Trends in NBA Player Longevity

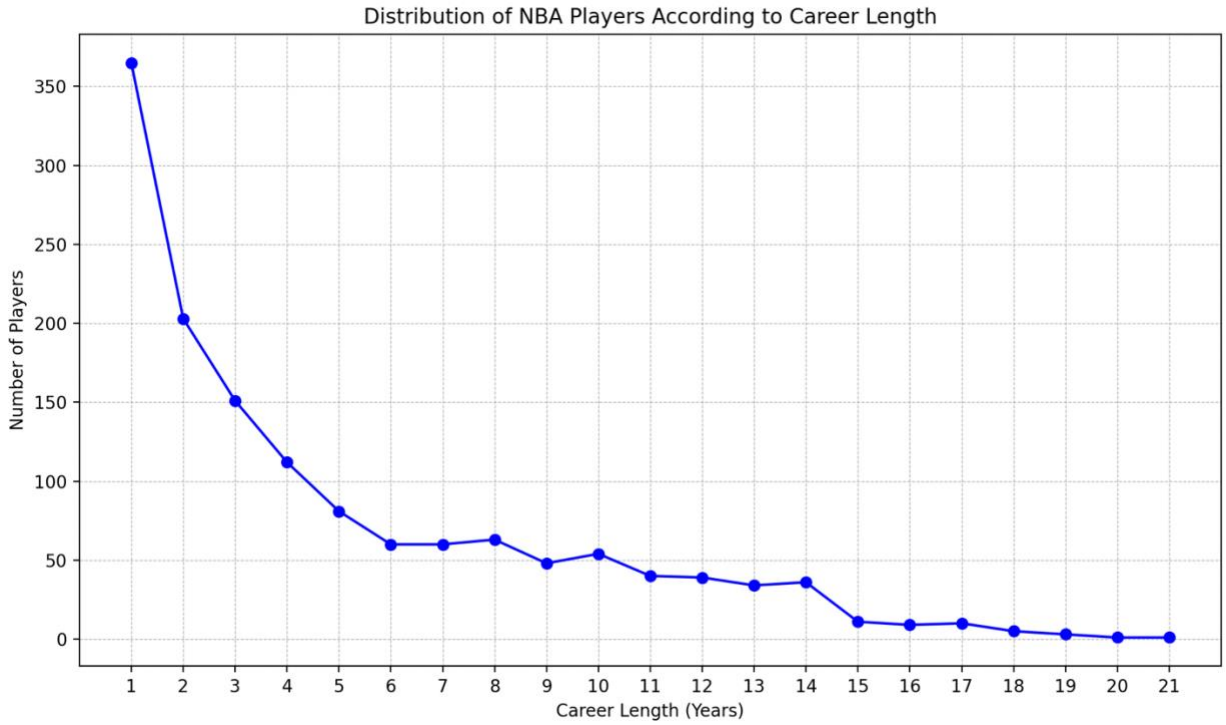
CS 265 Project Milestone by Judson Marble

The goal of this project is to assess the impact of NBA players' statistics on the longevity of their careers. It generally understood that players who make large impacts on offense and/or defense are of high value to NBA teams. These impacts are measured in stats such as points per game, rebounds per game, etc., and the longer players maintain impressive performance, the longer NBA teams will invest in them. In this milestone, I will go over my initial progress in analyzing the impact of player performance on longevity, as well as detail some potential problems I've encountered.

Here is the link to my GitHub repository containing my data set, graphs, and other relevant information: https://github.com/jrmarble/cs365

Data Set:
I used scrapers (see in GitHub repo) to gather relevant career statistics of all retired NBA players who have entered the league since the 1999-2000 season. The data of 1,387 relevant players have been collected.

Problems:
In studying the data set, it became apparent that most NBA player's careers flame out quickly. See the chart below:

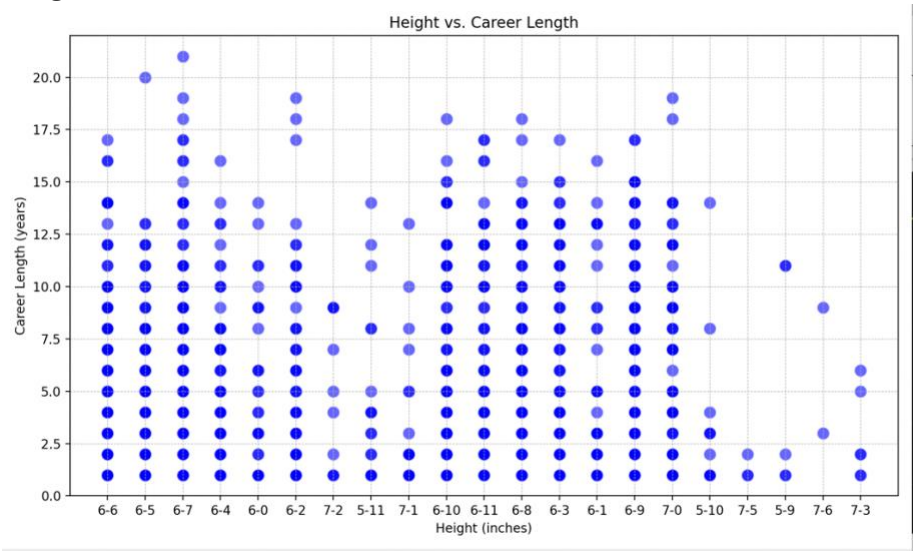


This might make it difficult to analyze player data since so few reach past more than a few years. It may be the case that stats such as height and weight have little or no effect on player longevity since most NBA players are massive in size.

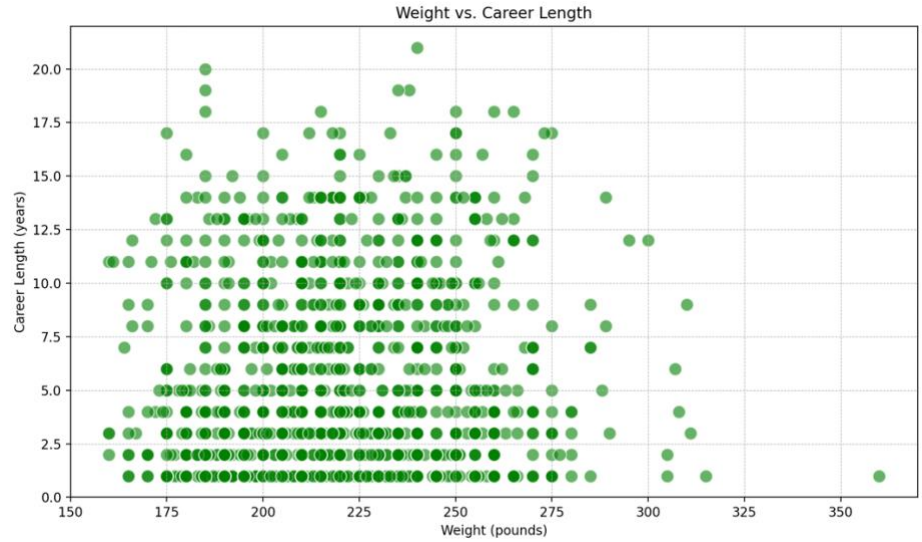
Opportunities:
Since we have such a large amount of data on players who exited the league within one season, I will include analysis on if draft year influences how quickly a player exits the league. Is it more likely for a player drafted in 2023 to have a one-year career than someone drafted in 2000?

Initial Results/Graphs:

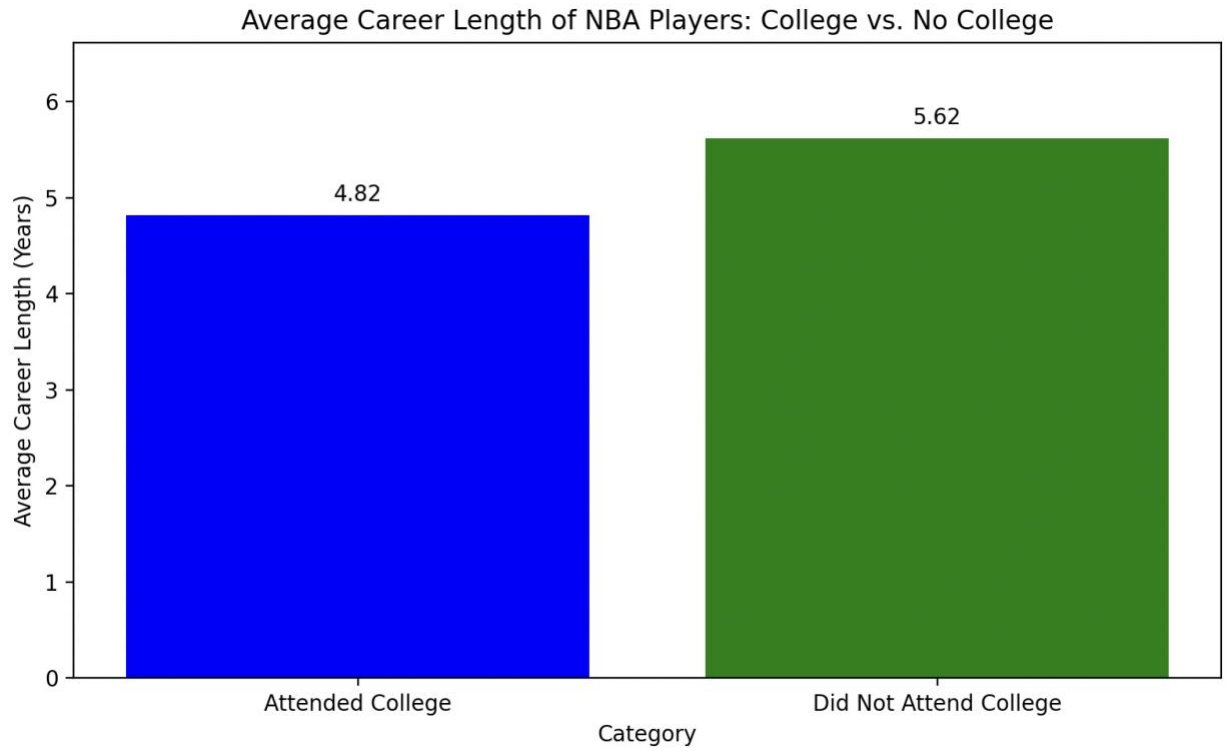
Height:

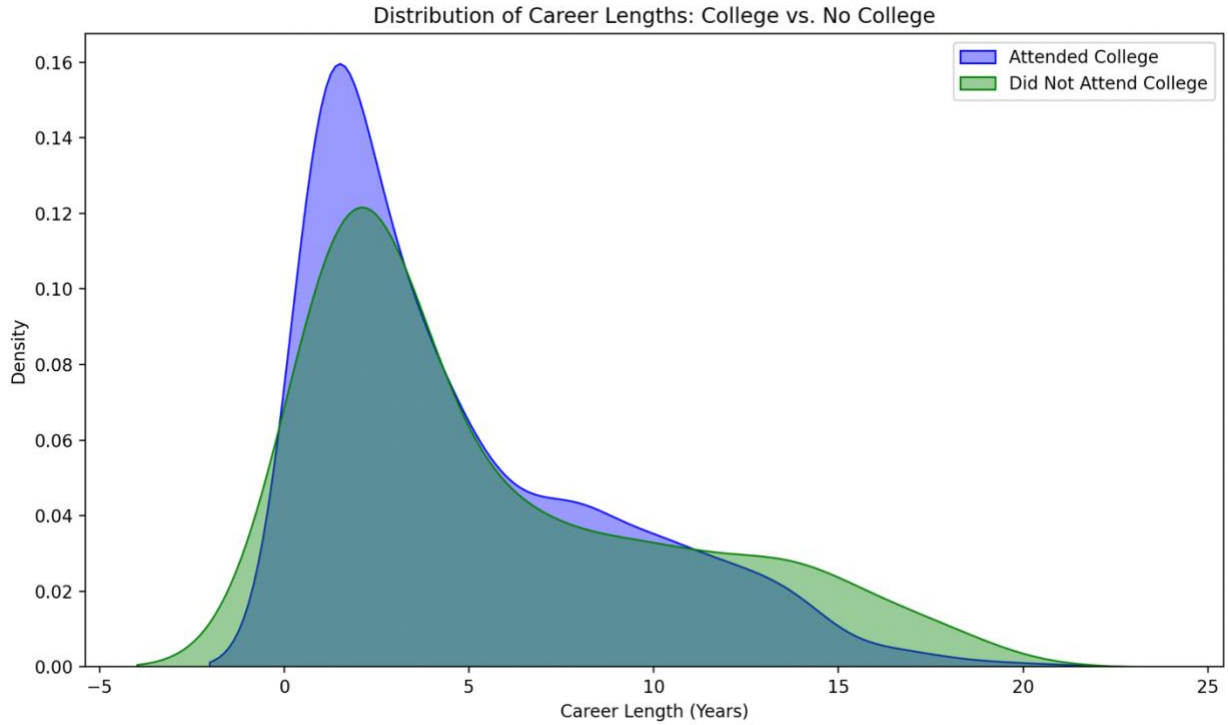


Weight:



Colleges:


Average Career Length of NBA Players: College vs. No College
Average Career Length (Years)
0
1
2
3
4
5
6
4.82
5.62
Attended College
Did Not Attend College
Category


Distribution of Career Lengths: College vs. No College
Attended College
Did Not Attend College
Density
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
−5
0
5
10
15
20
25
Career Length (Years)

Opportunities:
For a subset of successful players (3+ years in the league), we can use the data to determine whether there is a stronger correlation between offensive stats vs defensive stats with longevity. In today's NBA, scoring talent is more sought after and less physically straining than defense, so we would expect offensive stats to have a stronger correlation.

Next Steps:
I want to expand my analysis to include more in-depth stats for each player such as career points-per-game and rebounds. I am currently in progress on a new scraping program that utilizes selenium to get this info from basketball reference without flagged for too many requests (by the time this milestone is graded it will likely be complete).