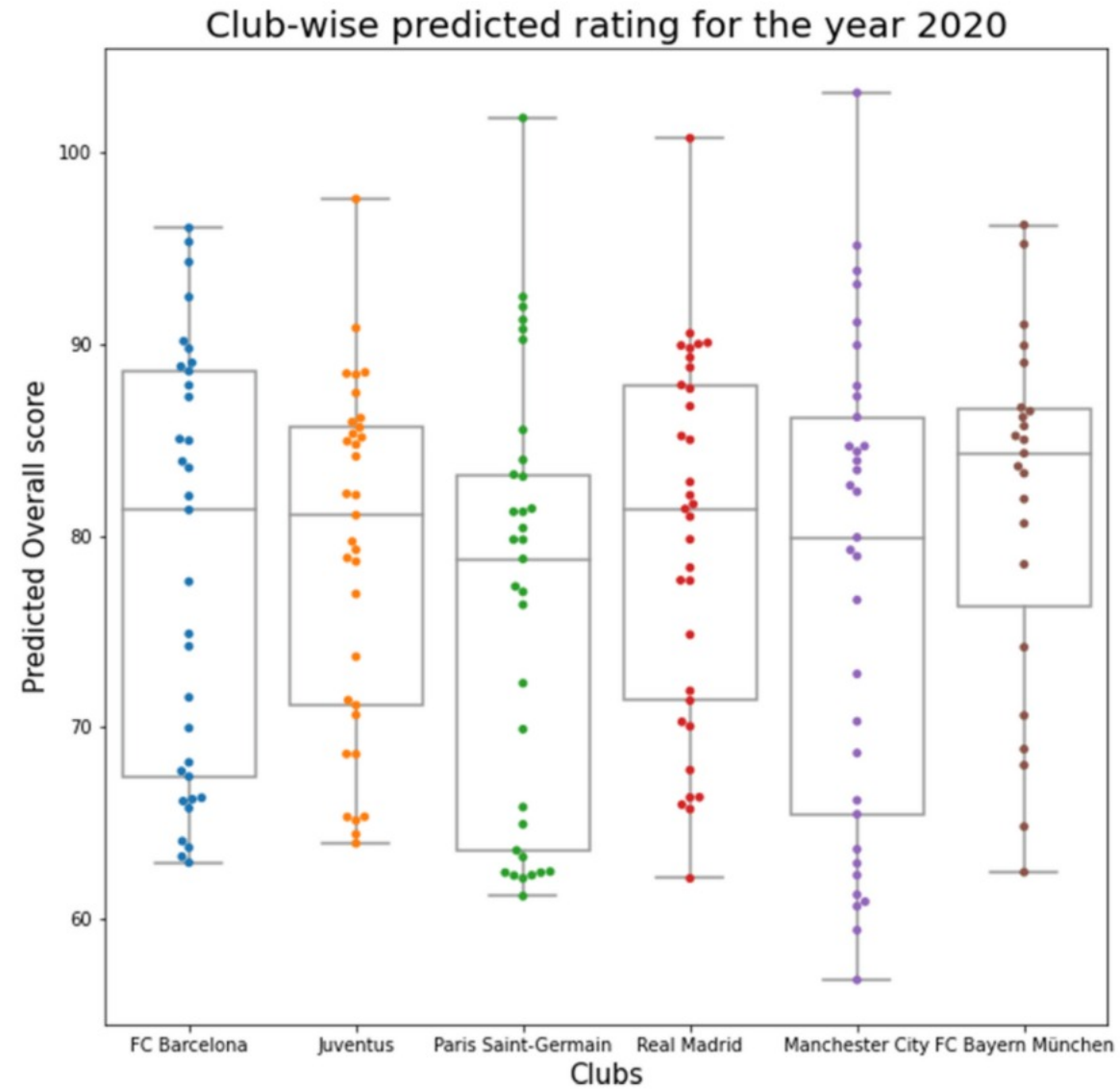

Wage vs Overall

Who is the best player in the world according to your analysis?

```
The best player in the world according to our model is: K. De Bruyne
```

Club wise predictions

Club-wise predicted rating for the year 2020

Part B - Classify player position

- **Preprocessing**
  - **Classifying Player Positions**
  - **Handling Null values**

- **Fitting Models**
  - **KNN**
  - **Picking best K using Cross Validation**
  - **Logistic Regression**

- **Prediction on Test**
  - **KNN Accuracy: 89.9%**
  - **Logistic Reg Accuracy: 87.11%**

Predicted vs True Positions

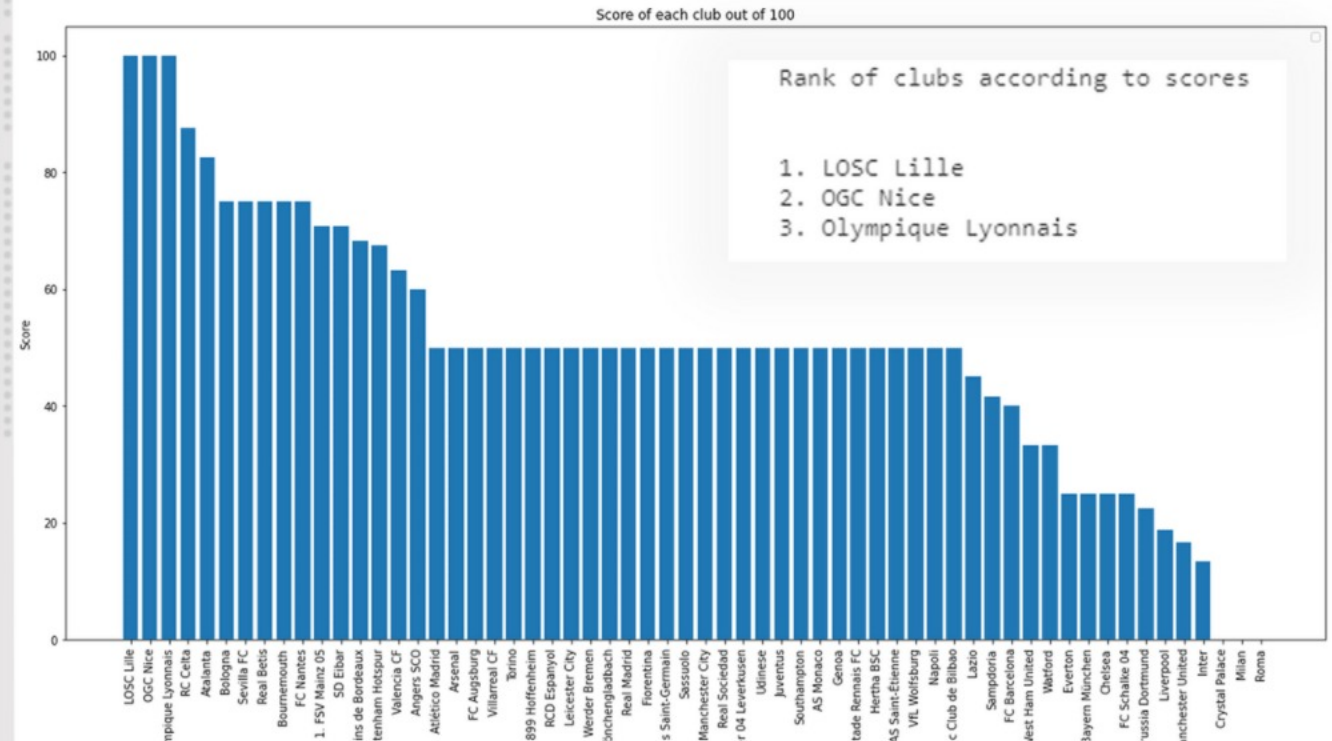Logistic regression : Predicted vs True data on test set
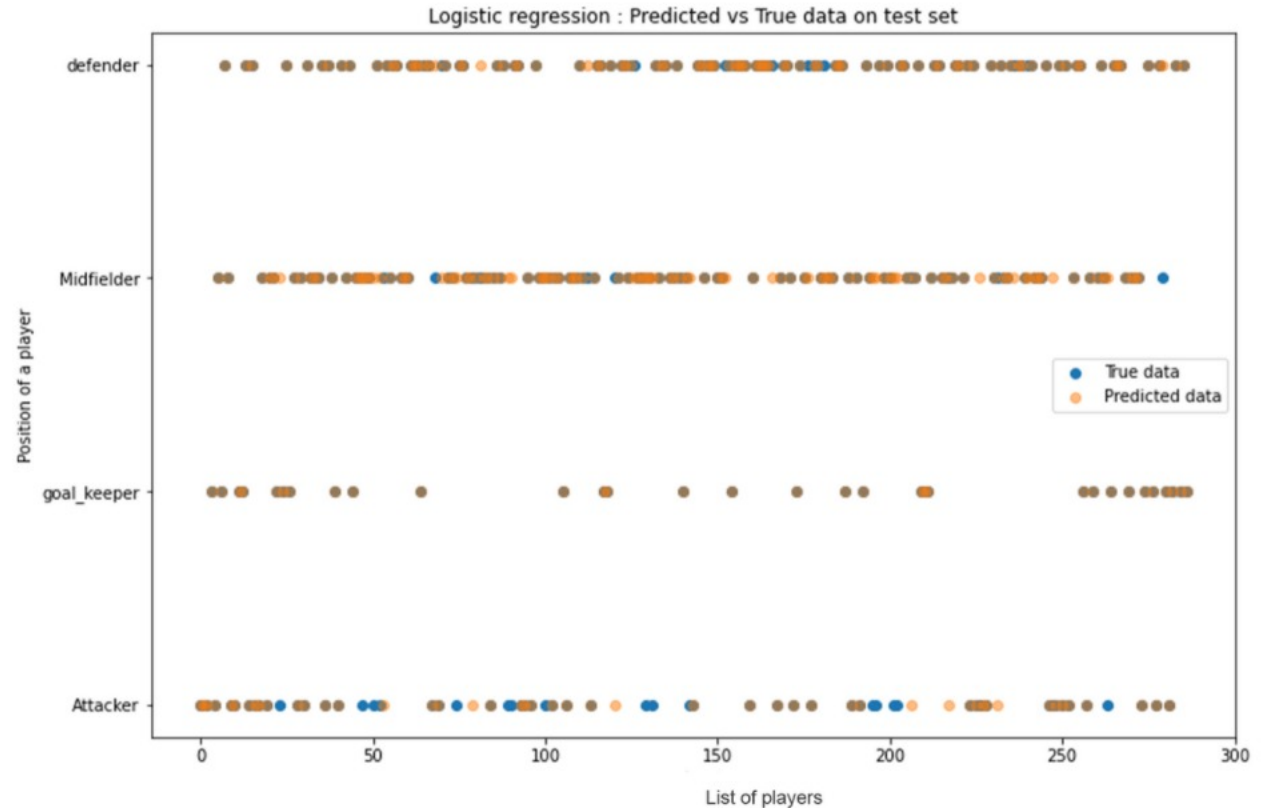
Player skillsets are a good predictor for player position (Accuracy: 87.11%)

Part C - Which Club has the Best Staff

Steps

- **Preprocessing**
  - Selecting & Grouping appropriate columns.
  - Selecting Leagues
  - Scaling

- **Scoring each club (out of 100)**

- **Testing**
  - Averaging scores of different teams.
  - Testing against our scores and finding the MSE.

Club wise scores

Score of each club out of 100

```
Rank of clubs according to scores


1. LOSC Lille
2. OGC Nice
3. Olympique Lyonnais
```

Testing with Class Average:

```
Rmse between our score and class average is : 19.127
Mse between our score and class average is : 365.837
```

Thank You !