CSC111 Project Proposal: An Analysis of the Modern NBA "Big Man"

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Problem Description and Research Question

I am a big fan of basketball. Specifically, I am a fan of the NBA, the Toronto Raptors being the team I primarily follow. My favourite players in the league are often power forwards and centers - positions that traditionally take advantage of their size to impact the game. In the basketball world, the term "big men" is often colloquially used to refer to centers (Big Man Definition - Sporting Charts). I, however, will be using it in reference to both centers and power forwards.

In the last decade or so, basketball has seen a shift in play style with the rise in popularity of the three point shot. CBS sports writer Bill Reiter is just one of many who attribute this shift to the revolutionary play of NBA superstar Stephen Curry. In his article, he asserts that players like Stephen Curry have revolutionized the traditional game of basketball when alluding to a list of the top 15 shooters in NBA history: "One sharpshooter after another, each a stepping stone in an evolution of the game that has made the traditional center obsolete and the game a vastly different thing than it was even a decade ago"(Bill Reiter, Jun 1). In a sort of blog, one basketball coach writes, "Today, the NBA is run by [point guards and shooting guards]. The fast paced, 3-point shooting game doesn't allow traditional big men to remain relevant." (Chris Are Big Men Becoming Obsolete?). Just from watching games in the last couple of years and comparing it to highlights of before I started watching, their beliefs are quite evident - I can tell that there has been a clear shift in play-style. As much as I agree, as a fan of traditional big men, I find it difficult to accept. Through this project, **I want to determine whether the modern NBA has truly left-behind the big men of old, or have they simply just evolved with it.** Do they still impact games the way they once did? Are they more effective or less effective? Through this project, I will answer all of these questions.

Computational Plan

My project will use data about NBA players. There will be two categories: some of the data represents stats for players this NBA season (2020-21 NBA Player Stats: Per game). As example, here is the line in the csv file representing Stephen Curry along with the headers for each column:

Rk,Player,Pos,Age,Tm,G,GS,MP,FG,FGA,FG%,3P,3PA,3P%,2P,2PA,2P%,eFG%,FT,FTA,FT%,ORB,DRB,TRB,AST,STL,BLK,TOV,PF,PTS
109,Stephen Curry\curryst01,PG,32,GSW,37,37,34.0,9.7,20.4,.476,4.8,11.6,.411,4.9,8.8,.561,.593,5.2,5.6,.927,0.5,4.9,5.4,6.3,1.3,0.1,3.1,1.8,29.3

The rest represents seasonal averages and totals for players that played between 1947 - 2018 (Goldstein NBA Players stats since 1950). Note that some of the data for older players appears to be missing. As such, I may choose to focus more on notable and more recent players who have data available, and filter out the rest.

To begin, I will read these csv files into python; Each player, barring duplicates (in which case, I will prioritize active players' current season over others - will be represented as a vertex in a graph. Edges connecting players will represent "similarity" between the two; I will expand upon this idea further below. I will likely omit certain statistical categories when creating the graph as their are a lot of headers - I will only keep those important for the comparison. I may also edit the player name when reading the file since it includes a short form for their name, as you can see in the above example (it includes up to the first four letters of their last name, the first two letters of their first name, and a number - an example "duplicate" is Mikal Bridges and Miles Bridges, who get "bridgmi01 and bridgmi02 respectively; I don't see why this is necessary). I will also be filtering for those who fall under the

big men category. For the purposes of comparison, I will likely be computing averages between the current players and past players, averages of height, weight and other statistical for each pool of players. These computation will be used for the purposes of comparison, and answering the overall question.

For the purposes of visualization, I will do computations to connect players from the past and players from the present who are "similar". As part of this, I am likely going to decide what makes a player "similar" to another. As of now, I have some ideas in my head. For example, I can decide that stats matter less and that players are "similar" if they are physically similar - that is, their heights and weight are within a range from one another. It will likely end up being a balance of the two (stats and physical attributes), and I might use my own opinions of player comparisons to calibrate this. Ultimately, I plan on using the tkinter library to create an interactive interface from which the user can answer questions about a type of player, and the program will return the players that may fit the description. It will do so by finding one player and returning that player's data and the data of its neighbours (since they're similar).

Alternatively, I may make it so that all the active players are visible, and the user can simply interact with the program to view comparisons at their own leisure. Either way, tkinter works for this because tkinter allows you to create a graphical user interface - the user can interact wit the program. For example, I can use the following module for the first idea I had where the program asks the user for input: `tkinter.simpledialog` (Tkinter Dialogs¶).

References

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