Q2. In 500 words or less, describe a problem / question that you would like to solve when given access to an NBA team's database. Outline the scope of the project, the benefits for the team / yourself, and the challenges that you may face with such project.

Given an NBA team's dataset, I would want to research shooter propensity, the inclination of particular players to shoot the ball. I assume that every team already has a "shooting model" evaluating the talent of shooters but less thought is put into how *likely* these players are to *actually shoot the ball.* Defensive coverage should be a function of both shooter ability and likelihood, not just the former. I would create a model with factors that influence shooting propensity including nearest defender distance, shooter location factors, and game situation information. I would limit my research to catch and shoot opportunities for easier comparisons and explainability. Top ranked players in this metric are more willing to shoot, no matter their circumstance and vice versa.

This project would have many benefits to the organization. First from a coaching perspective, we can tailor our defense around the combination of shooter effectiveness and propensity. An effective shooter who does not like to shoot can be helped off of more than one who has a very high propensity. Poor shooters with high propensities are the sweet spot of players we can tempt to shoot. For our own team, encouraging effective shooters with low propensity is advantageous and showing others that they can move their shots elsewhere is a strategy we can consider.

From the front office perspective, we may be able to find players from other teams that are "diamonds in the rough." They may be inefficiently used in their team's system (a player who has a lower propensity relative to effectiveness or vice versa). We could bring them into our system and extract more of their value.

From a personal perspective, I feel like I "know the game" more than other equally talented analysts, so working close to the game is where I can be most effective. In high school I led my conference in 3 point efficiency, so shooting is something I've worked on for a very long time, albeit my propensity probably should have been higher. I have stayed close to the game, working with the Washington State University and University of Southern California Women's Basketball teams, as well as coaching a team of my own at Inglemoor High School. I could certainly bridge the gap between analysis and coaching thanks to my fairly distinct background.

Challenges in this project, like many other data projects, are related to making the correct assumptions and ensuring statistical validity. Specifically, I could see potential gray areas about model choice, the attempts threshold, how many seasons to include, whether to decay older attempts, and much more. As my Machine Learning professor at USC always said, "No free lunch!" I would need to try many approaches. I would also routinely check in with my peers at the Bucks to gain their feedback as well as critique work they are pursuing. This would not only build camaraderie but also foster better work!