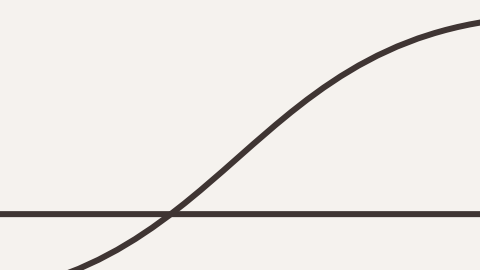




# Justin Kim

CareerFoundry  
Data Immersion Portfolio  
NBA Online Sports Betting Analysis



# NBA Online Sports Betting Data Analysis

## Context

The global integration of online sports betting, expected to reach a \$9.65 billion industry in the US alone by 2024, is poised to thrive further as legalization expands globally. The client is an online sports betting company aiming to capitalize on the upcoming NBA season.

## Objective

The objective is to conduct an analysis that supports the client in systematically observing statistical trends within the NBA player landscape, facilitating the identification of key players for strategic betting decisions.

## Scope

This analysis will cover the 2022 NBA regular season to predict future trends and key players.

## Skills

- Importing Libraries
- Descriptive Analysis
- Exploratory Analysis
- Linear Regression
- Cluster Analysis
- Data Wrangling
- Data Cleaning
- Aggregating Data
- Visualizations with Tableau

Online Sports Betting Source :Statista. (n.d.). Online Sports Betting - US | Statista market forecast.<https://www.statista.com/outlook/dmo/eservices/online-gambling/online-sports-betting/united-states#users>

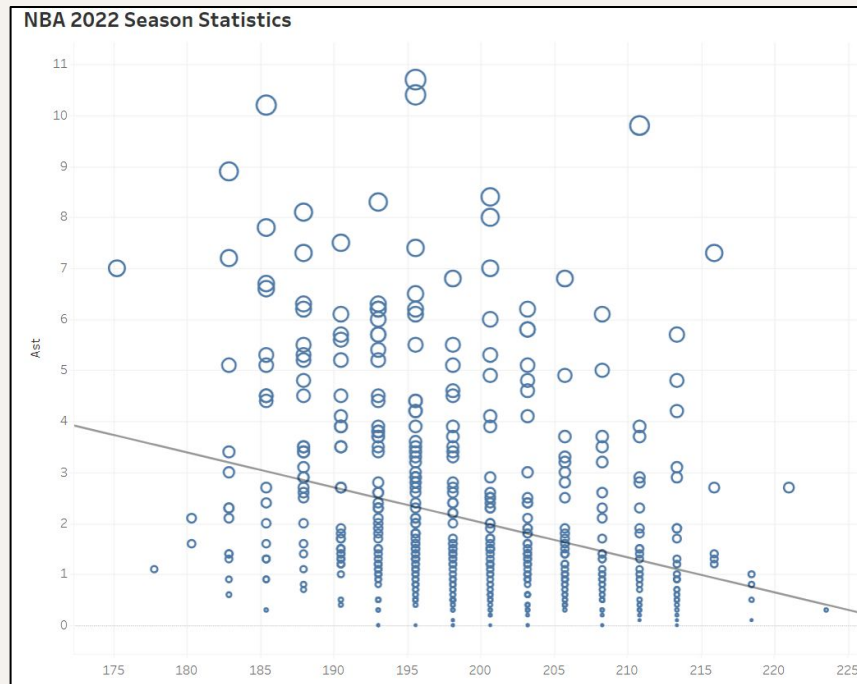
Data Analysis Source: NBA players. (2023, October 13). Kaggle.  
<https://www.kaggle.com/datasets/justinas/nba-players-data/data>

Tools Used:



# Exploring NBA Data

1. The data contains 23 columns and 12844 rows on NBA player's background, body mass index, and seasonal statistic average.
2. In order to explore the relationship in NBA statistics, the first step was to discover any linear relationships.
  - a. For this analysis I tested the relationship between player height and the player's average assists, rebounds, and points.
3. The downward trend of player height vs assists per season lead to the following hypothesis:
  - a. **As a player increases in height, the number of assists per season decreases.**

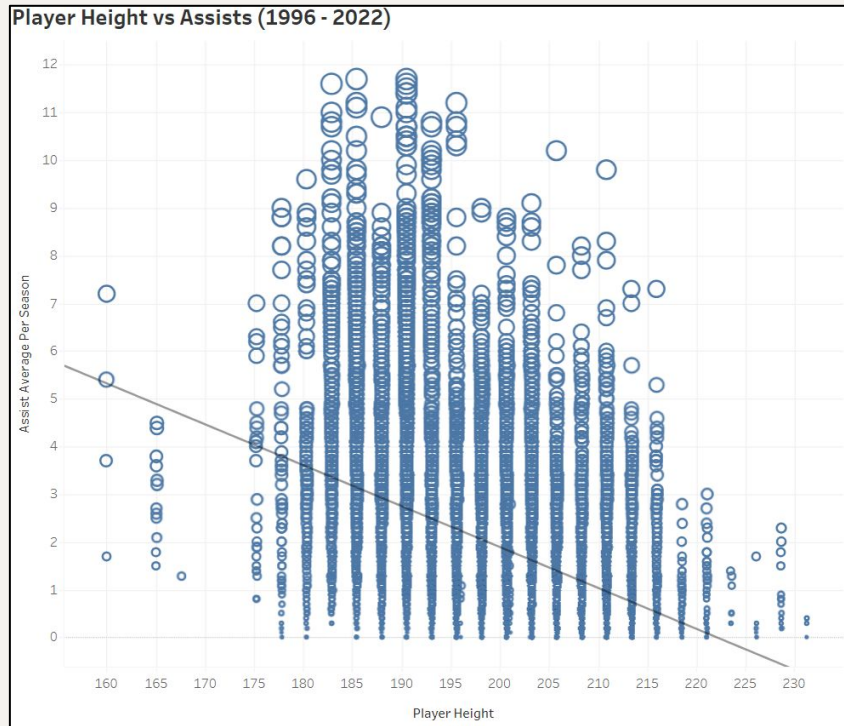


The visualization is a scatterplot comparing player height and assist average per season.

# Testing Correlations in the NBA

To test this hypothesis, I conducted a linear regression.

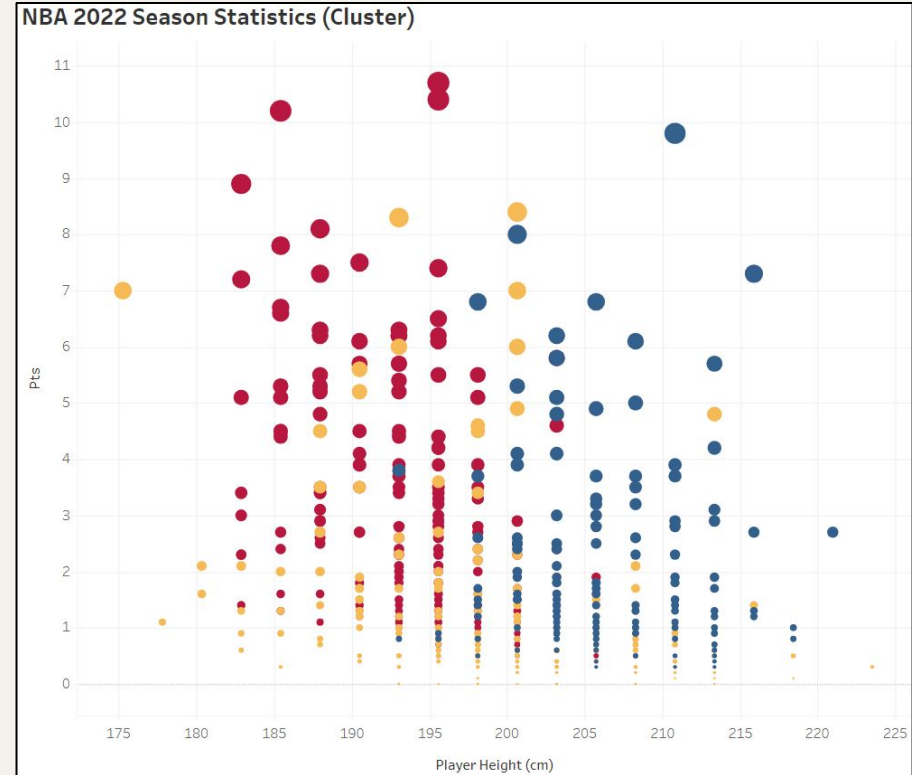
The results showed that the relationship between a player's height only contributes to 18% of the trend in the data. Thus, the relationship between the two variables is not linear. Majority of the clusters fall above the trend line.



# Cluster Analysis

The next step of the process is to separate the data into 3 "clusters" (Red, Yellow, and Blue) and compare how these clusters perform different trends based on NBA statistics.

- The blue cluster represents taller players.
- The red cluster represents smaller players that perform a moderate number of season statistics.
- The yellow cluster represents players that are smaller and underperform compared to the other two clusters.



# Conclusion

## Action Plan:

- 1) Create betting odds on key NBA players from the previous season for a strong foundation and slowly alter these odds based on each game's performance.
- 2) Leveraging players such as Nikola Jokic, with a height of 210.82 cm and an average of nearly 10 assists per game, serves as a strategic approach to formulate odds that deviate from conventional trend lines.
- 3) Implementing a dynamic game format characterized by a sliding scale enables participants to engage in strategic betting, predicting the performance range of top players across various statistical categories per game. For instance, participants may place bets on the likelihood of LeBron James scoring "X" points within the specified range of "Y" to "Z."

## Next Action Steps:

- 1) Gather more data on the 2023 season and the current 2024 season.
- 2) Perform an analysis on the postseason (Playoffs) to create more betting odds on what team will perform in the postseason based on regular season statistics.
- 3) Analyze the relationship between teams that perform well in the regular season and their post season (Playoffs) results.



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Tableau Analytical Dashboard

Github

LinkedIn

