Assignment 1 – Best Player of FIFA

The aim of this assignment is to understand the basics of Python, so that you should become familiar with the basic techniques/skills need to understand and pre-process data for building data science models.

To complete the assignment, you must first have setup development environment. If you will be working on your own PC, you should download and install Anaconda framework from:

https://www.anaconda.com/download/

A tutorial on installation of Anaconda framework can be found at the link given below:

https://www.youtube.com/watch?v=T8wK5loXkXg

The assignment is to understand, pre-process data and perform some of the basic functions using Python. For this purpose, you have already been provided with an initial tutorial (see Python tutorial and Chapter 2 of O'REILLY book Data Science from Scratch). Your job is to carry out the tasks below and answer the associated questions.

Description

Load the FIFA dataset from the following URL: https://www.kaggle.com/karangadiya/fifa19 and find the best player for various teams positions. But consider the following positions only ('LCM','RCM','CDM','LW','RW','ST','LCB','CB','CB','RCB'. Formation: 4-3-3). Find the best player for the **LW** position (see Below).

FIFA dataset has following attributes as: Age, Nationality, Overall, Potential, Club, Value, Wage, Preferred Foot, International Reputation, Weak Foot, Skill Moves, Work Rate, Position, Jersey Number, Joined, Loaned From, Contract Valid Until, Height, Weight, LS, ST, RS, LW, LF, CF, RF, RW, LAM, CAM, RAM, LM, LCM, CM, RCM, RM, LWB, LDM, CDM, RDM, RWB, LB, LCB, CB, RCB, RB, Crossing, Finishing, Heading, Accuracy, ShortPassing, Volleys, Dribbling, Curve, FKAccuracy, LongPassing, BallControl, Acceleration, SprintSpeed, Agility, Reactions, Balance, ShotPower, Jumping, Stamina, Strength, LongShots, Aggression, Interceptions, Positioning, Vision, Penalties, Composure, Marking, StandingTackle, SlidingTackle, GKDiving, GKHandling, GKKicking, GKPositioning, GKReflexes, and Release Clause.

You will perform the following steps:

1- **Load the dataset**
   - From the csv file(s).

2- **Clean the dataset**
   - Remove null values.

3- **Explore the dataset**
   - To get some insight of data i.e., display the names of players who have an overall more than 88 and potential more than 90.

4- Visualize the dataset

- To understand relationship between columns of FIFA dataset. Used plotting (catplot of seaborn package) to plot the number of players in the club(s) and the team position along with their counts.

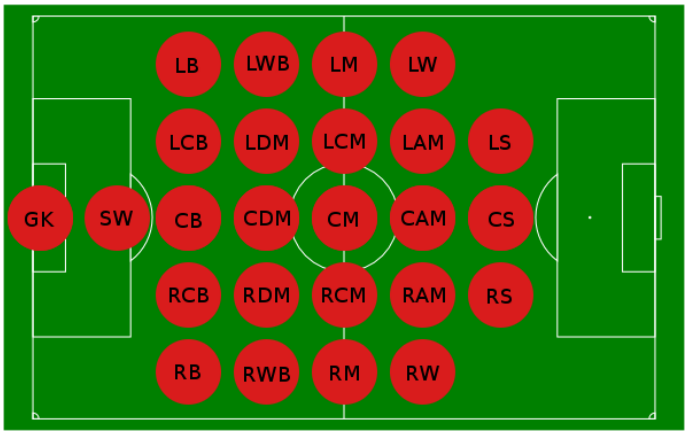
5- Find best player of LW position

- Find the best player for various team positions.

6- Conclusion

- Display the data for the best team for the formation (4-3-3).

Following information can be handy for your assignment:



- **GK** – ***Goalkeeper***.
- **SW** – ***Sweeper***.
- **CB (CB / LCB / RCB)** – ***Centre Back*** (Central Centre Back / Left (off-centre) Centre Back / Right (off-centre) Centre Back). Also known as *Centre Half* (Central Centre Half / Left (off-centre) Centre Half / Right (off-centre) Centre Half).
- **FB (LB / RB)** – ***Full Back*** (Left Back / Right Back).
- **WB (LWB / RWB)** – ***Wing Back*** (Left Wing Back / Right Wing Back).
- **DM (CDM / LDM / RDM)** – ***Defensive Midfielder*** (Central Defensive Midfielder / Left (off-centre) Defensive Midfielder / Right (off-centre) Defensive Midfielder).
- **CM (CM / LCM / RCM)** – ***Centre Midfielder*** (Central Centre Midfielder / Left (off-centre) Centre Midfielder / Right (off-centre) Centre Midfielder).
- **WM (LM / RM)** – ***Wing Midfielder*** (Left Midfielder / Right Midfielder).
- **AM (CAM / LAM / RAM)** – ***Attacking Midfielder*** (Central Attacking Midfielder / Left (off-centre) Attacking Midfielder / Right (off-centre) Attacking Midfielder). The off-centre playing positions are also known as *Inside Forward* (Inside Left / Inside Right).
- **WF (LWF / RWF)** – ***Wing Forward*** (Left Wing Forward / Right Wing Forward). Also known as *Outside Forward* (Outside Left / Outside Right).
- **CF (CF / LCF / RCF)** – ***Centre Forward*** (Central Centre Forward / Left (off-centre) Centre Forward / Right (off-centre) Centre Forward). Also known as *Striker* (Central Striker / Left (off-centre) Striker / Right (off-centre) Striker).

Hand-in and Assessment

Upload your code on Google classroom in **PDF** format along with Jupyter Notebook file with the following naming format: **COMPLETE REGISTRATION NUMBER-FIRST and LAST NAME-Assignment-1** (If not follow I will not check, and you will get **ZERO**).

This assignment is worth 10% of the overall assignment marks for CSC461. Assessment will be based on the accuracy of your answers to the questions, given the approach you have taken and on the overall quality of the tutorial.

The Assignment 01 is due by **Sunday March 14, 2020 at 23:59**. Note that if you submit the assignment after the deadline it will be considered unsubmitted and you will be **given 0 marks.**

Departmental **rules concerning plagiarism and collusion will be strictly observed** – please refer to the student handbook for details of these.