



# The Rise of the Three Pointer

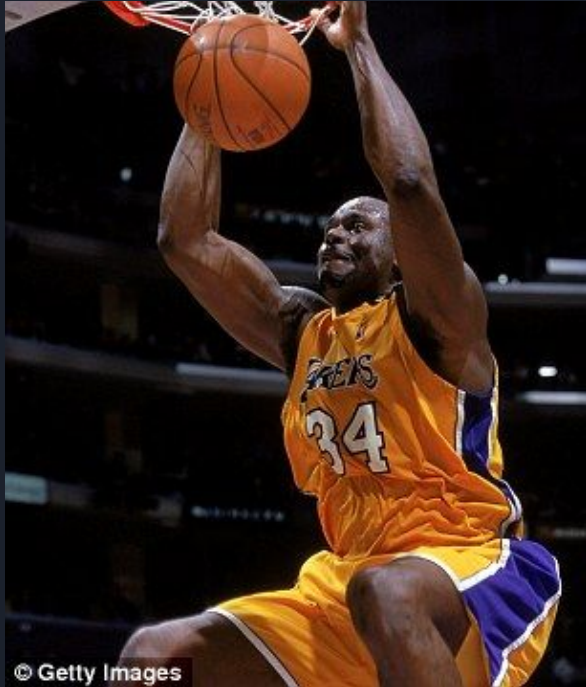
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# Background

- For most of this century, three point attempts were on a slow but steady rise; players such as Ray Allen made history becoming three point shooting stars
- The three point revolution, starting in 2014 with superstar Stephen Curry of the Golden State Warriors, led to teams realizing there was no way to compete against the juggernaut the Warriors were without matching their strategy
- Ever since then, three point shot attempts have been dramatically upscaling every year
- Even more intriguing is that big men in the NBA find their roles shifting each year, with less and less reliance on the low post and more and more reliance on deep shots

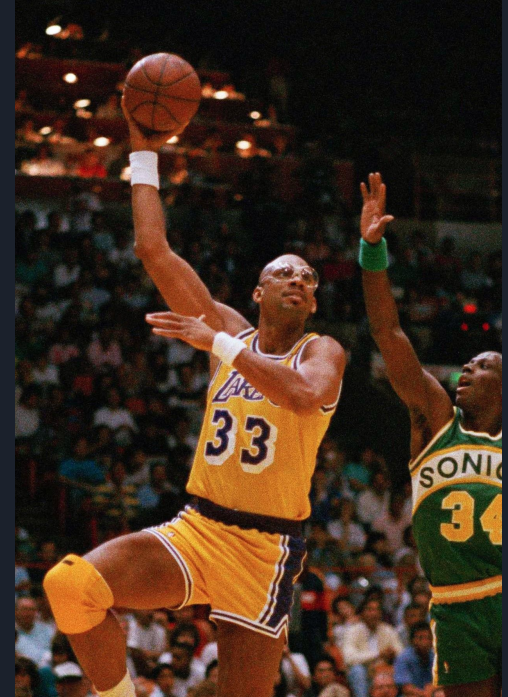
# Some of the great centers in NBA history



Shaquille O'Neal



Hakeem Olajuwon



Kareem Abdul-Jabbar



# Question

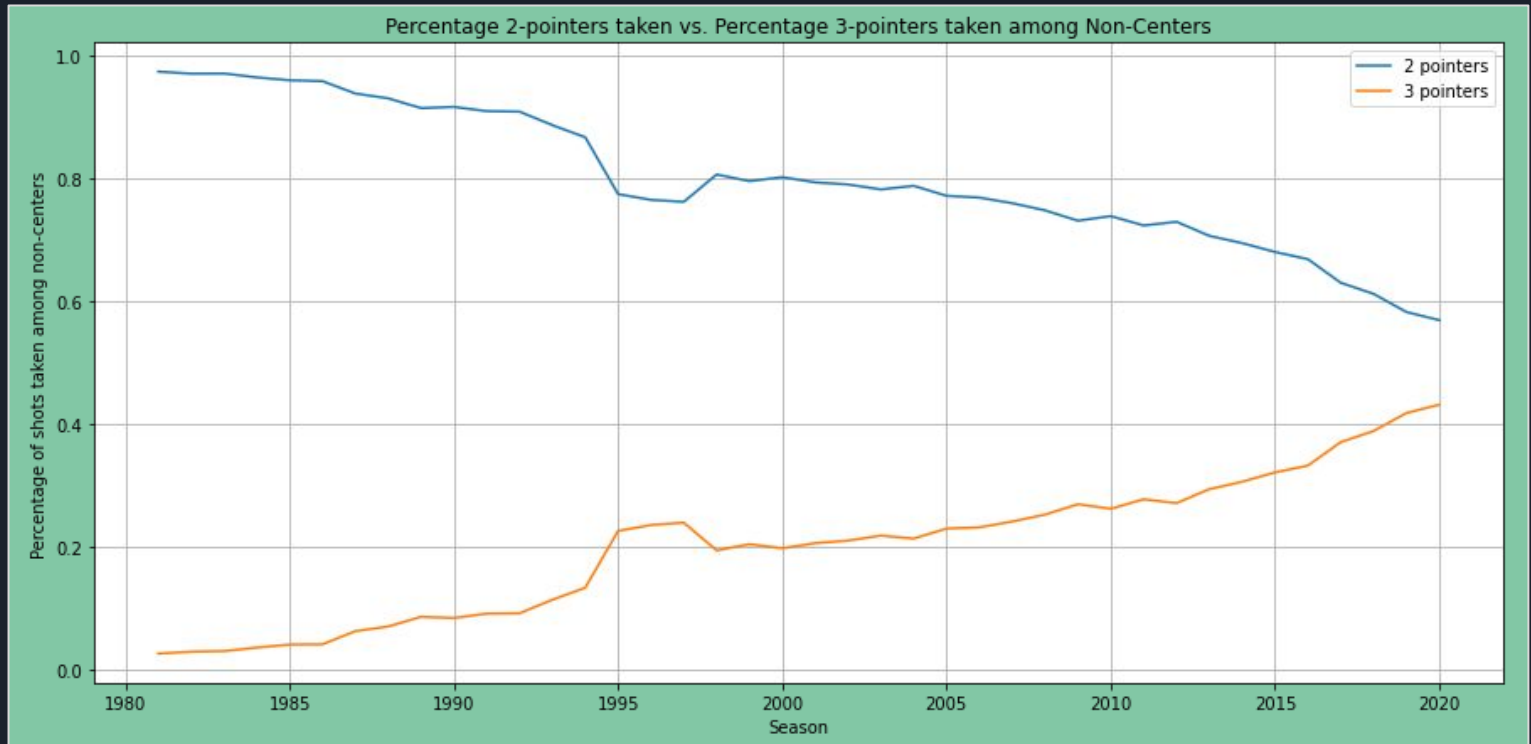
- How has the use of the three pointer changed in the NBA over the last 20 years?
- How drastically have centers shifted from scoring in the low post to shooting threes?
- How much more valuable is the three pointer in today's NBA than it was years ago?



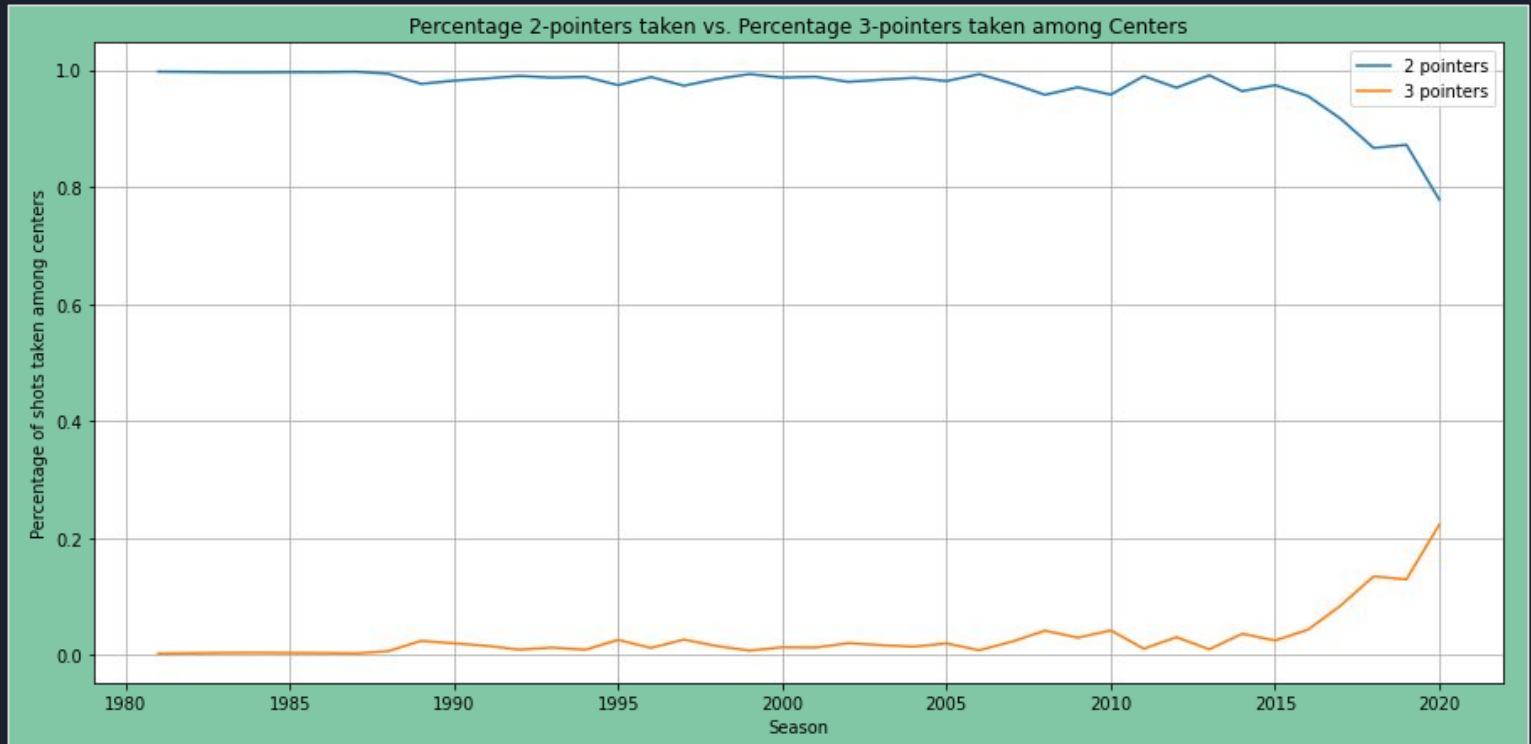
# Task

- Two datasets
  - First one has player information regarding position and statistics for every season since 1980-81
    - Only players who played more than 15 games per season and played a minimum average of 20 minutes per game were evaluated
  - Second one gives us coordinates of every single shot taken by a player from 2000 - 2020
- The second dataset was missing player positions, which is where the first one comes in
- We used the first dataset to see shot trends over the last 20 years
- We used both datasets to perform an inner join on the names of the players, so we could evaluate shot selection by positions as well as specific players

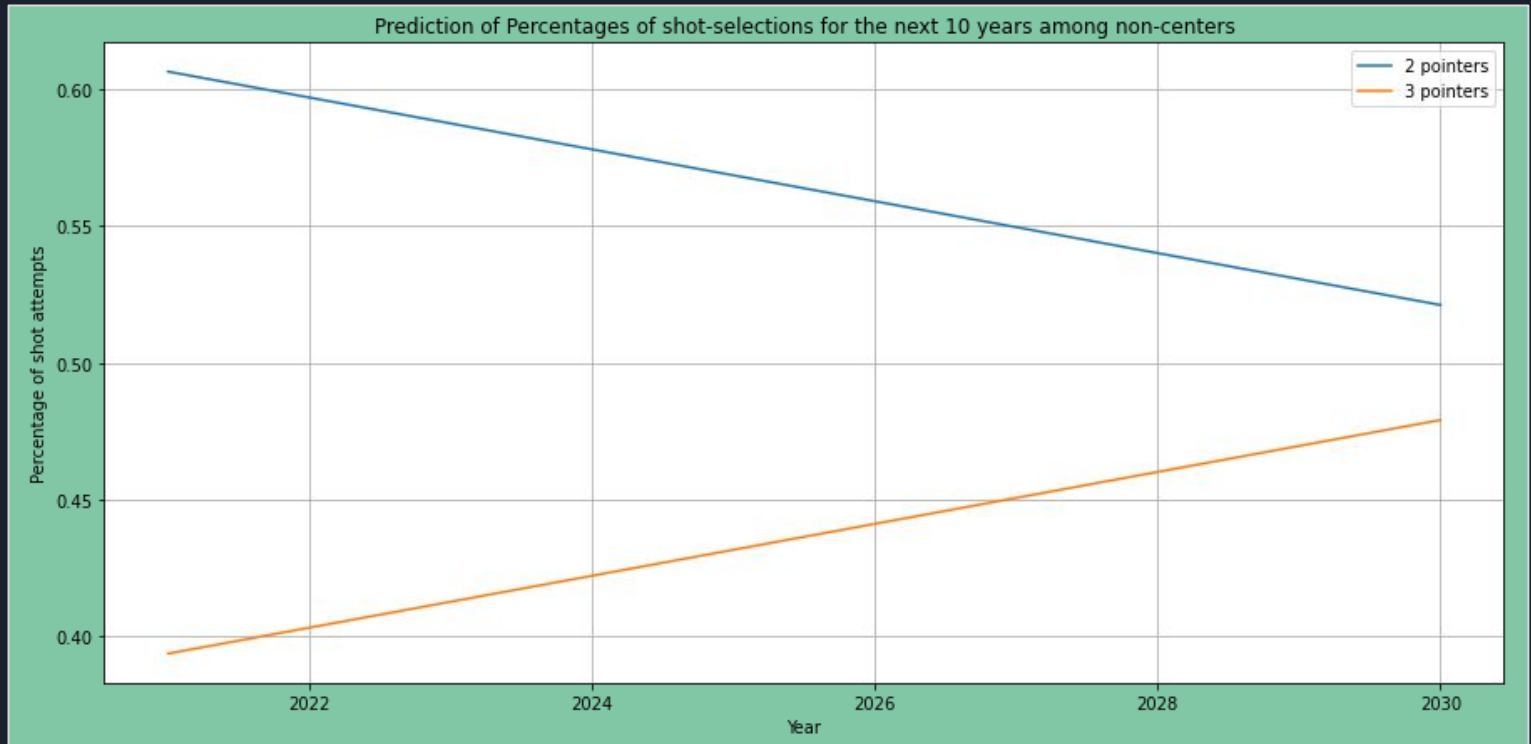
# How shot selection has changed over the years among non-centers



# How shot selection has changed over the years among centers

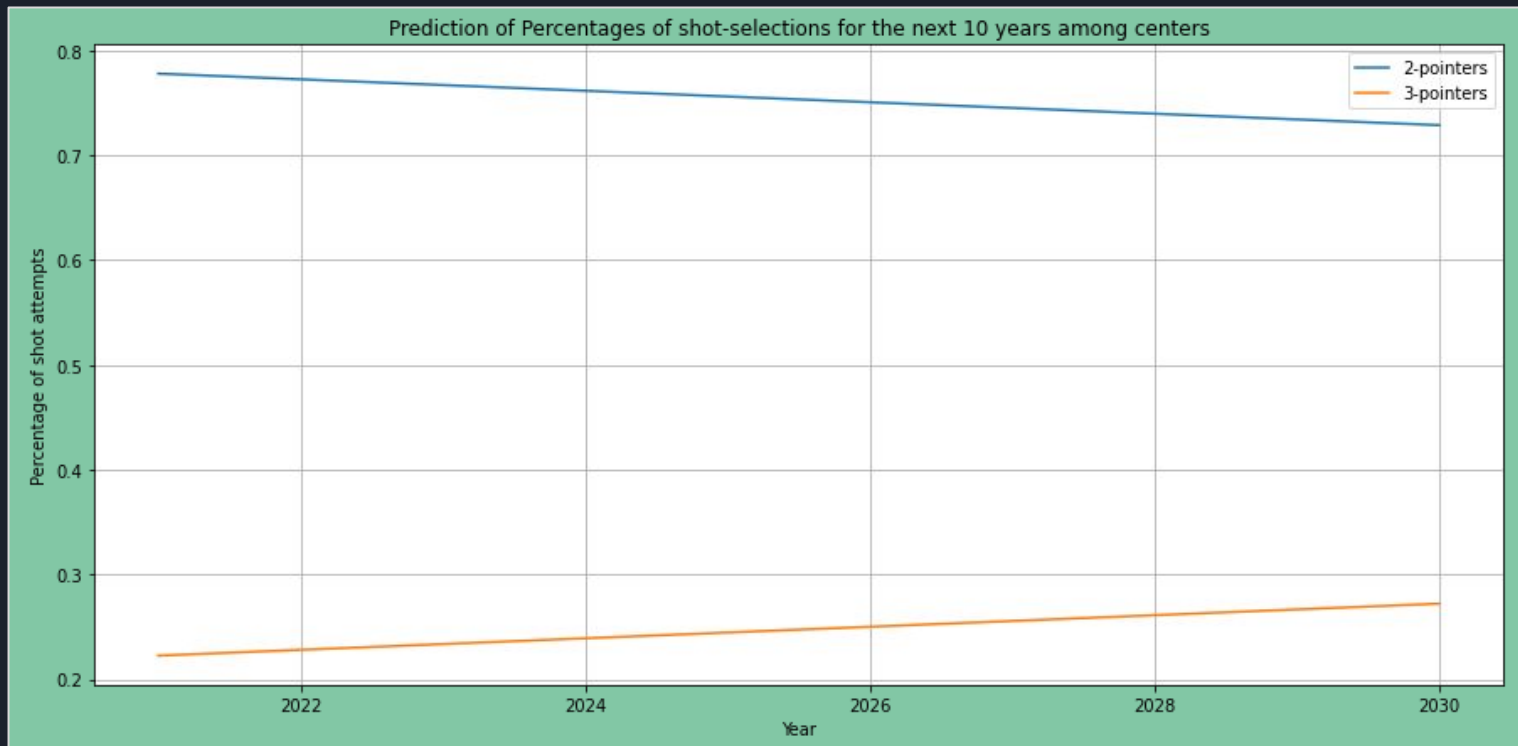


# Will the 3-pointer ever be shot as much as the 2-pointer?





# How will it continue to grow with centers?



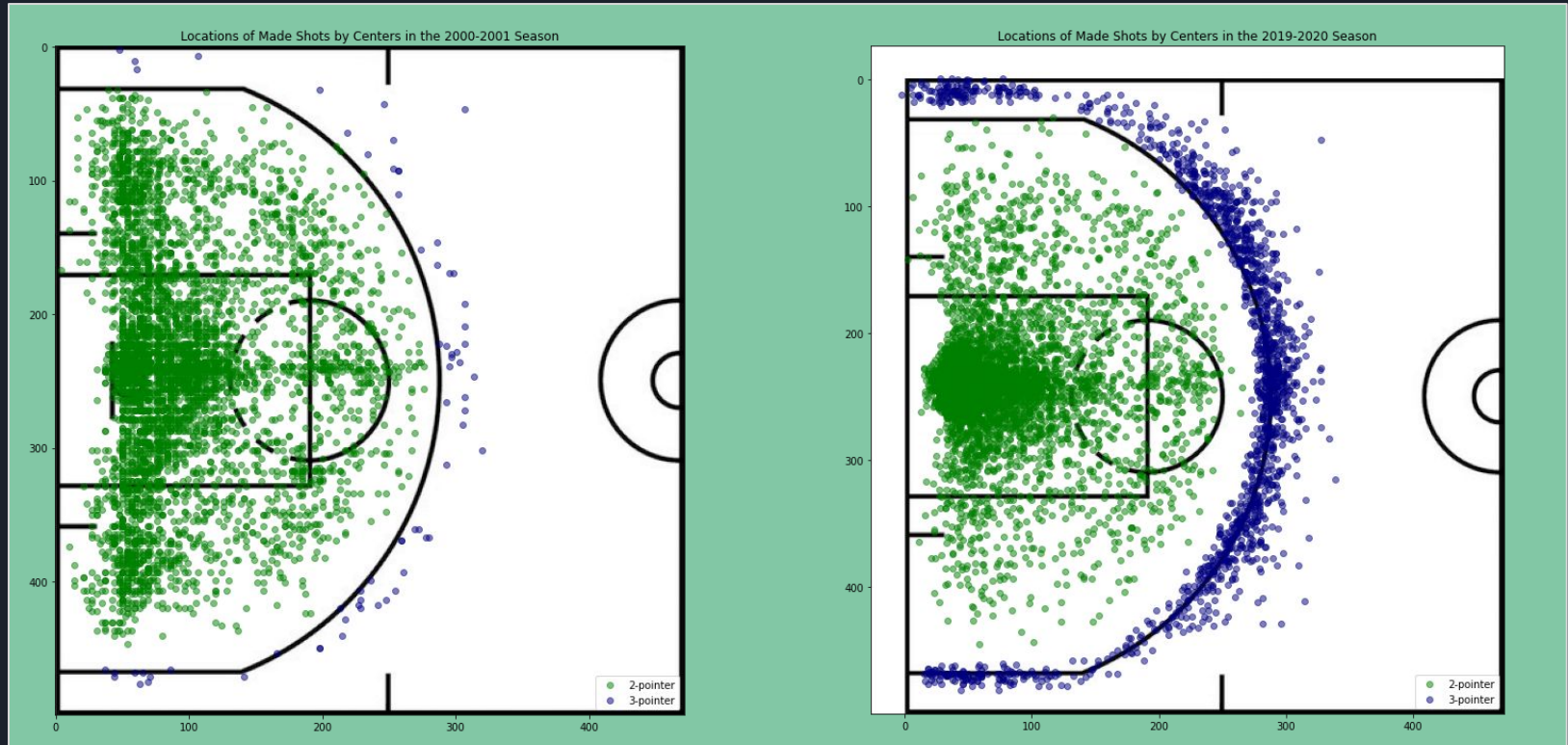


# Results

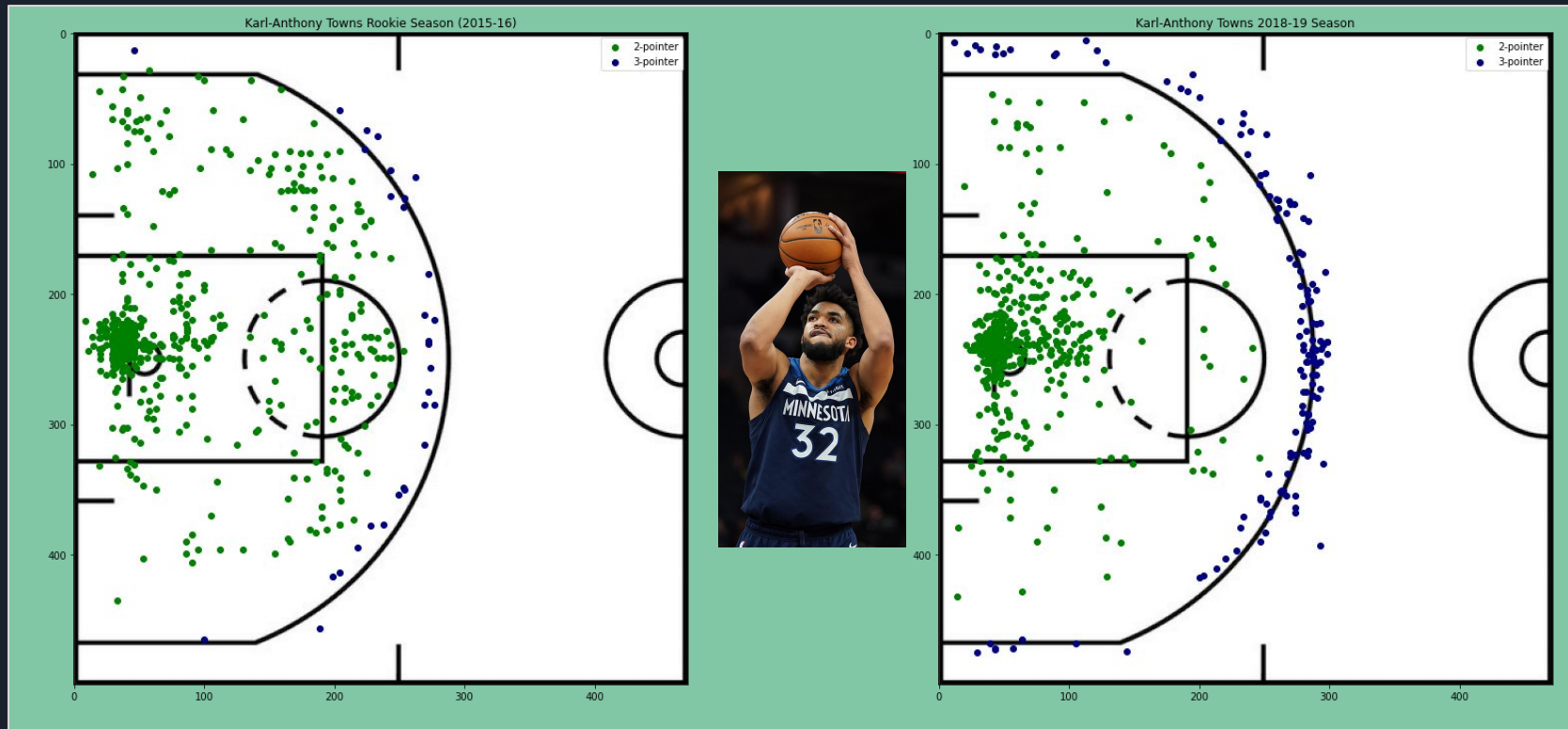
- Linear Regression fit very well when examining the trend among 2-point shots and 3-point shots over the years among non-centers
  - $R^2$  (two-pointers) = 0.9377990610847846
  - $R^2$  (three pointers) = 0.9380021350694745
  - Based off regression model, in 2021 non-centers will shoot 2-pointers 60.66% of the time, and 3-pointers 39.35% of the time
- Regression model did not fit very well among centers, due to spike over past 5 seasons, so we made our own regression model based upon trend over the years
  - Based off of our model, in 2021 centers will shoot 2-pointers 77.81% of the time, and will shoot 3-pointers 22.25% of the time

# Clustering Analysis

Click [here](#) to see document of all shot charts from 2001-2020



# Karl-Anthony Towns Example





# Conclusion

- Players in the league before the contemporary three point revolution have needed to add a three ball to their arsenal to remain valuable in today's league
- The majority of incoming players must have a three point shot
- Centers, especially star centers, have dramatically increased how many threes a game they take (a good example is star Karl Anthony Towns)