What is the best body type for the NBA?

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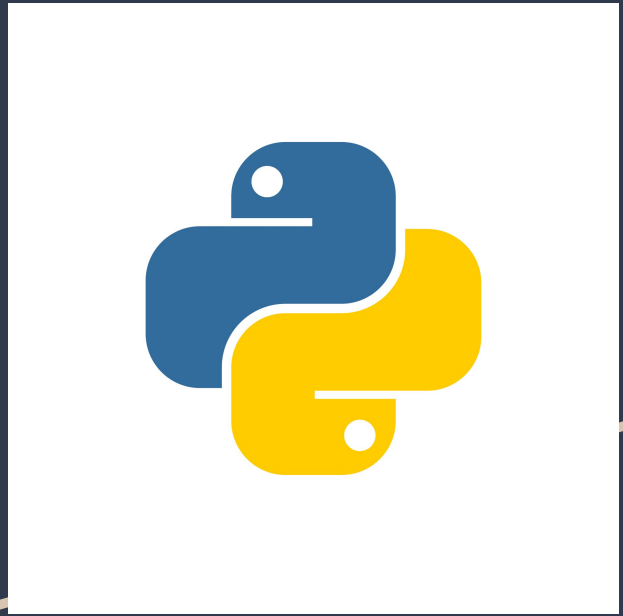
Context

Analysing correlation between NBA performance and physical attributes.

Relevance:

- Large fan base, attracts players from all over the world
- Sports news channels use similar statistical analysis to predict outcomes.
- Determine the players most likely to have a successful career (by body type).
- Identify body type with greatest positive impact to a team

METHODOLOGY



- Data from NBA stat API (every player since 1996, over 11,000 players)(11,146 x 22)
- Found on kaggle

- Python to filter and separate data to suit the specific graph

- Filtered out players who did not play in the season

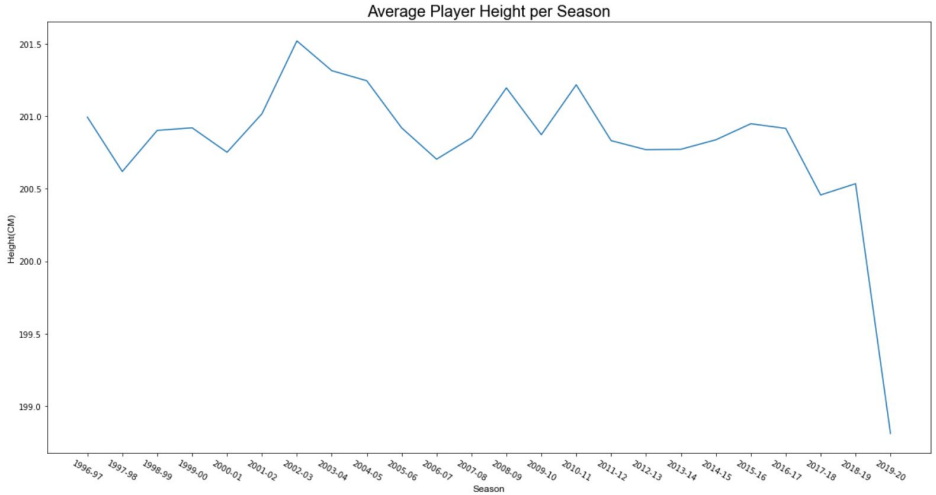
- Utilised Seaborn and Matplotlib for graphing the data

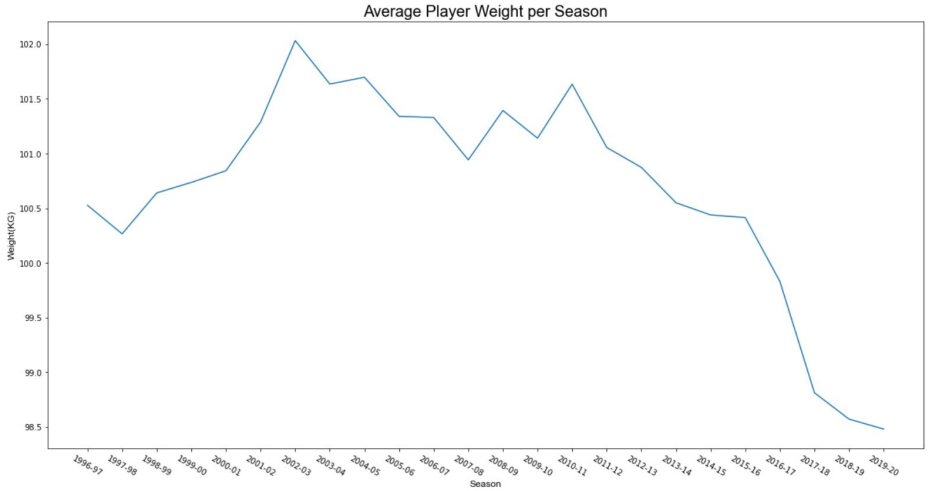
- Utilised Matplotlib for styling of the graphs

Investigation 1:
NBA Height and Weight Trends

Method:

- *Grouped players by season*
- *Filtered average height and weight of season*
- *Seaborn line plot*





Observations

- Almost Identical Trends

Takeaways

- Clear trend of NBA players getting smaller

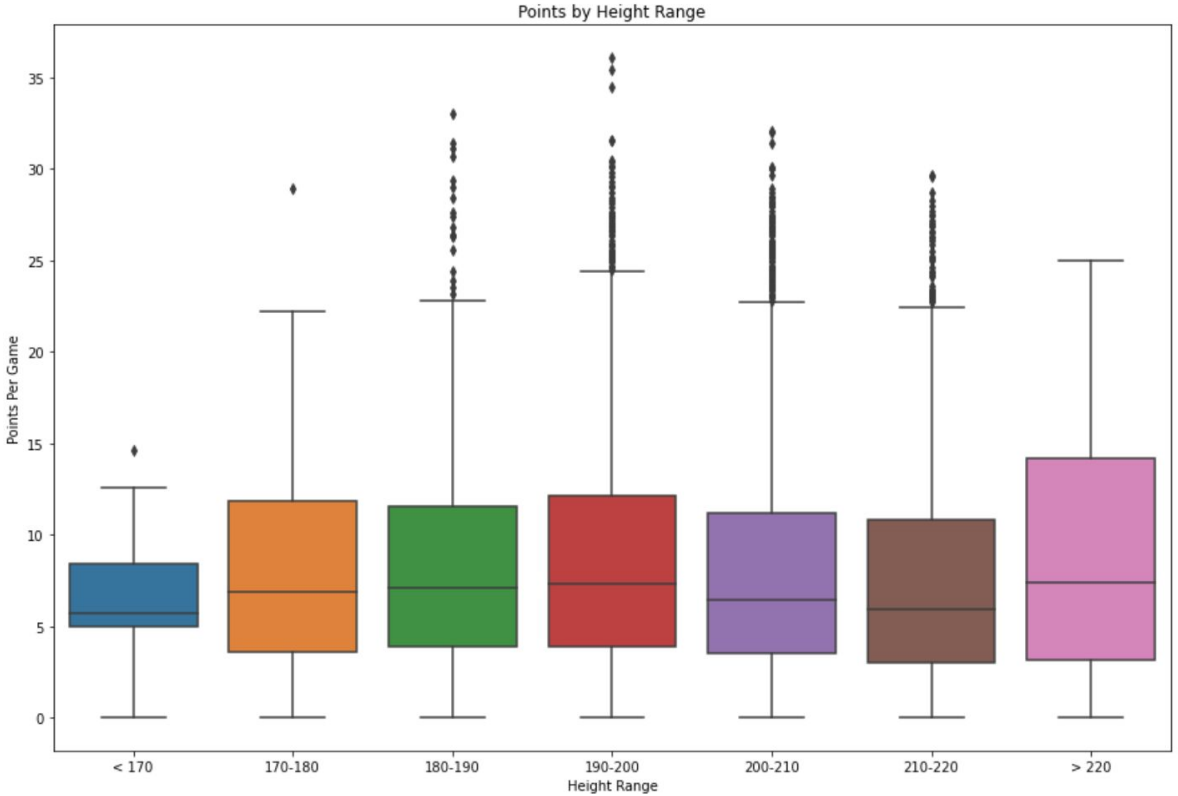
Further Questions

- As players are getting smaller, are the smaller players statistically better then larger players?

Investigation 2:
NBA Height vs Scoring

Method:

- *Data Separated into 10 cm increments of players*
- *Presented with Seaborn Boxplot*
- *Plots average PPG per height group*



Observations:

- Over 220cm has highest median points and upper quartile

- 190-200 cm has highest top scoring players.

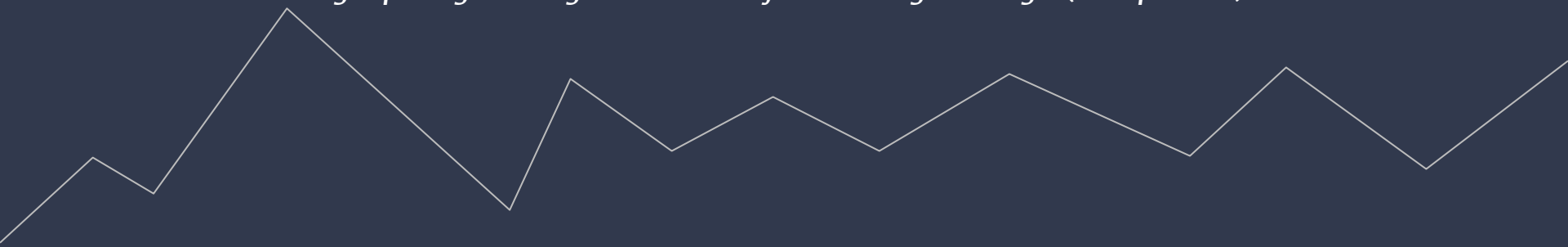
Takeaways:

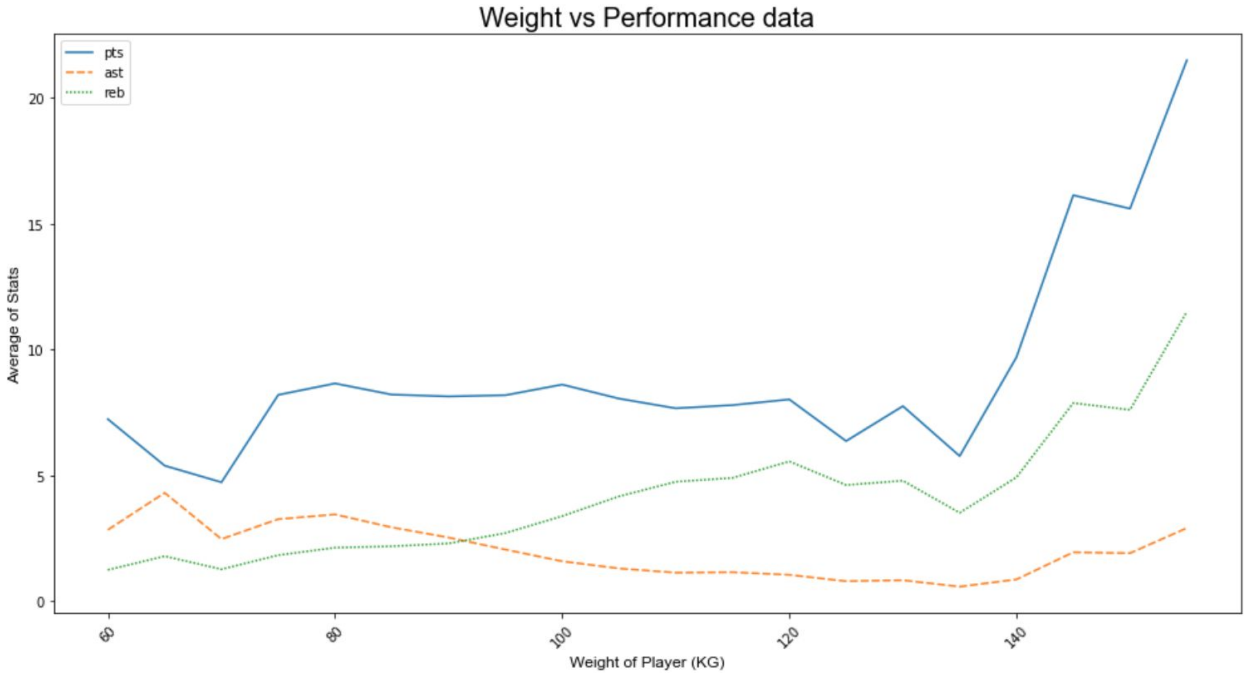
On average, over 220cm is the best scoring height range

Investigation 3:
NBA Weight vs Statistical Performance

Method:

- *Filtered players into 5 kg increments of weight*
- *Line Plot graphing average statistics of that weight range (Matplotlib)*





Outlier:

- Sim Bhullar (1 minute per game)
- Only player over 155kg

Observations:

- Dramatic increase in all statistics begins at 135 kg
- PPG relatively similar until 135kg (blue)
- RPG consistent linear increase (green)
- APG decrease until 135kg

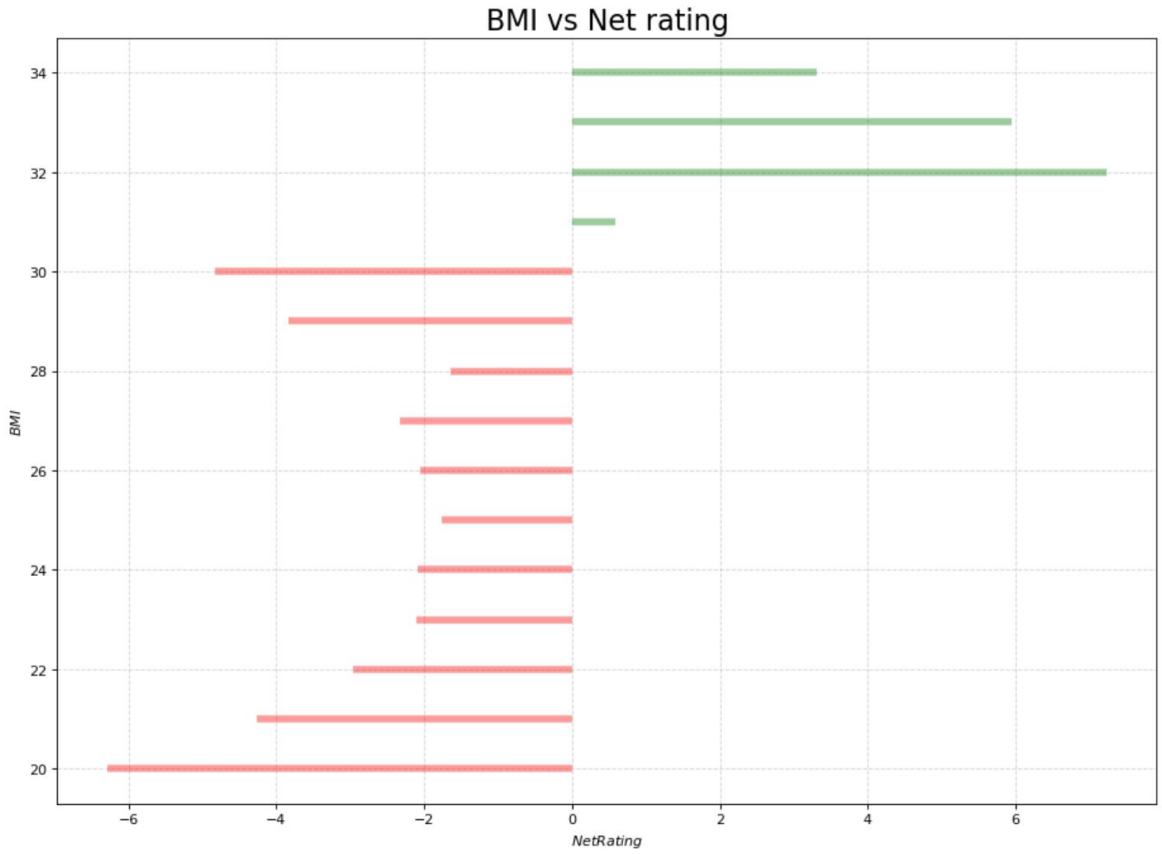
Takeaways:

- The heaviest and tallest players have better statistical careers on average.

Investigation 4:
BMI vs Net Rating

Method:

- *Rounded players to nearest BMI*
- *Average Net rating of that BMI*
- *MATPLOTLIB graph*



Observations:

- Smallest BMI has worst impact for team (-6.3)
- Every BMI over 30 is positive
- 32 BMI has highest positive impact to a team (+7.2)

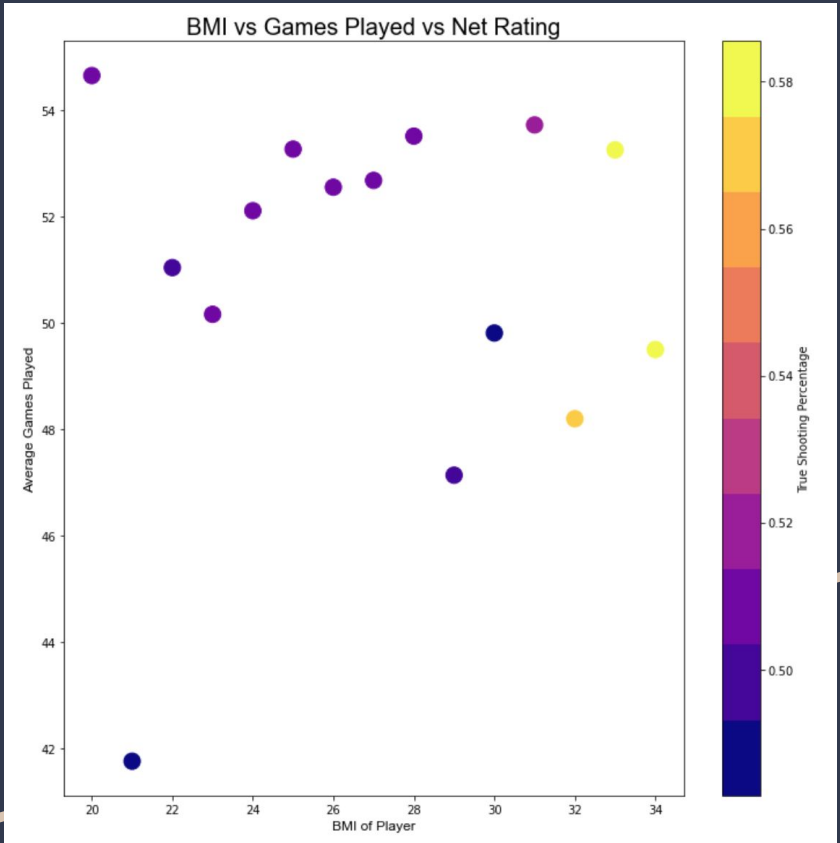
Takeaways:

- Bigger is Better!

Investigation 5:
BMI vs Games Played vs True Shooting %

Method:

- *Rounded to nearest BMI*
- *MATPLOTLIB graph of averages.*



Observations:

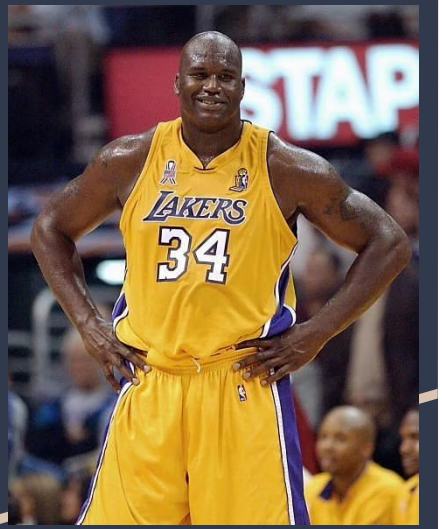
- No trend between games played and BMI
- Highest four true shooting percentage is BMI of 31, 32, 33, 34
- Smallest BMI (20) = 50.1% and largest BMI(34) = 57.9% increase of 7.8%

Takeaways:

- Adds to previous investigation, not only are BMI > 31 more impactful for team, allo more efficient.

Conclusion

Ideal Player - Yao Ming
Height - 229cm
Weight - 141 kg



Ideal Player - Shaquille O'Neal
BMI - 32
Weight - 147 kg

Findings

- Over 220 cm and 135 kg are best in terms of individual statistics
- As BMI increases value to team also increases
- Ideal BMI is 31 or over for net rating and also efficiency.