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 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 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 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 where 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 seemed 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 is on top of an all-black background with the goal to allow strong foreground colours to have a bigger impact. The primary text colour was a 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 align in the same light-grey colour-theme. The two drivers are encoded through their primary team colours throughout all visual elements in the graph giving the dashboard a familiar feel for all people involved with F1 and allowing them to associate the colours to the two drivers easily. The familiarity to the official F1 UI is extended in the use of typography. Headers, driver codes and axes labels are written in the official Formula 1 font. The remaining textual elements use Google's Titilium 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]	#F00000	[VER Code]	Titilium Web	[Text Body]
#9EA4A4	[Primary Text]	#FFFFFF	[Highlight Text]	Poppins	[Fallback]

Charts & Dashboard Components

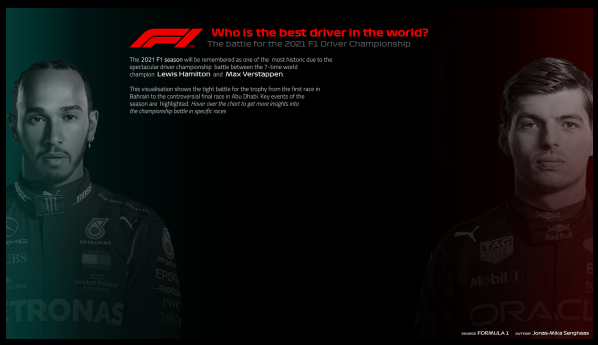
This section breaks down the dashboard into its individual components and motivates the design choices.

Background

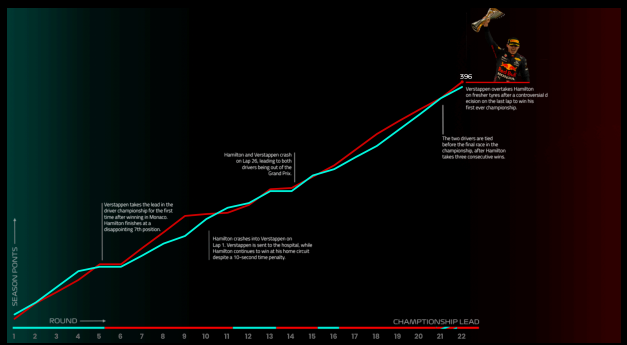
The background is setting the topic, tone and theme of the entire visualisation and has two core visual elements:
Greyed-out images of both drivers are positioned in opposite sides of the dashboard and are overlayed with a diverging turquoise-red gradient. The placement of the two driver's images as 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 that is consistently used to refer to 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 point chart is at 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 players 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 seaon. 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.
Finally, 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.



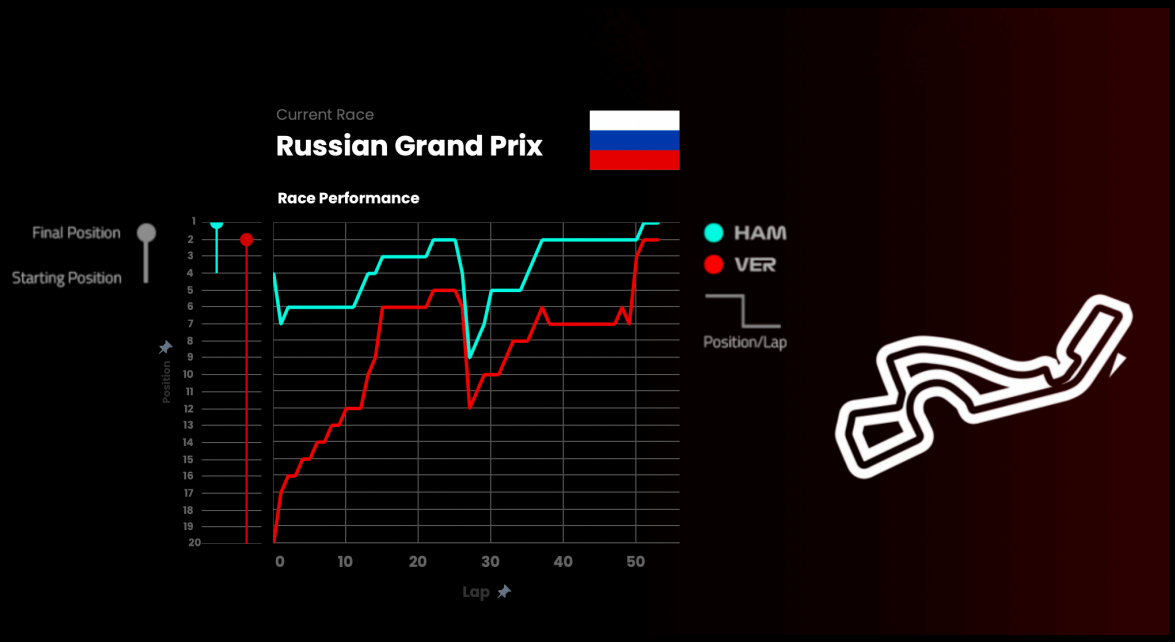
› Isolated Background



› 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 information and data about the race, track and especially the performance of the two drivers. This interactivity allows the viewer to go into further depth and explore data that is not visible in a first place.
The race details section includes five dynamic elements. Firstly, the name of the currently selected race alongside the country flag and a SVG of the track is displayed. On hover, more information about the name and geographic information of the track can be discovered.
Below, two separate, but related, charts inform about the race performance of both drivers. While the right grid line chart shows the race position of both drivers lap by lap, the left vertical dumbbell chart is showing a summary of the race performance by visualising the gained or lost positions of both drivers through a vertical dumbbell connecting the starting and finishing position. Both charts share a Y-AXIS, which is reversed to order the positions from top-to-bottom following the natural ordering of ranks.



› Isolated Race Details Chart

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