

Intentional Choices

For my final project, I decided to utilize play-by-play data over general statistical aggregates because it allowed for greater flexibility and depth in analysis. Unlike pre-calculated statistics, which can be limited in their scope, play-by-play data offered a more versatile foundation from which to subset, manipulate, and assess different trends. By working directly with the play-level data, calculations and transformations could be performed organically, enabling a more nuanced exploration of the game's dynamics.

The color palette selection was another thoughtful consideration. I chose to specifically use the Okabe Ito palette, a set of colorblind-friendly colors. The set color palette, designed by R, was intentionally created by a commitment to accessibility and inclusivity. This palette was specifically designed to ensure that individuals with color vision deficiencies could distinguish between the different hues, thereby enhancing the clarity and comprehensibility of the visualizations for a broader audience.

One distinctive feature of the first graph was the decision to group the PointsScored column by month rather than SeasonYear. This deliberate choice was motivated by the recognition that none of the other graphs would incorporate month-to-month data. By including this temporal granularity, my first visualization aimed to capture and highlight the cyclical scoring trends that naturally occur throughout a football season. The inclusion of this monthly data over the standard yearly data allows for a more nuanced understanding of the game's ebbs and flows, potentially revealing patterns or anomalies that might be looked over when viewing data solely at the season level.

The user features implemented in the Shiny apps were intentionally designed to be both significantly and user-friendly. Rather than overwhelming the interface with superfluous options like changing the color palette or changing the scale of the axes, the focus of my user inputs was on providing meaningful interactivity that facilitated the identification of subtle differences within the visualizations. In the first Shiny app, the decision to separate rush and passing plays into distinct tabs was driven by a desire to maintain clarity and avoid visual clutter. By isolating each play type, the app ensured that users could concentrate on one aspect at a time, without the need to grapple with multiple facets simultaneously. I initially chose to represent the data by using facet_wrap, but with the size of my boxplots, I thought that this added too much for the audience to observe at a single time. This approach that I ultimately chose not only enhanced the user experience but also allowed for larger, more legible visualizations, particularly on smaller devices. The interactive feature enabling users to select the SeasonYear variable further amplified the app's utility by permitting seamless exploration of temporal trends within the boxplots. In the second Shiny app, the primary interactive component enabled users to select a specific Team, a choice that complemented the SeasonYear variable displayed on the x-axis.

This design decision facilitated a more targeted analysis, allowing users to examine the interplay between team performance and temporal factors. Allowing users to examine this relationship through individual team selection accounts for variations in coaching philosophies, personnel, and existing defensive schemes in different organizations, while also revealing potential disparities in competitive balance and outlier performances that could challenge or refine broader conclusions about the health of the game.

Next, the inclusion of median bars in the Advanced Defensive Metrics graph was a deliberate choice aimed at enhancing the data's storytelling potential. By visually denoting the vertical and horizontal median values, the audience's attention can be drawn to the trends and patterns that emerged within the scatterplot. Without these reference lines, identifying and interpreting these tendencies would have been more challenging. Median lines serve as valuable guides, enabling the audience to quickly grasp the relative positioning of data points and discern potential correlations or outliers. It is only through this technique that I am able to effectively "show the data" and the pattern that is the most important in this instance. Furthermore, the quadrants created by the median lines effectively delineated different "tiers" of defensive performance, providing a framework for deeper analysis and comparison.

Lastly, the decision to prioritize the use of Plotly over ggplot for the majority of visualizations was driven by several key factors. Firstly, Plotly's hover feature proved invaluable in presenting additional data points and descriptors in a concise and easily accessible manner. This feature allowed the audience to seamlessly explore specific details without compromising the overall visual clarity. In contrast, ggplot's `geom_text` functionality pales in comparison, often leading to cluttered or illegible annotations. Furthermore, Plotly's animation capabilities offered a distinct advantage over ggplot's `gganimate` package. The seamless integration of animation within Plotly facilitated the creation of fluid, visually compelling transitions, while `gganimate`'s implementation proved more cumbersome and prone to producing fragmented results.

In conclusion, the choices made throughout this project were guided by principles of clarity, accessibility, and storytelling effectiveness. From the selection of colorblind-friendly palettes to the implementation of intuitive user interactions, each decision was carefully considered to enhance the audience's understanding and engagement with the data. By leveraging the strengths of various visualization tools and techniques, I drove this final project to strike a balance between analytical rigor and visual appeal, in order to ultimately craft a comprehensive story that illuminated the intricate dynamics of the contemporary NFL and its current discourse.

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