# Remote Pull from Soccer Players' Stats Database

By Michael Gonzalez

I was tasked to retrieve soccer players stats from a remote MySQL database for a local soccer Facebook group. Once I acquired the data, I will take a look at the overall structure and convert it to DataFrames. When the data is in a DataFrame, it will be easier to perform some exploratory data analysis. During the analysis, I will look at the database and look for insights. I will use MySQL functions, such as JOIN and GROUP BY. I will also create data visualizations of comparing the different player's stats.

In [9]:
```
# Importing the needed libraries

import mysql.connector
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

I used the mysql connector library to connect to the remote MySQL database. I also used pandas to convert MySQL to a DataFrame and matplotlib.pyplot to create charts.

## Explortary Data Analysis

In [2]:
```
# Connecting to the remote MySQL database
# and convert it to a DataFrame
# Getting a overview of the DataFrame

mydb = mysql.connector.connect(
    host = "*****",
    user = "*****",
    password = "*****",
    database = "*****"
)

mycursor = mydb.cursor()

sql = """
      SELECT
         *
      FROM
         Player
      """



player_df = pd.read_sql(sql, con = mydb)
player_df.head(10)
```

Out[2]:

| | id | player_api_id | player_name | player_fifa_api_id | birthday | height | weight |
|---|---|---|---|---|---|---|---|

| | id | player_api_id | player_name | player_fifa_api_id | birthday | height | weight |
|---|---|---|---|---|---|---|---|
| **0** | 1 | 505942 | Aaron Appindangoye | 218353 | 1992-02-29 00:00:00 | 182.88 | 187 |
| **1** | 2 | 155782 | Aaron Cresswell | 189615 | 1989-12-15 00:00:00 | 170.18 | 146 |
| **2** | 3 | 162549 | Aaron Doran | 186170 | 1991-05-13 00:00:00 | 170.18 | 163 |
| **3** | 4 | 30572 | Aaron Galindo | 140161 | 1982-05-08 00:00:00 | 182.88 | 198 |
| **4** | 5 | 23780 | Aaron Hughes | 17725 | 1979-11-08 00:00:00 | 182.88 | 154 |
| **5** | 6 | 27316 | Aaron Hunt | 158138 | 1986-09-04 00:00:00 | 182.88 | 161 |
| **6** | 7 | 564793 | Aaron Kuhl | 221280 | 1996-01-30 00:00:00 | 172.72 | 146 |
| **7** | 8 | 30895 | Aaron Lennon | 152747 | 1987-04-16 00:00:00 | 165.10 | 139 |
| **8** | 9 | 528212 | Aaron Lennox | 206592 | 1993-02-19 00:00:00 | 190.50 | 181 |

In [3]:

```
# Looking for players that are taller
# than, equal to 180 cm

mycursor = mydb.cursor()

sql = """
      SELECT
        *
      FROM
        Player
      WHERE height >= 180

      """
playersheight_df = pd.read_sql(sql, con = mydb)

playersheight_df.head(10)
```

Out[3]:

| | id | player_api_id | player_name | player_fifa_api_id | birthday | height | weight |
|---|---|---|---|---|---|---|---|
| **0** | 1 | 505942 | Aaron Appindangoye | 218353 | 1992-02-29 00:00:00 | 182.88 | 187 |
| **1** | 4 | 30572 | Aaron Galindo | 140161 | 1982-05-08 00:00:00 | 182.88 | 198 |
| **2** | 5 | 23780 | Aaron Hughes | 17725 | 1979-11-08 00:00:00 | 182.88 | 154 |
| **3** | 6 | 27316 | Aaron Hunt | 158138 | 1986-09-04 00:00:00 | 182.88 | 161 |
| **4** | 9 | 528212 | Aaron Lennox | 206592 | 1993-02-19 00:00:00 | 190.50 | 181 |
| **5** | 11 | 23889 | Aaron Mokoena | 47189 | 1980-11-25 00:00:00 | 182.88 | 181 |
| **6** | 13 | 163222 | Aaron Muirhead | 213568 | 1990-08-30 00:00:00 | 187.96 | 168 |
| **7** | 17 | 161644 | Aaron Taylor-Sinclair | 213569 | 1991-04-08 00:00:00 | 182.88 | 176 |
| **8** | 18 | 23499 | Aaron Wilbraham | 2335 | 1979-10-21 00:00:00 | 190.50 | 159 |
| **9** | 20 | 46447 | Abasse Ba | 156626 | 1976-07-12 00:00:00 | 187.96 | 185 |

After performing a few primary exploratory data analyses. I want to dig a little deeper. I have noticed many players are taller than 180 cm (5 ft 10 inches).

## Data Visualizations

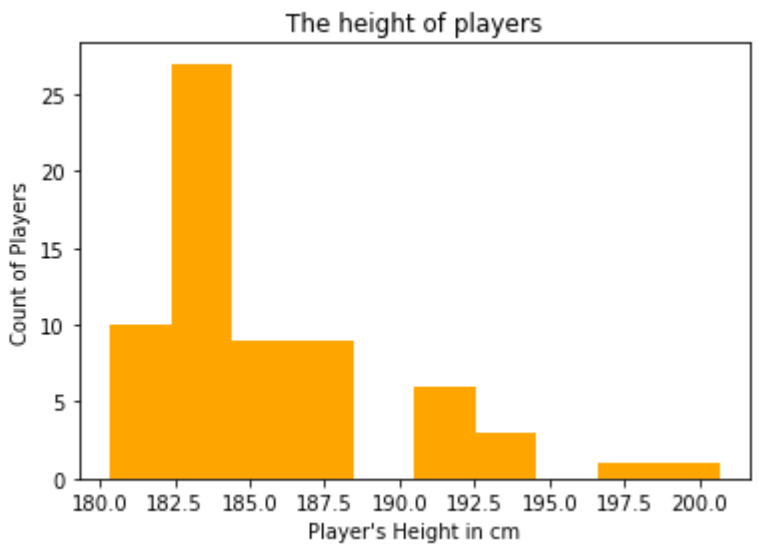
I will perform the join function to combine two databases into one. Now I want to start creating some data visualizations. I will create a data visualization from the query about the player's height.

In [4]:
```
# Creating a histogram of players taller than and equal to 180 cenimeters

# data source
height = playersheight_df["height"]

# chart settings
plt.subplots(figsize = (6, 4))
plt.hist(height, color = "orange")
plt.ylabel("Count of Players")
plt.xlabel("Player's Height in cm")
plt.title("The height of players")

plt.show()
```



I will perform a inner join function to combine two tables into one. I will look at comparing the player's cumulative weight and height in an area chart.

In [5]:
```
mycursor = mydb.cursor()

sql = """
      SELECT
        *
      FROM
        Player ply
      INNER JOIN Team t ON ply.id = t.id
      WHERE weight between 150 and 190

      """
playerweight_df = pd.read_sql(sql, con = mydb)

playerweight_df.head(10)
```

Out[5]:

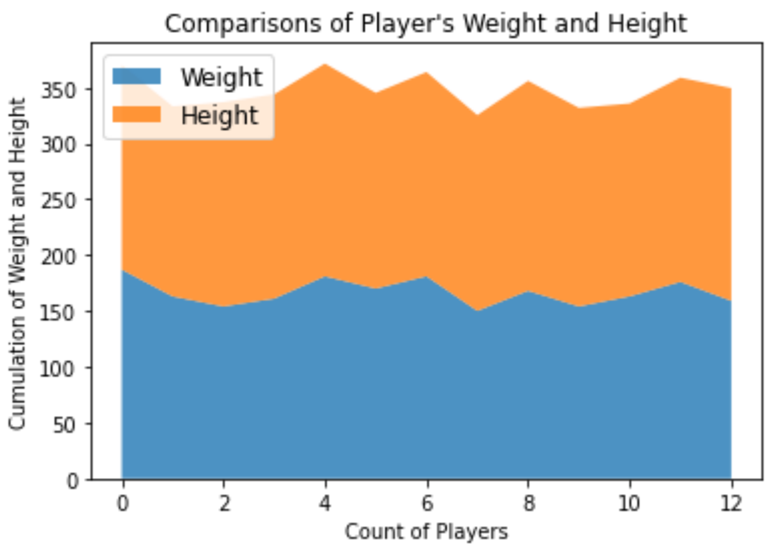
| | id | player_api_id | player_name | player_fifa_api_id | birthday | height | weight | id | team_api_id | t |
|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 1 | 505942 | Aaron Appindangoye | 218353 | 1992-02-29 00:00:00 | 182.88 | 187 | 1 | 9987 | |
| **1** | 3 | 162549 | Aaron Doran | 186170 | 1991-05-13 00:00:00 | 170.18 | 163 | 3 | 10000 | |
| **2** | 5 | 23780 | Aaron Hughes | 17725 | 1979-11-08 00:00:00 | 182.88 | 154 | 5 | 9984 | |
| **3** | 6 | 27316 | Aaron Hunt | 158138 | 1986-09-04 00:00:00 | 182.88 | 161 | 6 | 8635 | |
| **4** | 9 | 528212 | Aaron Lennox | 206592 | 1993-02-19 00:00:00 | 190.50 | 181 | 9 | 7947 | |
| **5** | 10 | 101042 | Aaron Meijers | 188621 | 1987-10-28 00:00:00 | 175.26 | 170 | 10 | 9985 | |
| **6** | 11 | 23889 | Aaron Mokoena | 47189 | 1980-11-25 00:00:00 | 182.88 | 181 | 11 | 8203 | |
| **7** | 12 | 231592 | Aaron Mooy | 194958 | 1990-09-15 00:00:00 | 175.26 | 150 | 12 | 8342 | |
| **8** | 13 | 163222 | Aaron Muirhead | 213568 | 1990-08-30 00:00:00 | 187.96 | 168 | 13 | 9999 | |
| **9** | 15 | 75489 | Aaron Ramsey | 186561 | 1990-12-26 00:00:00 | 177.80 | 154 | 15 | 4049 | |

In [6]:

```python
# Creating area chart of comparing player's weight & height

plt.stackplot(playerweight_df.index, playerweight_df["weight"],
              playerweight_df["height"], labels = ["Weight", "Height"],
              alpha = 0.8)
plt.legend(loc = 2, fontsize = "large")
plt.ylabel("Cumulation of Weight and Height")
plt.xlabel("Count of Players")
plt.title("Comparisons of Player's Weight and Height")

plt.show()
```



This area chart is interesting but, it is looking at the cumulative amount of the player's weight and height. I want to create a new table that has players with higher average ratings.

In [7]:

```python
# Joining two tables into one of players name, overall rating and api ids
# Using aliases and group by

mycursor = mydb.cursor()

sql = """
      SELECT
        patt.player_api_id,
        ply.player_name,
      AVG(patt.overall_rating) as rating
      FROM
        Player_Attributes patt
      INNER JOIN Player ply ON patt.player_api_id = ply.player_api_id
      GROUP BY patt.player_api_id,
        ply.player_name
      ORDER BY rating DESC
      """

newplayerlist_df = pd.read_sql(sql, con = mydb)

newplayerlist_df
```

Out[7]:

|  | player_api_id | player_name | rating |
|---|---|---|---|
| **0** | 23780 | Aaron Hughes | 71.692308 |
| **1** | 30572 | Aaron Galindo | 69.086957 |
| **2** | 162549 | Aaron Doran | 67.000000 |
| **3** | 155782 | Aaron Cresswell | 66.969697 |
| **4** | 505942 | Aaron Appindangoye | 63.600000 |

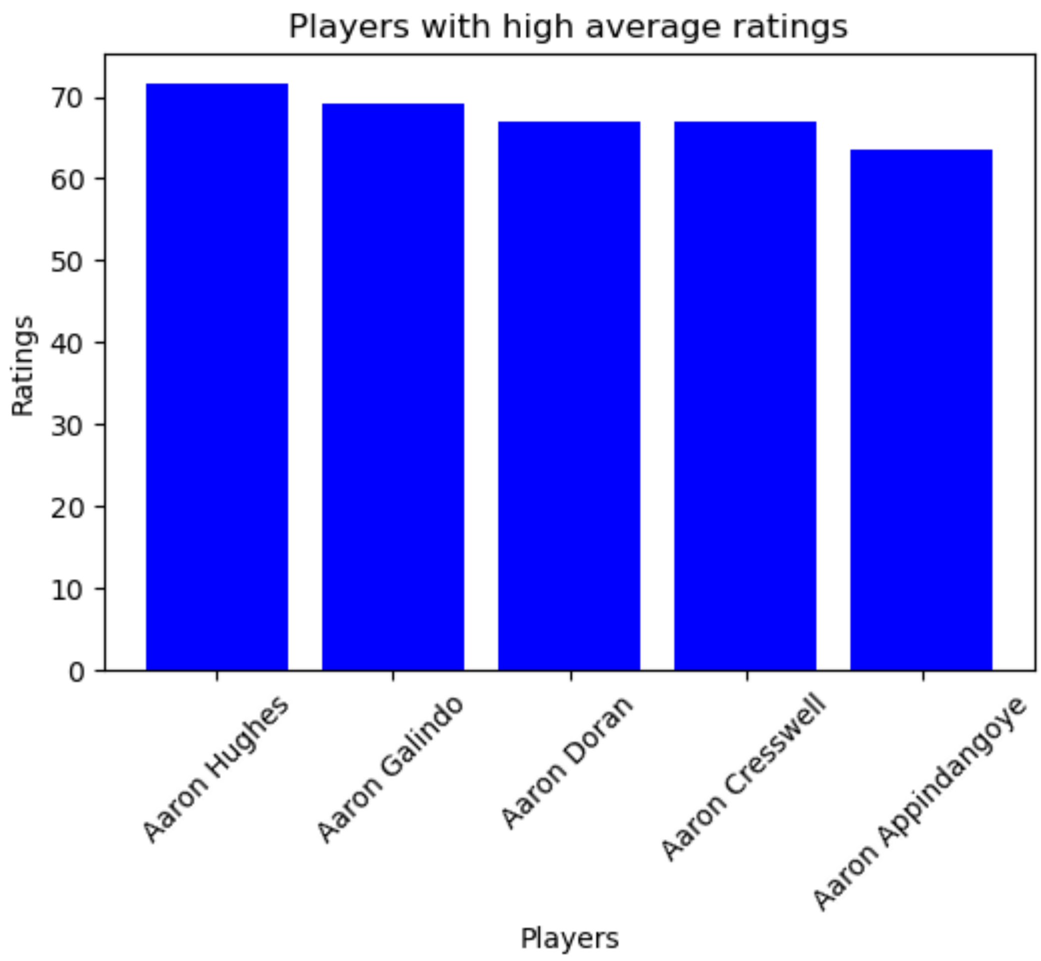
In [8]:
```python
# Creating a simple bar chart of players
# with high average ratings

plt.rcdefaults()
fig, ax = plt.subplots(figsize = (6, 4))

# data sources
players = newplayerlist_df["player_name"]
rates = newplayerlist_df["rating"]

# Chart settings
ax.bar(players, rates, color = "blue")
plt.xticks(rotation = 45)
ax.set_ylabel("Ratings")
ax.set_xlabel("Players")
ax.set_title("Players with high average ratings")

plt.show()
```


Players with high average ratings
Ratings
0
10
20
30
40
50
60
70
Aaron Hughes
Aaron Galindo
Aaron Doran
Aaron Cresswell
Aaron Appindangoye
Players

```
In [ ]:
```