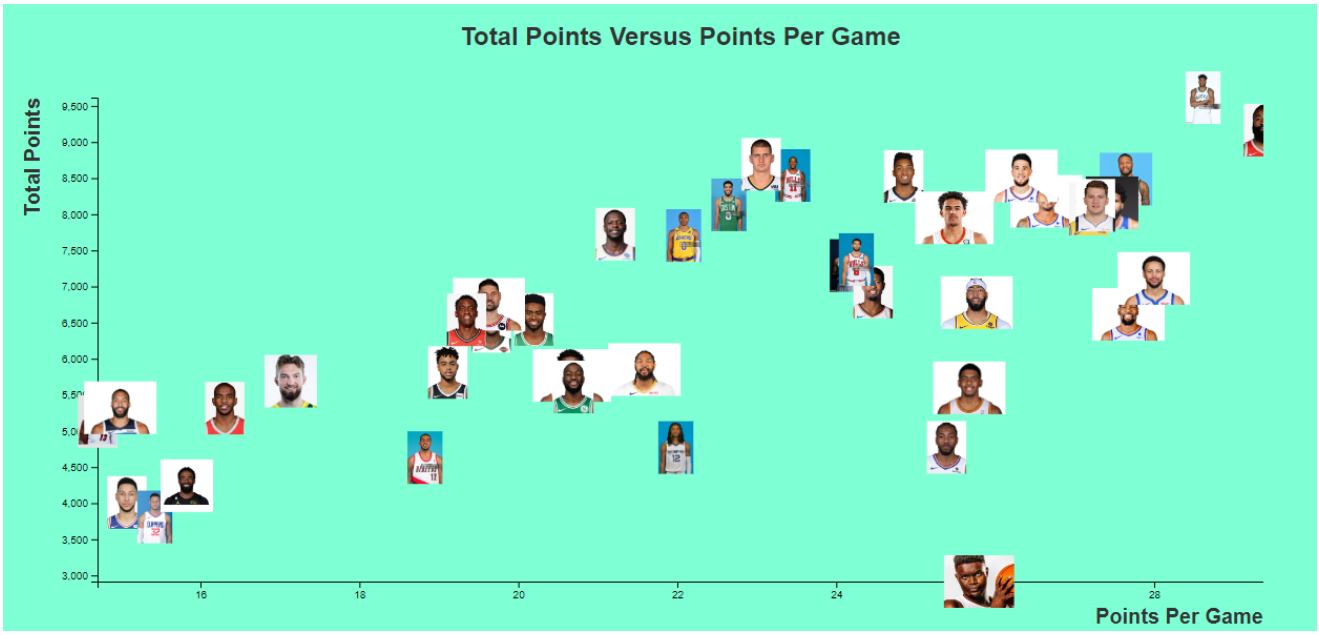
CS 333 Assignment 3
Interactive Visualization



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Special Instructions: In order to run the visualization, please open 'CS333 Final.html' in Visual Studio Code or another IDE and run the program using LiveServer. Instructions can be found in the README in the .zip file.

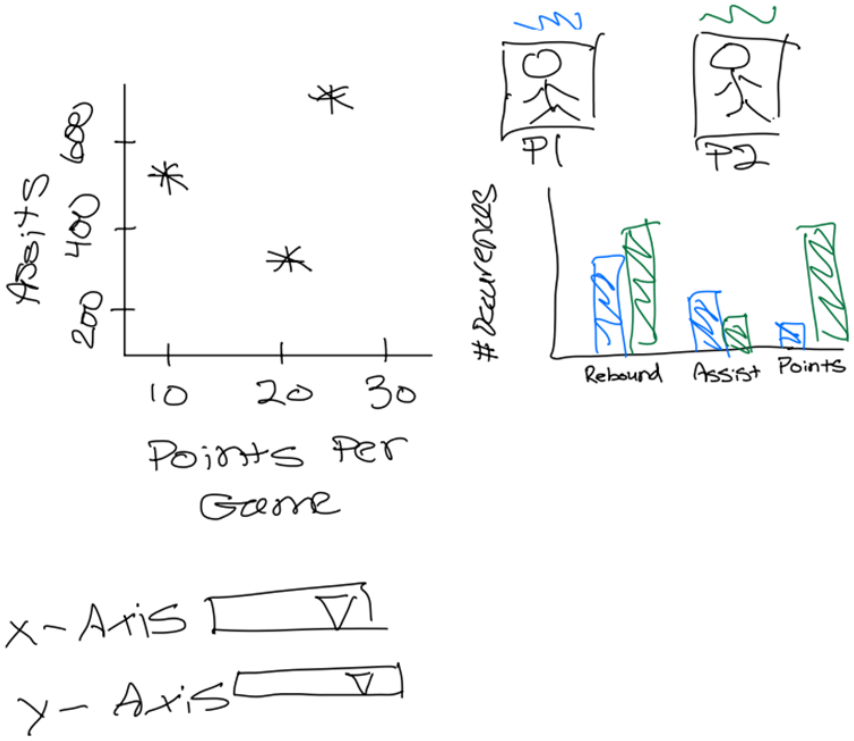
I. Introduction

The NBA All-Star Weekend is an exhibition event held annually that celebrates the greatest and most exciting players in the league. Included during the weekend is the NBA All-Star game, a friendly match between two 12-man rosters consisting of the 12 best players in each conference, divided by position. These twenty four players are selected by coaches and fans, ensuring that well-known players dominate these games. Our visualization aims to provide viewers the ability to easily rank All-Stars from the 2018-2021 seasons according to different metrics and compare any two stars of their choice in a head-to-head comparison visual for casual and committed fans alike.

II. Data Domain

The original dataset that we used contained all individual player box scores from 1946 to the present in csv format. We opted to filter our data using a python script that removed all entries for players who were not selected to the All-Star game during the specified seasons. Within our javascript program, we parsed the data into a dictionary with the players' names as keys. Since we prefiltered our data, we did not have to concern ourselves with filtering which entries from the csv file entered our dictionary.

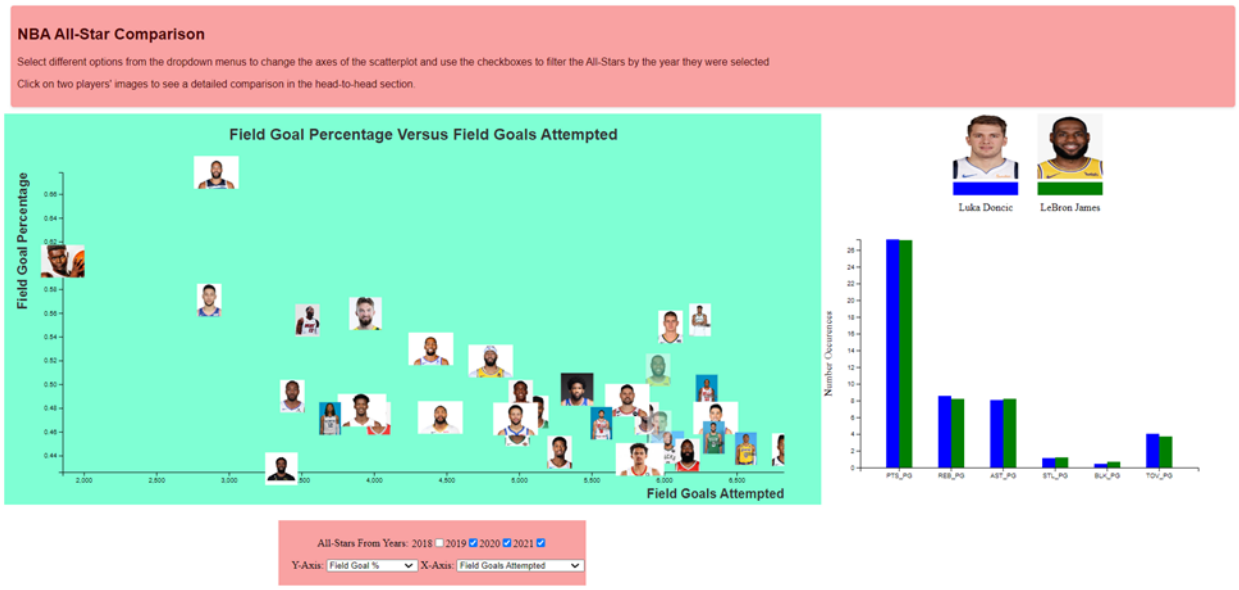
III. Interactive Features & Storyboard



We sketched our storyboard with two distinct visualizations in mind. The first of the two is a scatter plot with each axis representing a different metric and each data point representing a player. The second of the two is a head-to-head matchup visualization that allows the viewer to select two different All-Stars and see their average stats graphed against one another in a grouped bar chart. In order to make our visualization interactive, the user selects the two All-Stars to be compared in the head-to-head section by clicking on the associated data points in the scatter plot. The player's data point turns transparent when clicked so that you are able to tell that it is being used in the head-to-head visualization.

We then implemented the ability for the viewer to control which metrics are displayed on the axes in order to customize the chart. This is particularly crucial as it allows the user to ask a variety of questions instead of just one. For example, the viewer may now question the graphic about assists, turnovers, steals, points, and blocks, rather than just being limited to one statistic per axis. Thus, users may now look for correlations between any of the variables provided in the dropdown menus (8 for each axis, 64 total graphs can be generated).

IV. Final Visualization



Two major changes occurred between the storyboard and the final implementation. The first was that we replaced the data points with pictures of the players' faces for ease of use. Hovering over the data points to see names or having the names appear above the data points made the visualization far too cluttered, so we figured that using pictures of the players would make each data point easily identifiable while removing overlapping text. The second change we made was implementing the ability for the user to select which years' All-Stars they desired to see graphed. This ability comes in the form of a checklist that specifies the rosters from each distinct All-Star game by year. Thus, the user can now specify both the years and statistics they are interested in while also having the ability to compare any two players directly.

The most challenging part of this assignment was building the front-end HTML framework. Parsing the data into our usable dictionary and creating the dropdown menu and year checklist to filter the data was not difficult; getting those same elements to appear properly on the screen and format based on screen size was far more difficult. We ran into issues where the scatterplot and head-to-head chart would overlap if the screen it was viewed on was too small, and sometimes the filtering options would not appear at all.

To create the visualization itself, we referenced the in-class labs as well as TA Sheng's presentation on D3. The development process took roughly a week – we spent approximately half of this time working at the same computer and the other half working independently and sending code files back and forth between each other. Both of us would agree that the work was split fairly; Nick handled the scatter plot and filters while Andy implemented the interactive head-to-head visualization and ensured the graphic resized appropriately to different screen sizes.