

# Association Football - Prediction of Team Squads and Positions

By

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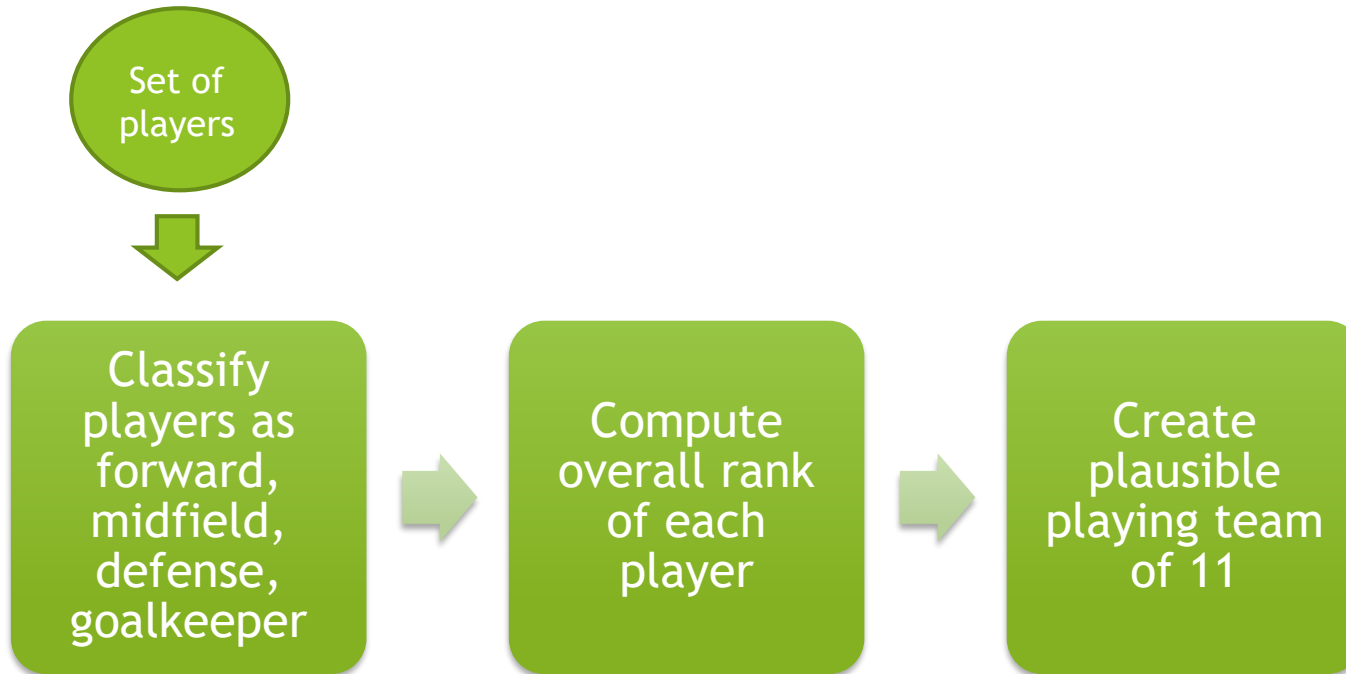
# Motivation

- ▶ 250 million players in over 200 countries<sup>[1]</sup>
- ▶ Huge fan following of over 4 billion people<sup>[2]</sup>
- ▶ Statistics of performance of players released, but process of selection of squad confidential
- ▶ Football championships give high monetary opportunities as large amounts of bets are placed worldwide on both International matches and league matches
- ▶ Great amount of statistical data is studied to predict:
  - ▶ best player of a match/tournament
  - ▶ team to win a match and ultimately championship
- ▶ Though of great interest, not much research has gone into predicting a playing 11 of a team
- ▶ Useful especially in fantasy football or video games to generate an opponent team based on easy-medium-hard difficulty level

[1] [https://en.wikipedia.org/wiki/Association\\_football](https://en.wikipedia.org/wiki/Association_football)

[2] <http://www.totalsportek.com/most-popular-sports/>

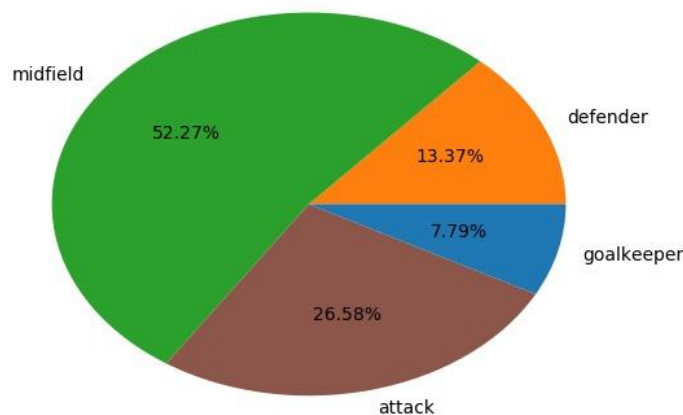
# Our Plan



# The Dataset

## European Soccer Database

- ▶ We focus on association football in Europe
- ▶ 10,000+ players with information over the seasons from 2008-2016
- ▶ Attributes of players sourced from EA Sports FIFA video game series as of 16th Oct 2016

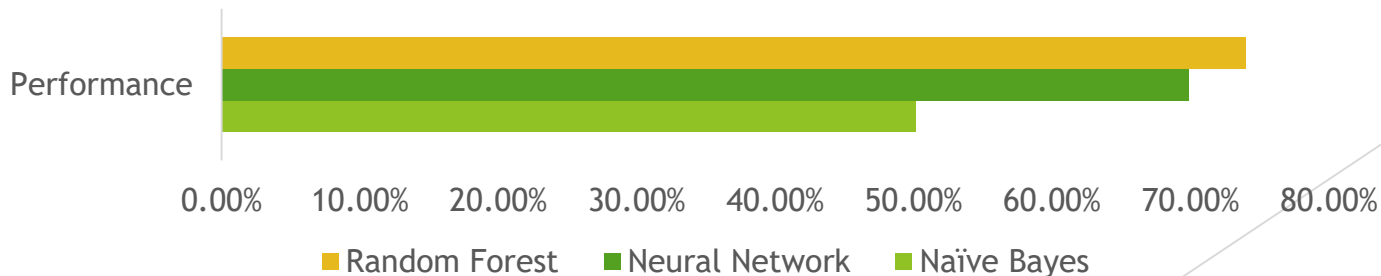


Percentage of position of players in dataset

# Step 1:

## Classifying Players into Position

- ▶ 162257 rows of player and their attributes over time
- ▶ Classification task to classify a player to be played as one of 4 classes:
  - ▶ Attack
  - ▶ Midfield
  - ▶ Defense
  - ▶ GoalKeeper
- ▶ 34 features of each player including:
  - ▶ crossing, finishing, heading accuracy, short passing, volleys, dribbling, curve, free kick accuracy



# Step 2:

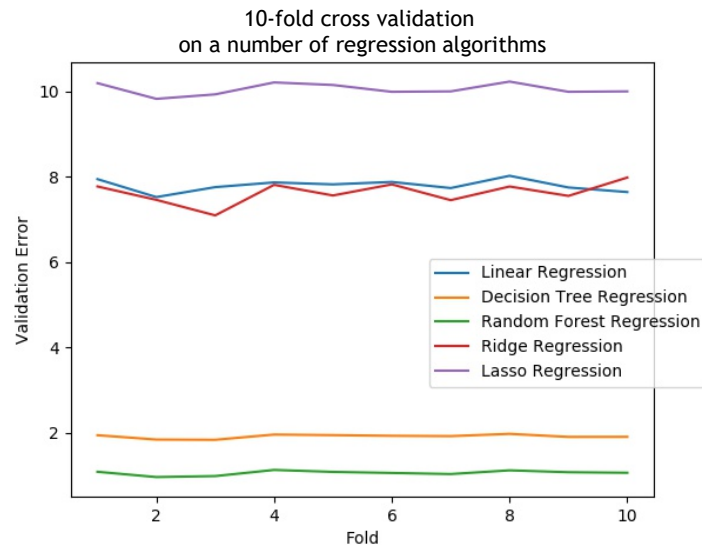
## Overall Ranking of Players

- ▶ Regression task to compute overall rating of player on 100
- ▶ 35 features for each player including:
  - ▶ potential, ball control, acceleration, sprint speed, agility, reactions, balance, shot power, jumping, strength, long shots and aggression

### ▶ Algorithm details:

- ▶ Training: 80%
- ▶ Testing: 20%
- ▶ Error function:
  - ▶ Mean Squared Error (MSE)

- ▶ MSE on Test Data using Random Forest Regression: 0.94



# Our Current Work

- ▶ Given a set of features of multiple players, pick the best combination for the playing 11
- ▶ Players chosen from:
  - ▶ Aaron Ramsey
  - ▶ Alex Iwobi
  - ▶ Alexandre Lacazette
  - ▶ Alexis Sanchez
  - ▶ Calum Chambers
  - ▶ Danny Welbeck
  - ▶ Francis Coquelin
  - ▶ Granit Xhaka
  - ▶ Hector Bellerin
  - ▶ Jack Wilshere
  - ▶ Laurent Koscielny
  - ▶ Mathieu Debuchy
  - ▶ Mesut Oezil
  - ▶ Mohamed Elneny
  - ▶ Nacho Monreal
  - ▶ Olivier Giroud
  - ▶ Per Mertesacker
  - ▶ Petr Cech
  - ▶ Santi Cazorla
  - ▶ Sead Kolasinac
  - ▶ Serge Gnabry
  - ▶ Shkodran Mustafi
  - ▶ Taulant Xhaka
  - ▶ Theo Walcott



# Further Scope of the Project

- ▶ Given a team's composition, location of the match and home ground vs away advantage statistics, predict the likelihood of the team winning or losing to its opponent
- ▶ Use sentiment from commentary data, Twitter, and news articles to better adjudge a player and his performance
- ▶ Use additional features such as previous history of a team to determine the likelihood of a win