

Data Visualisation - Data Story Report

How has the racing of Formula 1 changed over time?

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Data Story Summary

Dataset Summary

Visualisations

Visualisation A - Most Successful Drivers and Constructors Champions

Description

The first visualisation I used was a trio of Sankey diagrams representing the championships won by drivers and constructors throughout the history of F1. The visualisation uses one main Sankey diagram to represent the drivers and two supporting Sankey diagrams to represent the constructors. The diagrams show the number of championships won by the driver branching to the constructors they won them with and the sporting eras they were won in.

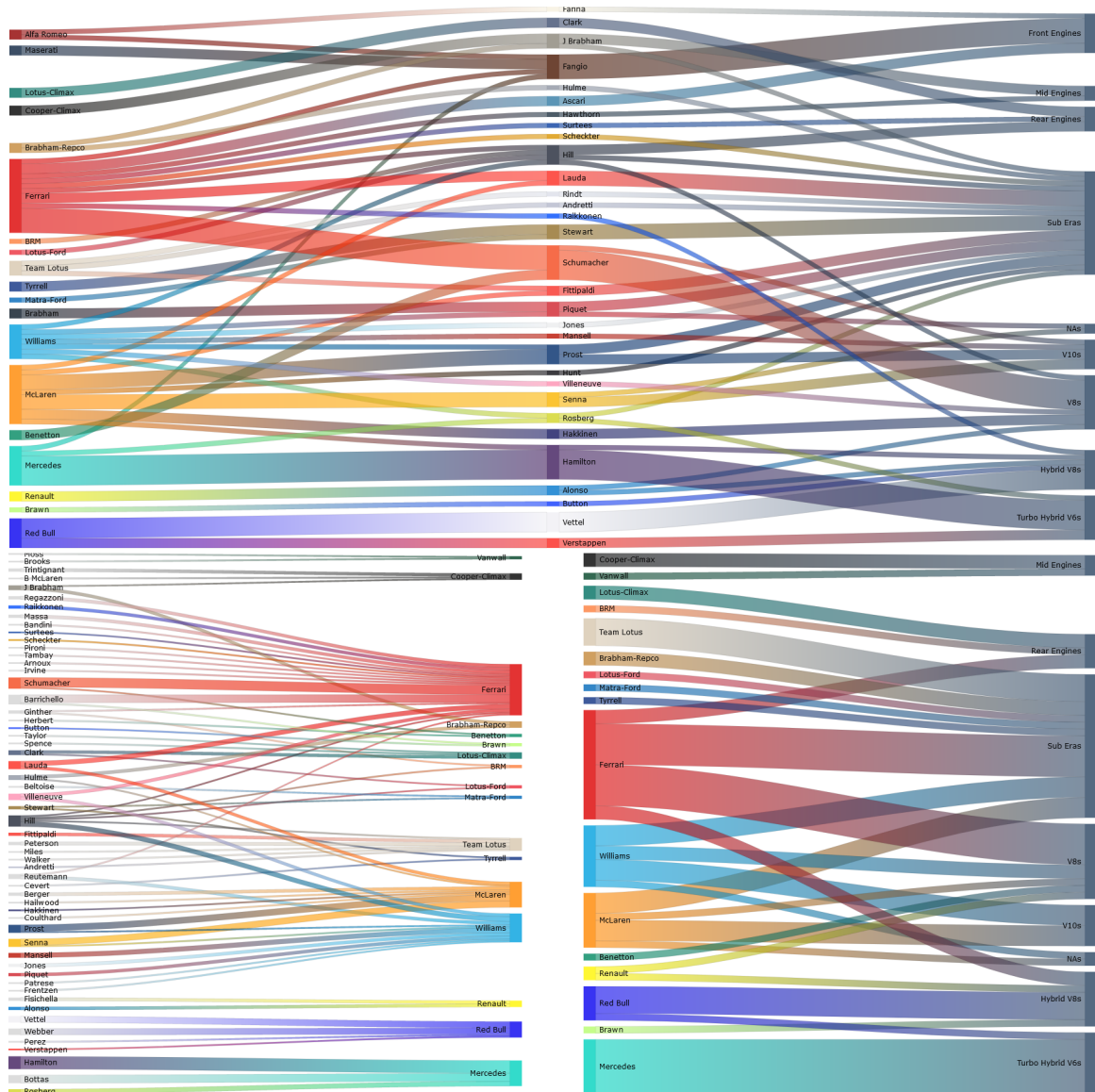


Figure 1: Visualisation A

The diagram uses specific colour coding for teams and drivers champions with their nodes being coloured based on either their driver helmet or team colours. The diagrams provide some functionality, nodes can be selected to easily identify their paths and when hovering over a link, more details about the

exact number of championships will be provided.

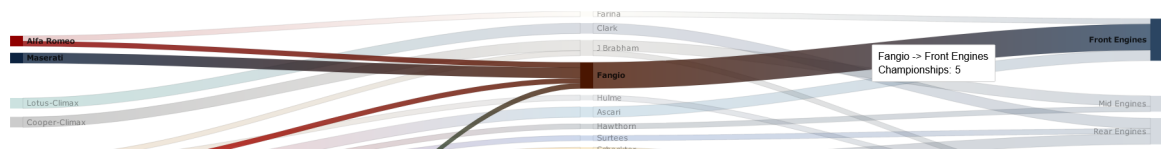


Figure 2: Visualisation A Interactivity

The visualisation aims to familiarise the audience with key names of successful teams and drivers in the sport, showing which have been the most successful and the eras they were largely dominant in. The colour coding also helps establish a connection to teams and drivers, making it very easy to navigate the visualisation for an audience familiar with the sport already.

Justification

Narrative Design Patterns

Strengths and Weaknesses

Improvements

Visualisation B

Description

The second visualisation breaks down the first by exploring the championship points earned over time by drivers and constructors. The two charts that make up the visualisation are area charts that show the area based on the number of points earned in a year. The visualisation comes with a toggle to change between average points and the sum of points in a year. This allows us to see clearly how the number of races has increased over the years and how this gives us a more accurate average for recent seasons. The

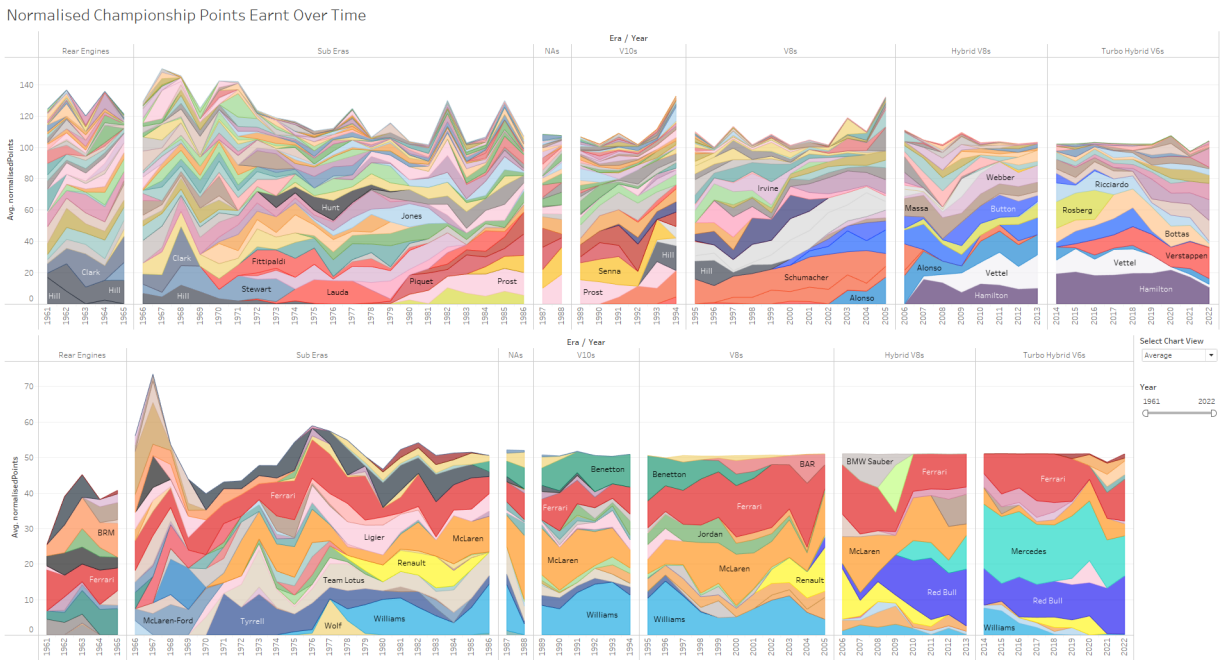


Figure 3: Visualisation B - Average Mode

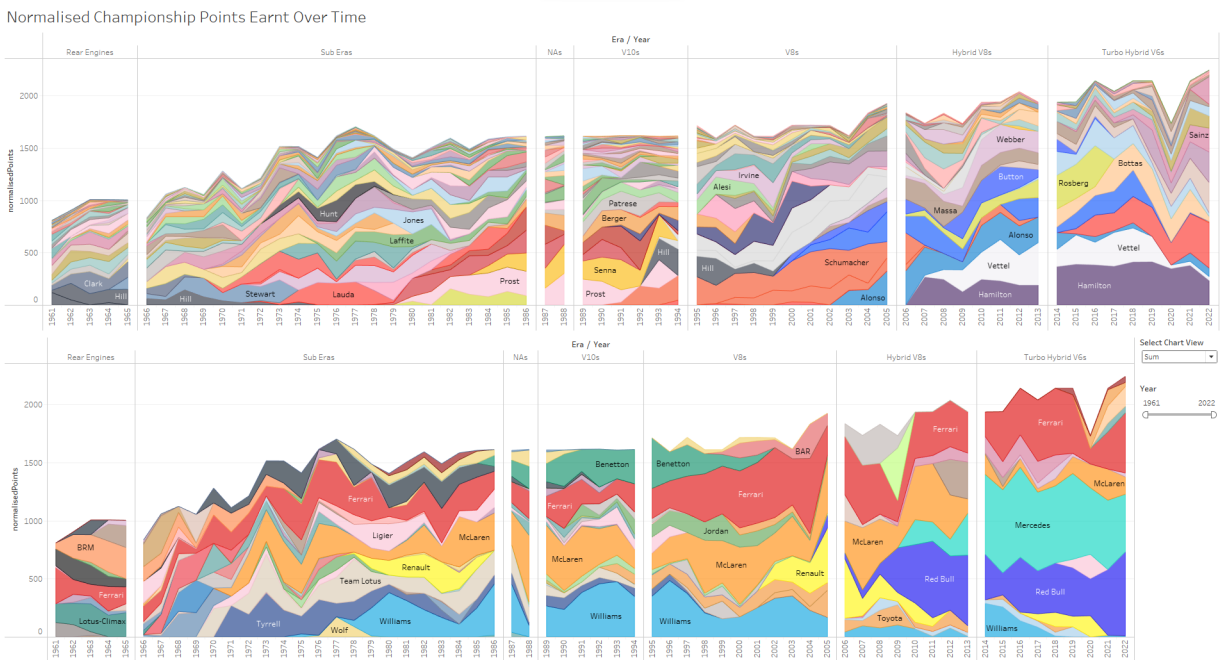


Figure 4: Visualisation B - Sum Mode

An important calculation that I had to do for this visualisation was to normalise the championship points. Over time, the points system has evolved over time and hence meant that the graph ended up being quite skewed and was hard to compare progression over time. I computed all the past results using the current modern-day points system from 1961 onwards.

These graphs use the toggle as a bit of interactivity and also come with a year range filter to look closer at different eras. The graph will label more drivers and constructors for shorter time ranges which can be interesting for comparing only a few years. Another important part of this visualisation is the continuing use of colour, matching some of the constructors and drivers to the colours used by their helmets (and by extension the same colours as in visualisation 1.)

The aim of this visualisation is to allow the audience to see how dominant periods have occurred over time, where they have ended up, and how many uniquely dominant teams and drivers there are for a given period.

Justification

Narrative Design Patterns

Strengths and Weaknesses

Improvements

Visualisation C - Breakdown of F1 Racing History per Country

Description

My third visualisation is exploring the racing history across the globe. The visualisation heavily relies on the audience's own exploration using the given interactivity to select different countries to view the data provided. For each country, multiple different graphs are provided: a box plot breakdown of lap times over the years, the average number of overtakes per country shown as a map and a bubbles diagram showing the number of pitstops per race.

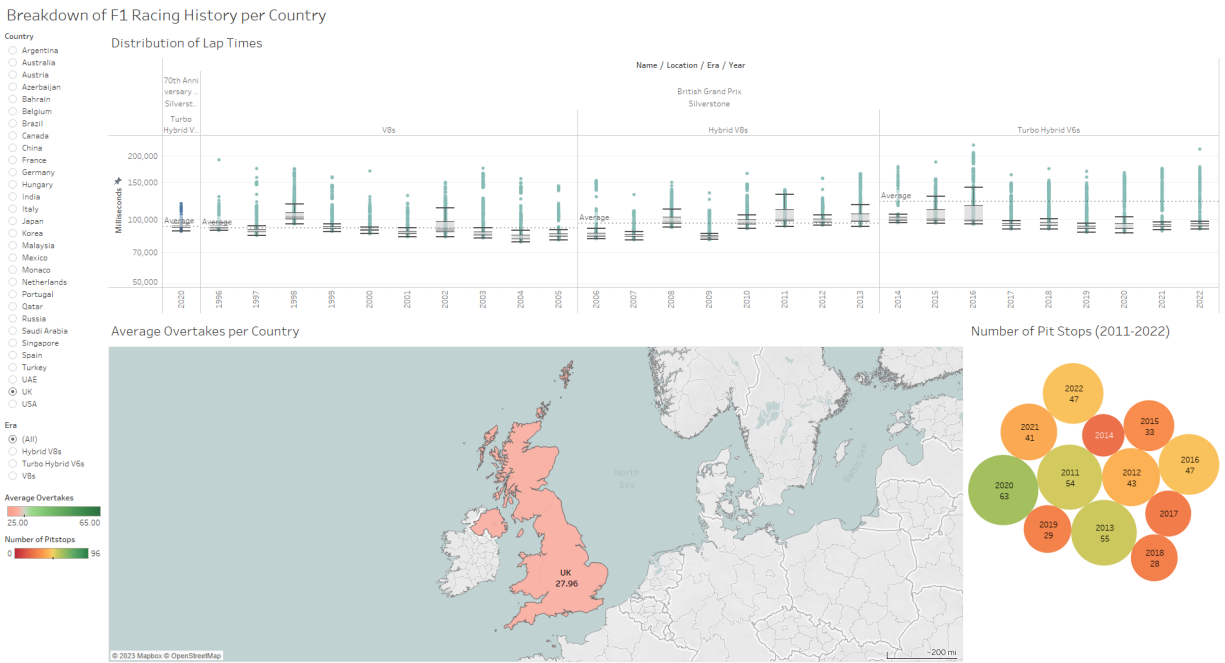


Figure 5: Visualisation C

The aim of this visualisation is to allow the audience to explore the globe and take quite a wide viewpoint and dig deep into the individual races that take place. The key interactivity provided by this visualisation is the country and era filter. This allows the audience to select different countries which will automatically update the three graphs to display the info for that specific country. The box plot allows you to view individual lap times, box plot specifications and colour code tracks to identify changes in location. The map is colour coded to show the number of overtakes compared to the rest of the world. The pitstops are also colour coded by the number in each year.

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Visualisation D

Description

The fourth visualisation dives deep into the raw qualifying and race lap times, using two charts to make up the visualisation. The first is a composite of two box plot graphs that measure the lap times from 1996+ onwards. The second chart shows a scatter graph of the average race lap time vs the average qualifying lap time for each of the drivers.

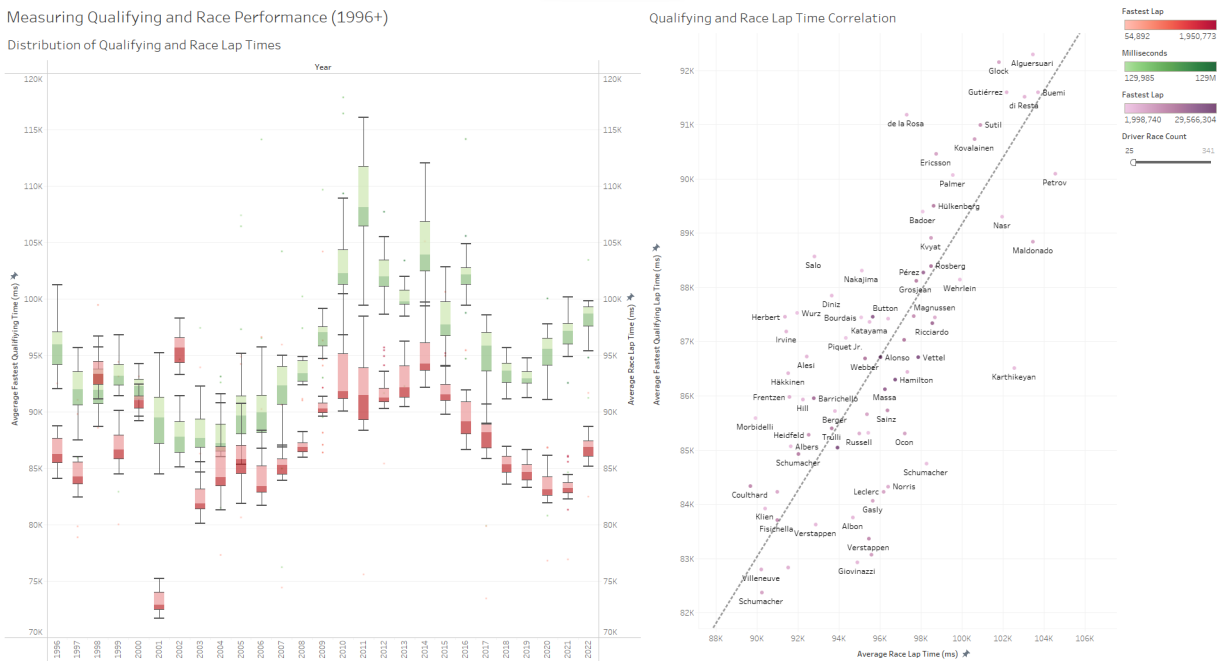


Figure 6: Visualisation C

The second graph provides zoom controls to further explore the data easier and make more labels visible at closer resolutions. Also, there is a slider that will allow the audience to filter out drivers that haven't raced X number of races which the audience will find interesting in seeing how the line of best-fit changes.

The aim of this visualisation is to compare the performance of lap times to expose the raw difference in car performance over time as well as to use this data to further show the dominance of certain drivers.

Justification

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Strengths and Weaknesses

Improvements

References

- [1] Ergast Developer API (2022) Available at: <http://ergast.com/mrd/db/> (Accessed: November 18, 2022).
- [2] Formula 1 Race Events, Kaggle (2022) Available at: <https://www.kaggle.com/datasets/jtrotman/formula-1-race-events> (Accessed: November 18, 2022).
- [3] Formula 1 Results (2022) Available at: <https://www.formula1.com/en/results.html> (Accessed: November 18, 2022).
- [4] Sky Sports Stat Zone (2022) Available at: <https://www.skysports.com/f1/stats> (Accessed: November 18, 2022).