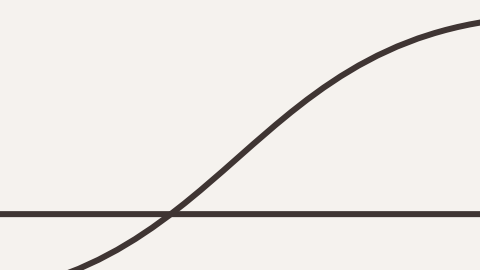# Justin Kim

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.

Tools Used:

Data

Online Sports Betting Source :

Statista. (n.d.). Online Sports Betting - US | Statista market

forecast.

https://www.statista.com/outlook/dmo/eservices/online-ga

mbling/online-sports-betting/united-states#users

Data Analysis Source:

NBA players. (2023, October 13). Kaggle.

https://www.kaggle.com/datasets/justinas/nba-players-dat

a/data

Skills

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

Exploring NBA Data

1. The data contains information on NBA player's background, body mass index, and statistical average for every NBA season from 1996-2022.
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.**


NBA 2022 Season Statistics
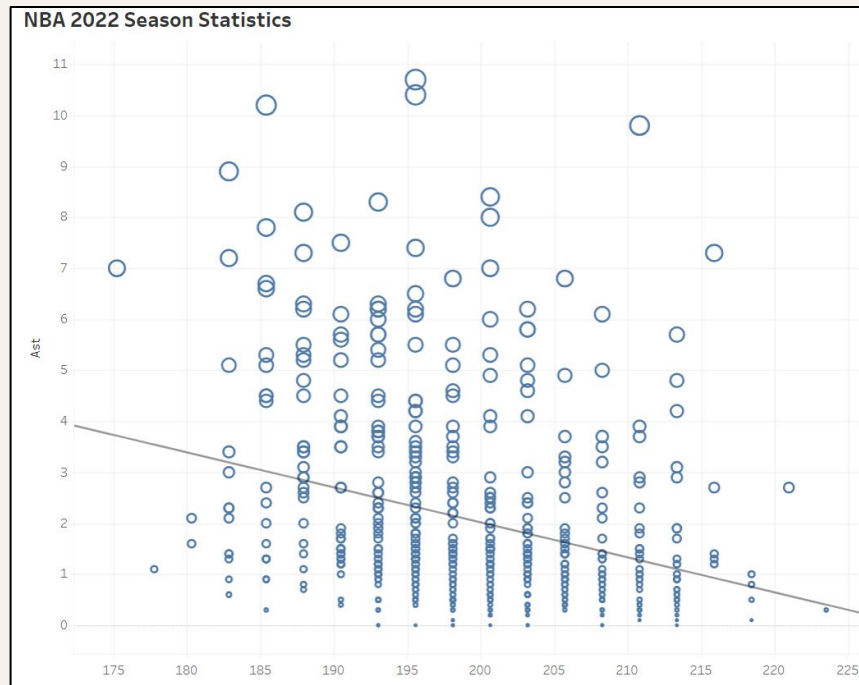
The visualization is a scatterplot comparing player height and assist average per season.

Linear Regression

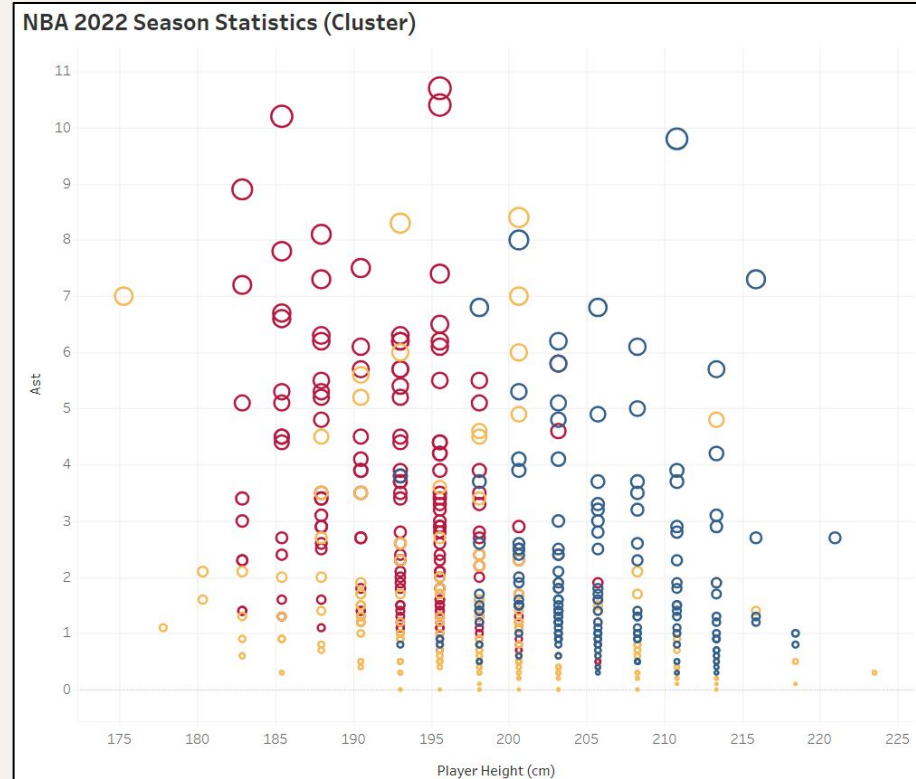To test this hypothesis, I conducted a linear regression.

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.

Player Height vs Assists (1996 - 2022)
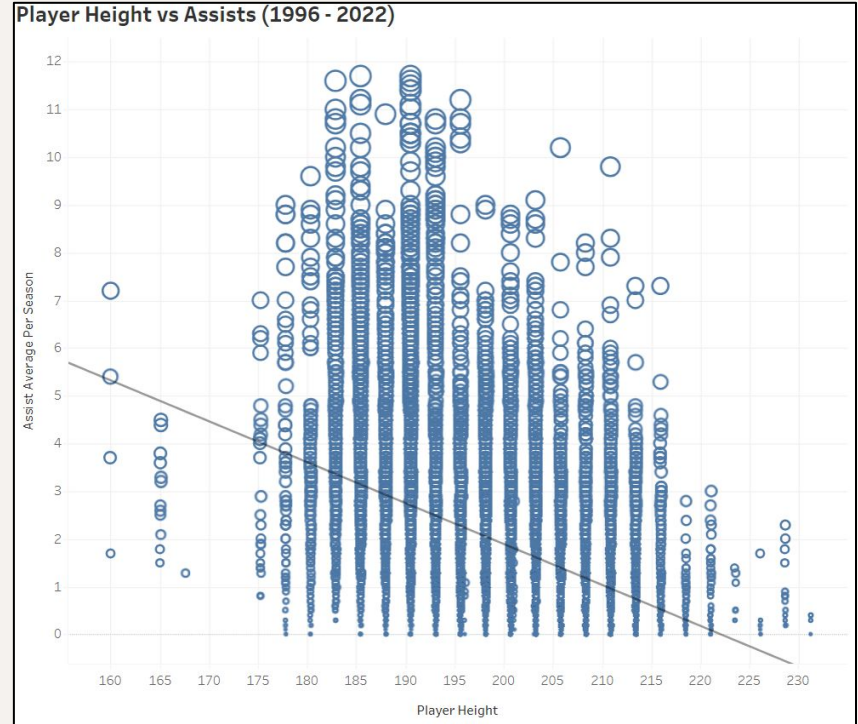
Cluster Analysis

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.

NBA 2022 Season Statistics (Cluster)

Recommendations

Top 5 NBA Key Players (Rebounds)

Anthony Davis
Age: 30
Height: 208.28 cm
Points:25.90
Assists:2.600
Rebounds: 12.500

Domantas Sabonis
Age: 27
Height: 215.90 cm
Points:19.10
Assists:7.300
Rebounds: 12.300

Giannis Antetokounmpo
Age: 28
Height: 213.36 cm
Points:31.10
Assists:5.700
Rebounds: 11.800

Nikola Jokic
Age: 28
Height: 210.82 cm
Points:24.50
Assists:9.800
Rebounds: 11.800

Julius Randle
Age: 28
Height: 203.20 cm
Points:25.10
Assists:4.100
Rebounds: 10.000

Top 5 NBA Key Players (Points)

Joel Embiid
Age: 29
Height: 213.36 cm
Points:33.100
Assists:4.200
Rebounds: 10.200

Luka Doncic
Age: 24
Height: 200.66 cm
Points:32.400
Assists:8.000
Rebounds: 8.600

Damian Lillard
Age: 32
Height: 187.96 cm
Points:32.200
Assists:7.300
Rebounds: 4.800

Shai Gilgeous-Alexander
Age: 24
Height: 198.12 cm
Points:31.400
Assists:5.500
Rebounds: 4.800

Giannis Antetokounmpo
Age: 28
Height: 213.36 cm
Points:31.100
Assists:5.700
Rebounds: 11.800

Top 5 NBA Key Players (Assists)

James Harden
Age: 33
Height: 195.58 cm
Points:21.000
Assists:10.700
Rebounds: 6.100

Tyrese Haliburton
Age: 23
Height: 195.58 cm
Points:20.700
Assists:10.400
Rebounds: 3.700

Trae Young
Age: 24
Height: 185.42 cm
Points:26.200
Assists:10.200
Rebounds: 3.000

Nikola Jokic
Age: 28
Height: 210.82 cm
Points:24.500
Assists:9.800
Rebounds: 11.800

Domantas Sabonis
Age: 27
Height: 215.90 cm
Points:19.100
Assists:7.300
Rebounds: 12.300

1)Base odds on top-performing NBA players from the last season for a strong foundation.

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."

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Tableau Analytical Dashboard

Github

LinkedIn