



Who is the best driver in the world?

The battle for the 2021 F1 Driver Championship

Exam Project

Data Visualisation and Data-Driven Decision Making

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Introduction

The 2021 Formula 1 season will be remembered as one of the most historic seasons, due to the spectacular driver championship battle between the 7-time world champion Lewis Hamilton and the rising star Max Verstappen. Over the course of the entire season, the two drivers were head-to-head and involved in spectacular battles on the racetrack captivating people all around the world.

I challenged myself to visually capture the spectacle, drama and tension surrounding the driver's battle in an interactive Tableau Dashboard. The dashboard is designed to tell the story of the championship battle in an equally captivating and energetic way as the season has progressed. My hope is that the dashboard is both suitable for long-time F1 fans who are able to relive the core moments of the season, but also conveys the excitement around the season to other occasional spectators. This report breaks down the dashboard into its individual components and motivates the main design choices.

The project is published under the name *2021 Championship Battle: Verstappen vs. Hamilton* on [Tableau Public](#). It is recommended to open the link through Google Chrome or Brave (not Safari), because of font support. All raw data, preprocessing scripts and assets are hosted on [GitHub](#).

Data & Toolchain

The raw data was obtained from Kaggle and included detailed information about all races, laps, drivers, constructors, circuits for all seasons from 1950 to 2021. The data was filtered and processed using *Python*. The preprocessing steps involved joins of datasets, filtering, renaming of columns and handling missing data. The final resulting two datasets were connected to *Tableau*, where all charts were created. An important visual element of the dashboard is the background, which was designed outside of Tableau in *Adobe Photoshop*.

Using Tableau as the central tool for creating charts was reasonable, because of its extensive customisation options (custom fonts, colours, chart types, ...) and the easy integration of interactive elements. Its missing capabilities for designing professional backgrounds was circumvented by using Photoshop. Finally, Tableau offers an easy way of publishing the dashboard through Tableau Public, making the visual story of the championship available for all fans of F1 and data enthusiasts around the world.

Colours & Fonts

Colour was a core visual element to guide the viewer's attention and encode information. The dashboard has an all-black background to allow the foreground colours to pop more. The primary text colour was light-grey, since the focus in the dashboard should not be on the textual elements. Highlights in texts are written in white to accentuate their importance. All labels of axes, gridlines and legends are consistent with the light-grey colour-theme. The two drivers are represented by their primary team colours throughout all visual elements, giving the dashboard a familiar feel for everyone involved with F1 and allowing them to associate the colours to the two drivers easily. The use of the official F1 UI-style is extended in the typography, as headers, driver codes and axes labels are written in the official Formula 1 font. The remaining textual elements use Google's Titillium Web font. For the dashboard published on Tableau Public, the fonts were replaced by Poppins, which is the font closest to the originally planned fonts that is available on Tableau's servers.

 #EF0000	[Title]	 #565859	[Subtitle]	Formula 1	[Title, Axes, ...]
 #09F8E4	[HAM Code]	 #FO0000	[VER Code]	Titillium Web	[Text Body]
 #9EA4A4	[Primary Text]	 #FFFFFF	[Highlight Text]	Poppins	[Fallback]

Charts & Dashboard Components

This section breaks down the dashboard into its individual components and motivates the design choices.

Background

The background sets the tone, topic and theme of the entire visualisation and has two core visual elements:

Greyed-out images of both drivers are positioned in opposite sides of the dashboard and are overlayed with a diverging turquoise-red gradient. The placement of the two driver's images as well as the diverging colours already hint at the rivalry between the two drivers. It also indirectly supports the colour encoding of the two drivers.

The battle for the driver championship is *in between* the two drivers - both metaphorically and visually on the dashboard. In the background image, the centre of the dashboard features the title, subtitle and an introductory text. The typography and radiant red colour of the title aims to grab the viewer's attention and inform about the topic of the dashboard together with the subtitle, which is written in dark-grey to create more depth. The short introduction briefly motivates the ideas of the dashboard and gives practical instructions on how to interactively explore the dashboard components.

Season Points Chart

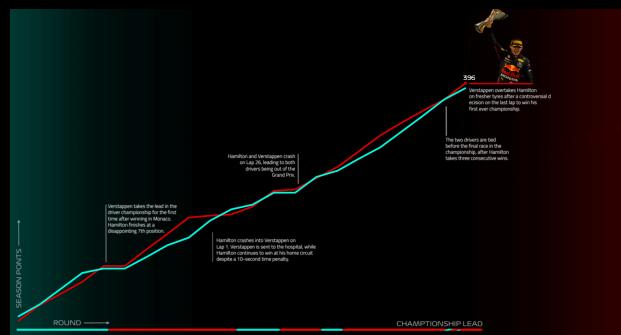
The season points chart is the core of the data story-telling. It shows the progression of the driver championship from the very first to the last race by displaying the season points for the two championship contenders. Any other drivers are filtered out of the visualisation. The Y-AXIS is intentionally removed from the chart to declutter the dashboard. The goal of the chart is not to actually inform about the precise number of points after each race, but rather to point out the closeness of the battle at any stage in the season. In an attempt to amplify the tight battle even more, the X-AXIS is coloured in the colour of the championship leader throughout the season. Although the information is redundant (since the championship leader is also visible in the line chart), the added visual cue allows to get a quick visual summary of the changing championship leads and also accentuates one of the core moments of the season: both drivers being tied in points before the final race of the season. Here, the X-AXIS is striped in both driver's colours.

In order to tell the story of the championship battle, core moments in the driver championship battle, i.e. events during races that led to drastic changes in the outlook of the championship, are highlighted through static explanatory texts that are positioned to the races they occurred in.

Finally, the last descriptive text is combined with a photo of the trophy-winning Max Verstappen in an attempt to visually answer of the title, how the best driver in the world is (according to that season).



> Isolated Background



> Isolated Season Points Chart

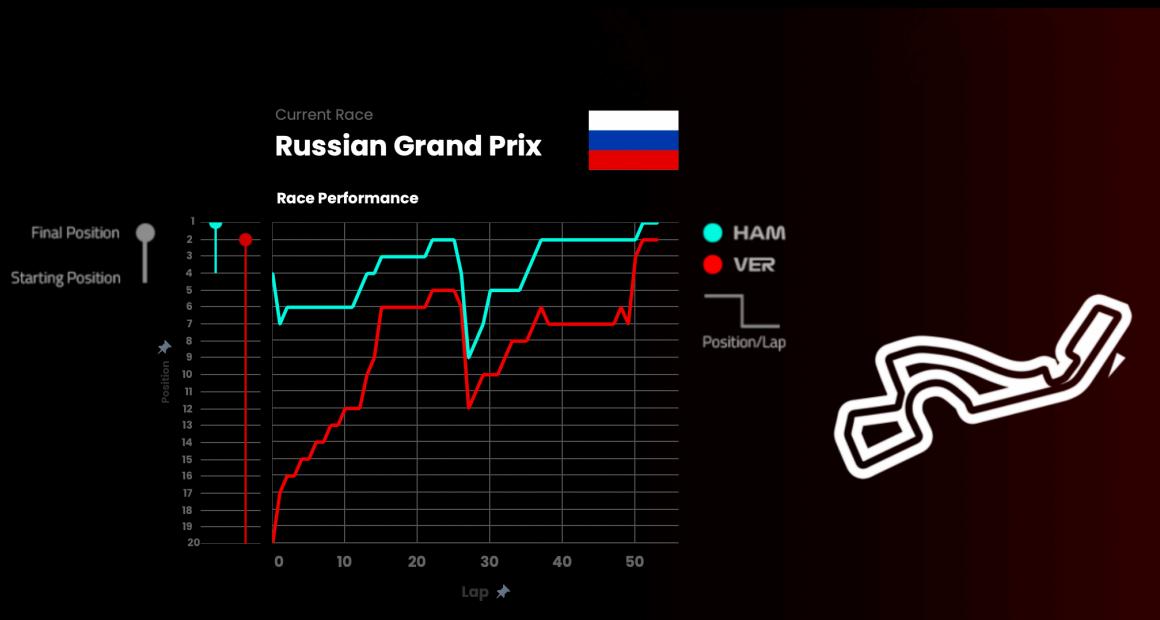
Race Details Charts

By hovering over different races in the season points chart, the race details section is dynamically updated to show further data about the race, track and the performance of the two drivers. This allows the viewer explore the data to further depth in an interactive manner.

The race details section includes five dynamic elements. First, the name of the currently selected race alongside the country flag and the circuit layout is displayed. The use of shapes and symbols added another visual dimension that was found to be more appealing than simply displaying textual data. The detailed race performance is presented in two separate, but related, charts. The right chart is a gridded line chart showing the race position of both drivers lap by lap. The left chart features a vertical (half-)dumbbell chart, condensing the right chart's information into two numbers - the starting and finishing position. Again, data redundancy is employed as a tool to visually highlight an important aspect of the data. The dumbbell charts makes it easy to percept the overall race performance by visualising directionality (position lost or gained) and magnitude (length) of the dumbbells.

The close relation between the two charts is visible in the way the charts are organised on the dashboard and labelled. In being horizontally aligned, they use the same Y-AXIS (which is reversed to order position from top-to-bottom) and horizontal grid lines. This, and the fact that they are sharing a single title, gives the impression of the two charts being merged into a single one. Instructions to understand the charts is reduced to minimalistic legends to the left and right of the two graphs respectively.

Overall, this section allows the user to re-experience how the season developed by hovering from one race to the other and relating the charts of the positions to race events.



> Isolated Race Details Chart