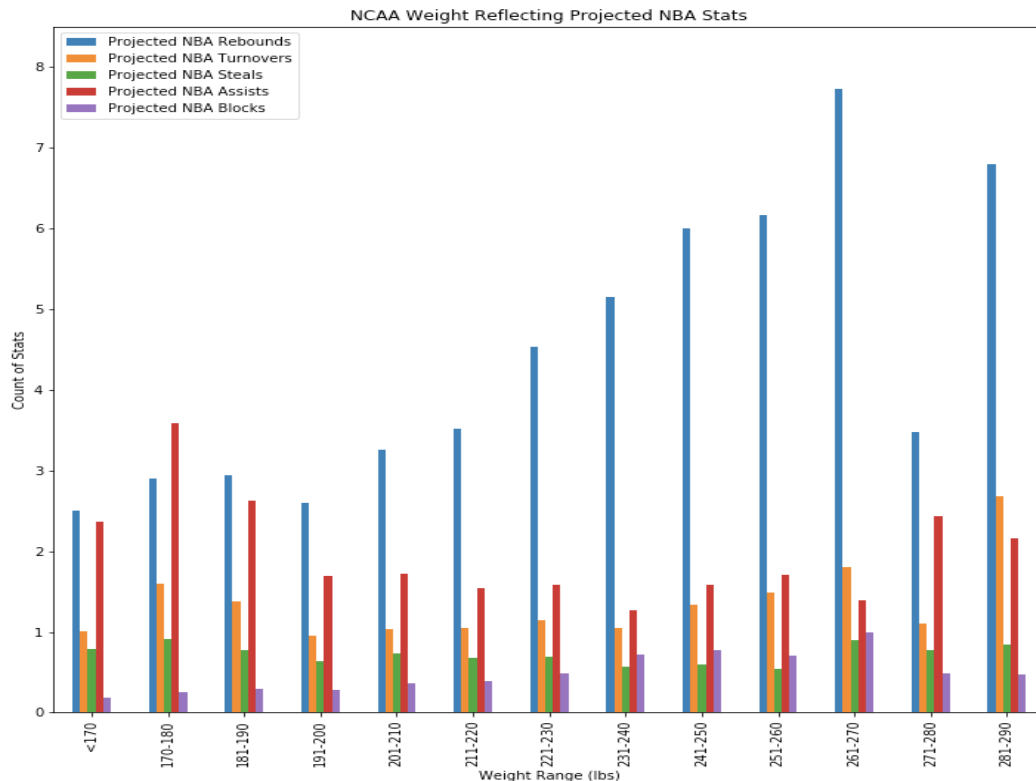
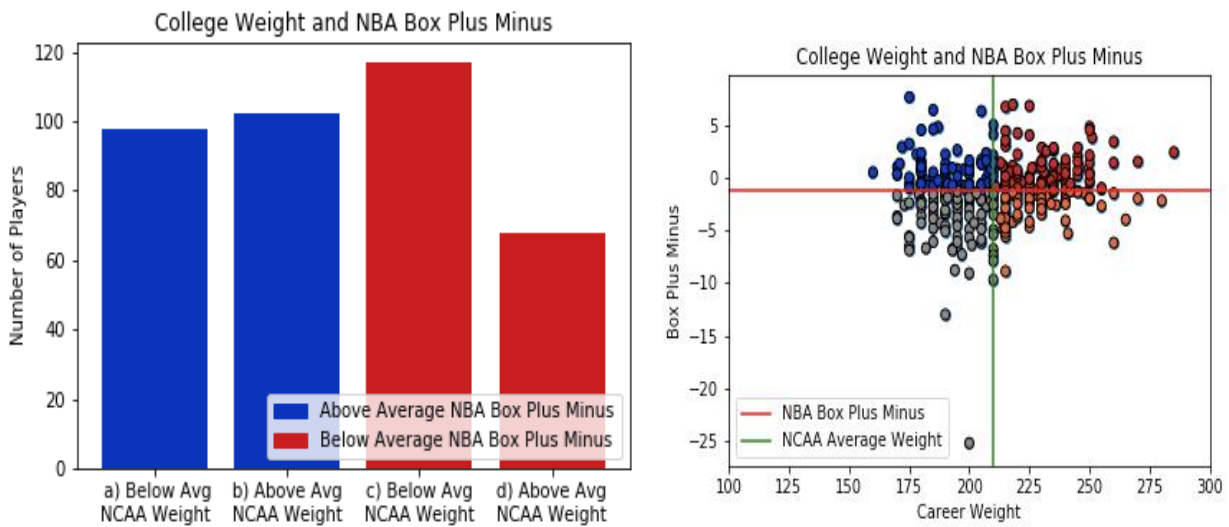


NCAA to NBA Data Analysis Summary

Question 1: How does weight in college translate to performance in the NBA?

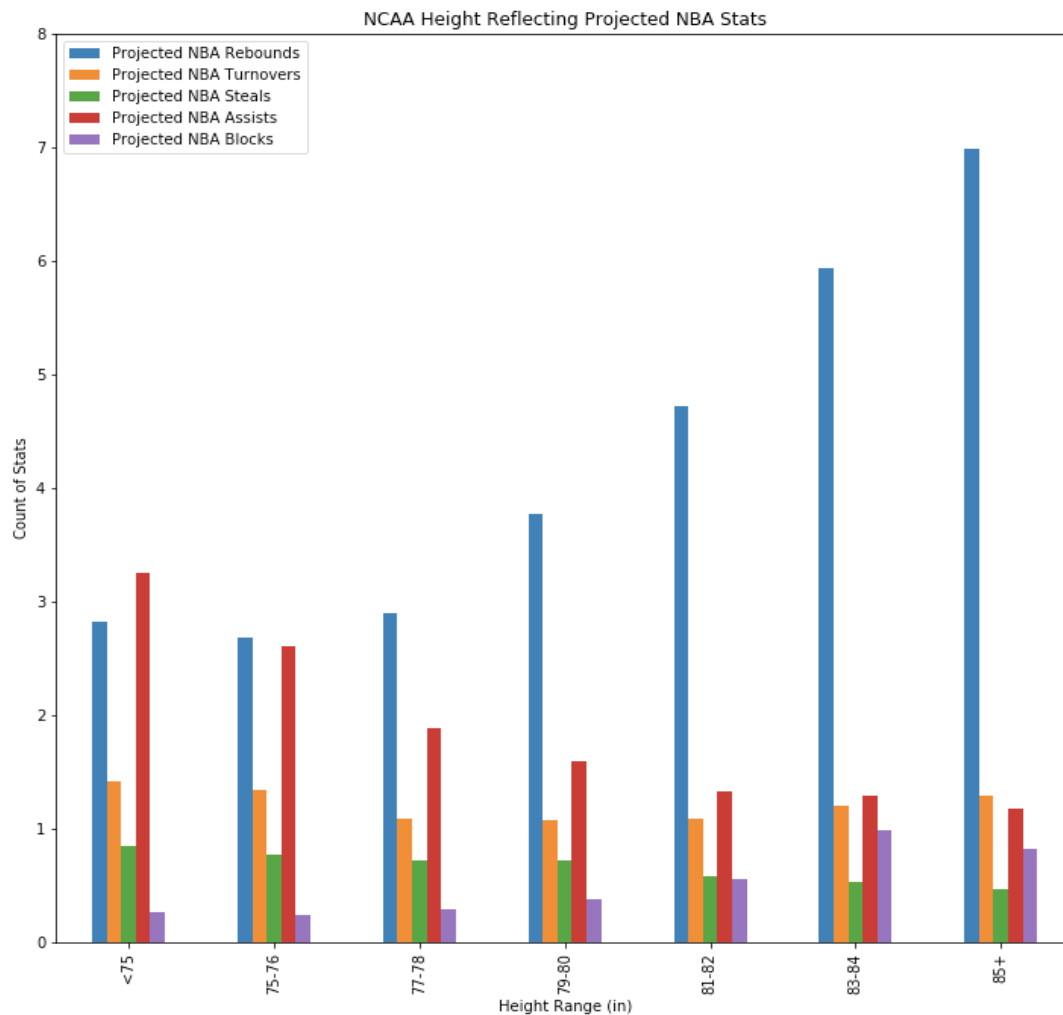


- The graph above demonstrates that as weight increases, so does the amount of rebounds a player will average in the NBA. Similarly, the projected number of blocks that can be expected at higher weights increases. Although the count of stats appears to be lower than 1, the highest blocks per game in this given season was recorded at 3.1 blocks by Hassan Whiteside. This means when taking the average of the other players, the value may be presented lower than 1. The other noticeable trend is in the assist category. This could be because lighter players will end up as guards in the NBA, who tend to have higher percentages in these categories.

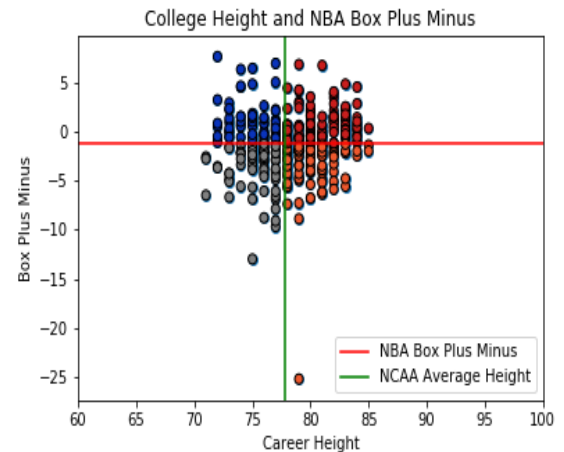
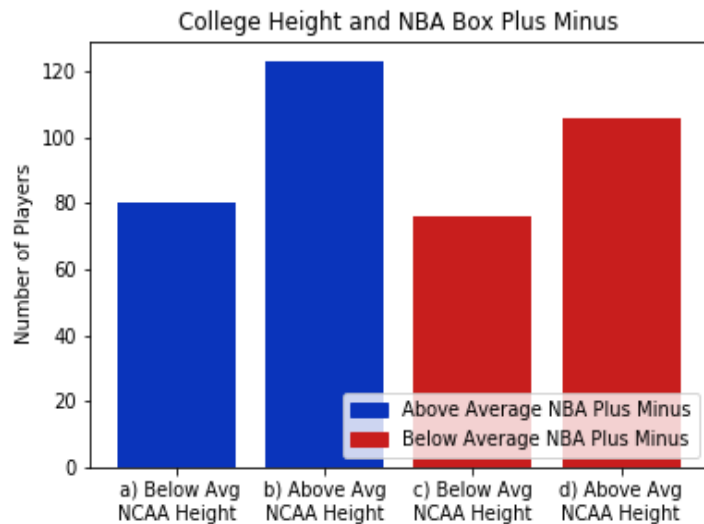


- An interesting story when looking at statistics for weight: the lack of effect for box plus minus. As seen above, there is no noticeable difference with a higher than average NBA box plus minus player and his college weight. This bar plot categorizes players into above/below average weight, and above/below average NBA plus minus. Plus minus means when the player is in the game, the difference in score is the metric, meaning a +3 for a player equates to when the player is in the game, the team ended up being up by 3. So, this plot tells us that weight is not a good metric for determining performances other than rebounding, as seen by the left 2 bars having a similar value. This might be because an NBA players weight can fluctuate, meaning a weight in college doesn't make or break a player in the NBA. A player can lose weight as easily as they can gain it with proper workout and nutrition.
 - *Note that the bar graph is an adaptation of the scatterplot to the right. This is to plot players based on averages of various stats.

Question 2: How does height in college translate to performance in the NBA?

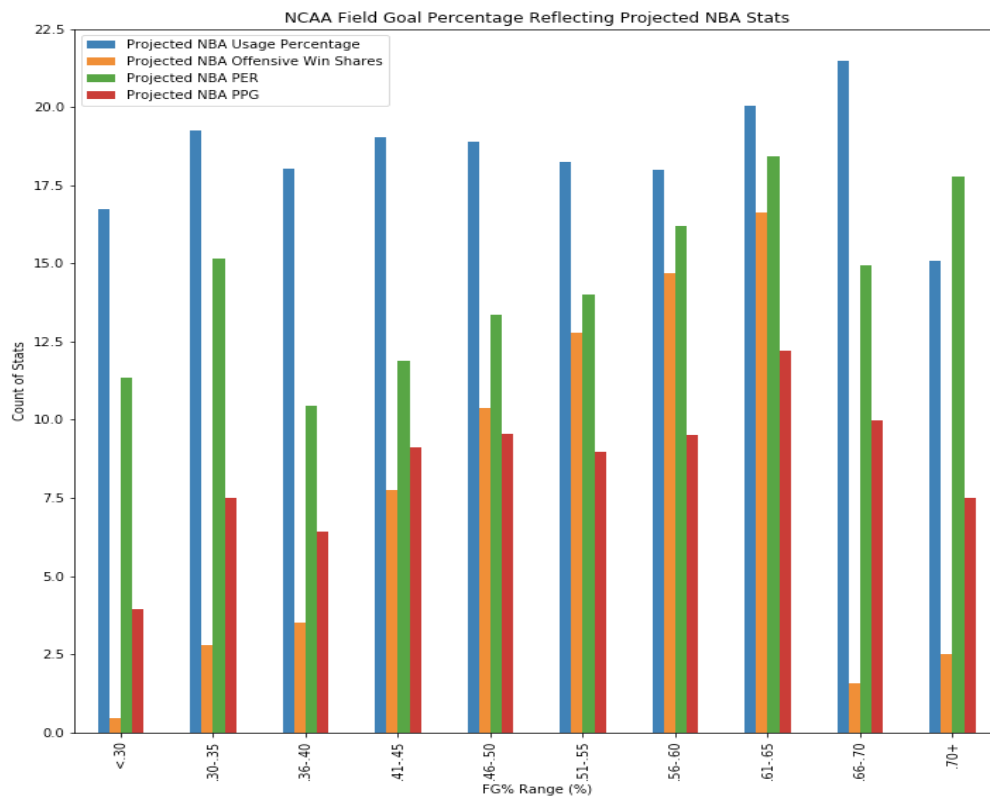


- A similar story can be generated for a player's height in college. As height increases, the general trend is that rebounds increase. As mentioned previously, blocks also exhibit an increasing trend, even though the count of stats is reflected as 1. With respect to assists, as the players' height increases, the count of stats exhibits a decline in this category. Finally, the other two categories (steals and turnovers), don't seem to have a general trend because their values stay rather consistent across the board.

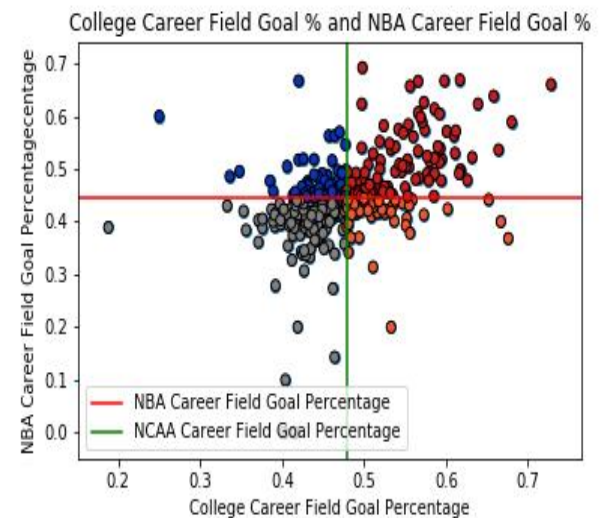
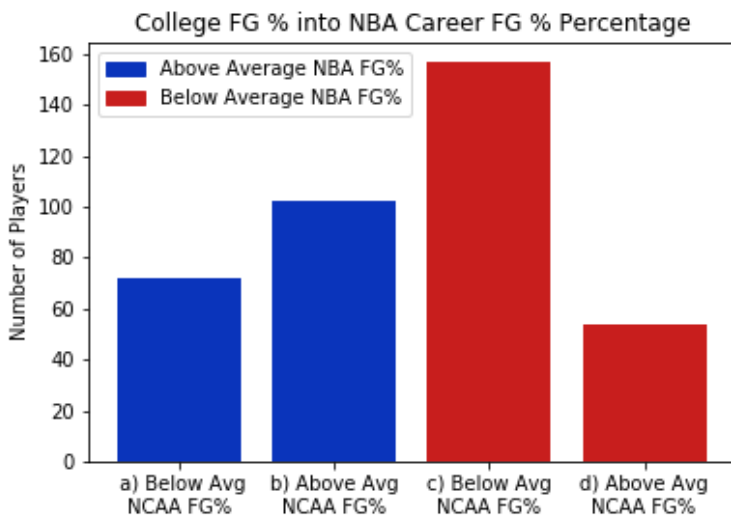


- An interesting story we found when comparing averages of college players' height came when we compared heights to the same Box Plus Minus data we compared to weight. This time, we saw a much different trend, specifically when it came to players above the average NBA plus minus. There now is a larger difference in players who were above average in height compared to those below average in height. This tells us that when looking at height vs weight for impact on the game, having an above average height seems to translate into better performance in the NBA than weight. This is not a hard conclusion, just something an NBA GM might consider for upside. Overall, it seems that height can give a better look at how successful an NBA player will be from college compared to weight, only because we have data that supports a difference when it comes to college players height compared to weight.

Question 3: How does shooting percentage translate to the NBA and what does it mean for on-court performance?

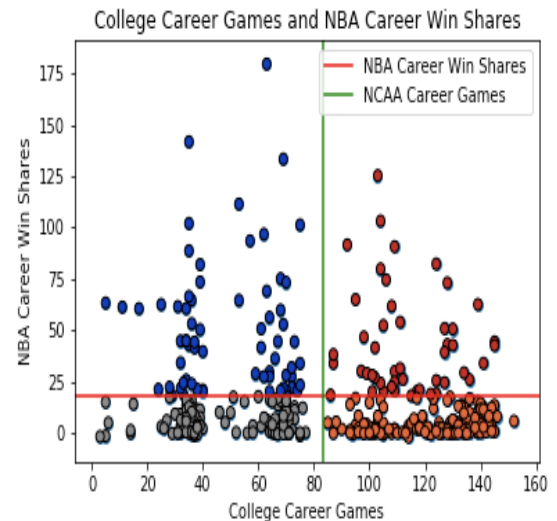
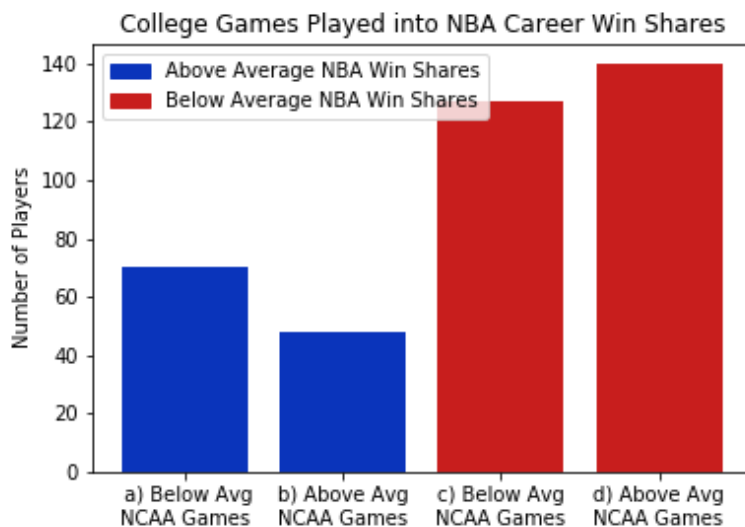


- Looking at the overall box score statistics of the binned shooting percentages, it seems that there is a trend in PER and higher shooting percentage. There are some outliers, namely in the first two ranges, but after that the PER (player efficiency rating) of a player increases as field goal percentage increases. This is the same for offensive win shares, meaning that the offensive plays of these player contribute more to wins for their team. The only stat that doesn't vary is points per game (PPG). An explanation for this could be that role players who shoots high percentage shots such as 3-point specialists and rim-running centers have a specific role in the NBA, and thus don't have the ball much in their hands, or don't need the ball in their hands too long to shoot effectively.

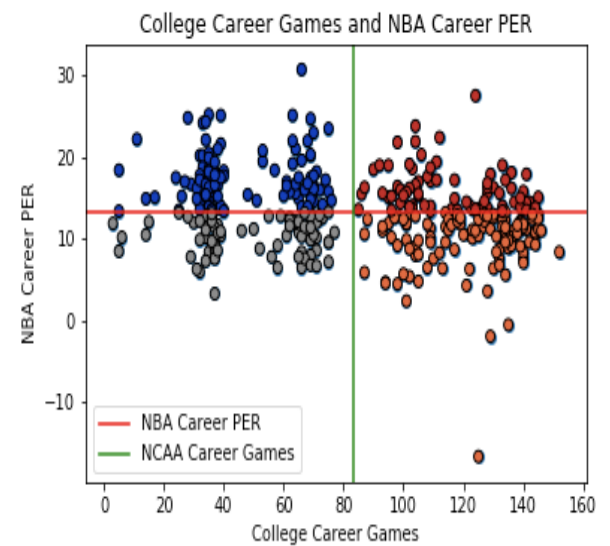
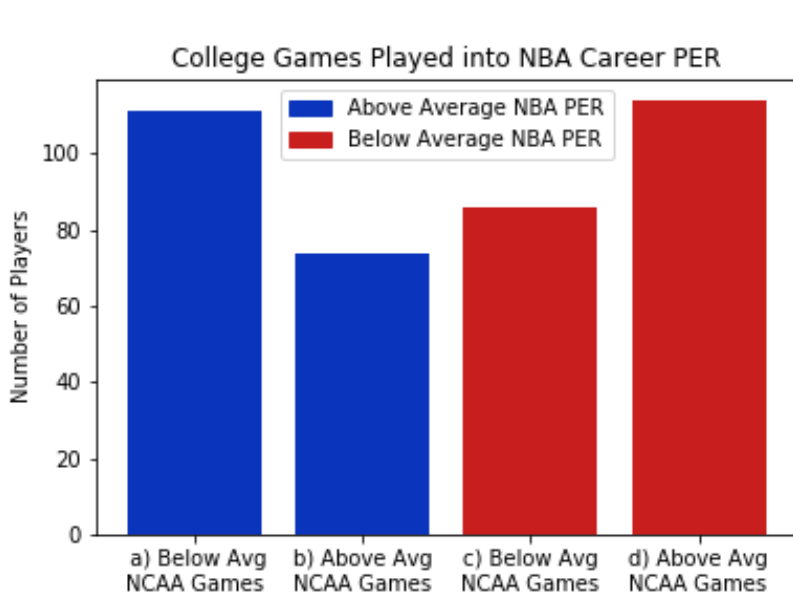


- As for a specific story to tell with this data, we noticed how players tend to carry over their field goal percentage from college or get better. This comparison above is between college player's field goal percentage and NBA field goal percentage. As seen with the bar graph, an above average NBA FG%, in blue, will have more players in this category than those with above average percentages in college. However, the most interesting part about this graph is the far-right bar, with players with an above average field goal percentage in college, and below average percentage in the NBA. There is the least number of players in this category, making the data trend towards the idea that field goal percentages will either stay similar or get better, more likely than to get worse. This can provide a peace of mind for NBA GMs as a 3-point sharpshooter in college will probably succeed in the NBA, or if a player needs to work on his shot, it's not unheard of to progress significantly.

Question 4: How much does time spent in college affect players in the NBA?



- Unfortunately, the data that we were working with showed that games played varies from player to player instead of giving a definitive year played. (this is taking into consideration that some players play longer due to being active in tournaments). However, as seen with the scatter plot above, there is a natural divide between 1st, 2nd, 3rd, and 4th year players. And the first plot compares it to win shares, where above average NBA win shares are found mostly with players at 2 years or below in college. The largest bar is with below average NBA players spending above average time in college. That doesn't bode well for the idea that staying in college can help a prospect hone their game.



- Finally, the last plot the team did was about time spent in college and how it translates to PER, or player efficiency rating. This was most telling about how time spent in college affects player performance, as clearly there is a divide between extremes. The number of players with below average time spent in college have significantly higher PER's than those who stayed, and those who stayed above the average time spent in college have significantly more below average PER's. This can provide some proof that players who leave college early, are usually more prepared and naturally talented than those who need to stay in college and develop at the collegiate level. And on the other side, we can hypothesize that players who develop outside of college longer, meaning with professional trainers, paid nutritionists, and team doctors, probably develop better than players who spend their youth developing in college environments, where equipment and personnel aren't quite as professional.