User guide
F1 Visualisation Dashboard

A study on F1's history, drivers and constructors

Prepared By:
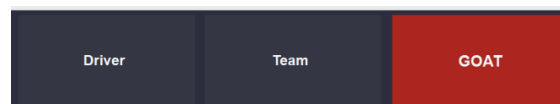
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1. Homepage

1.1. Main Homepage

The main page of the website gives a brief yet informative summary of the Formula One races from 2011 until now. It includes important race-related information like the champions, driver lineups, and race details for each year. Furthermore, there's a dashboard that shows the past teams that participated and the points progression of a chosen driver for the season.

1.2. Filters and Navigation

Users are able to select a range of years or a single year by sliding tool.

Users are also able to navigate to other dashboards using the buttons shown.
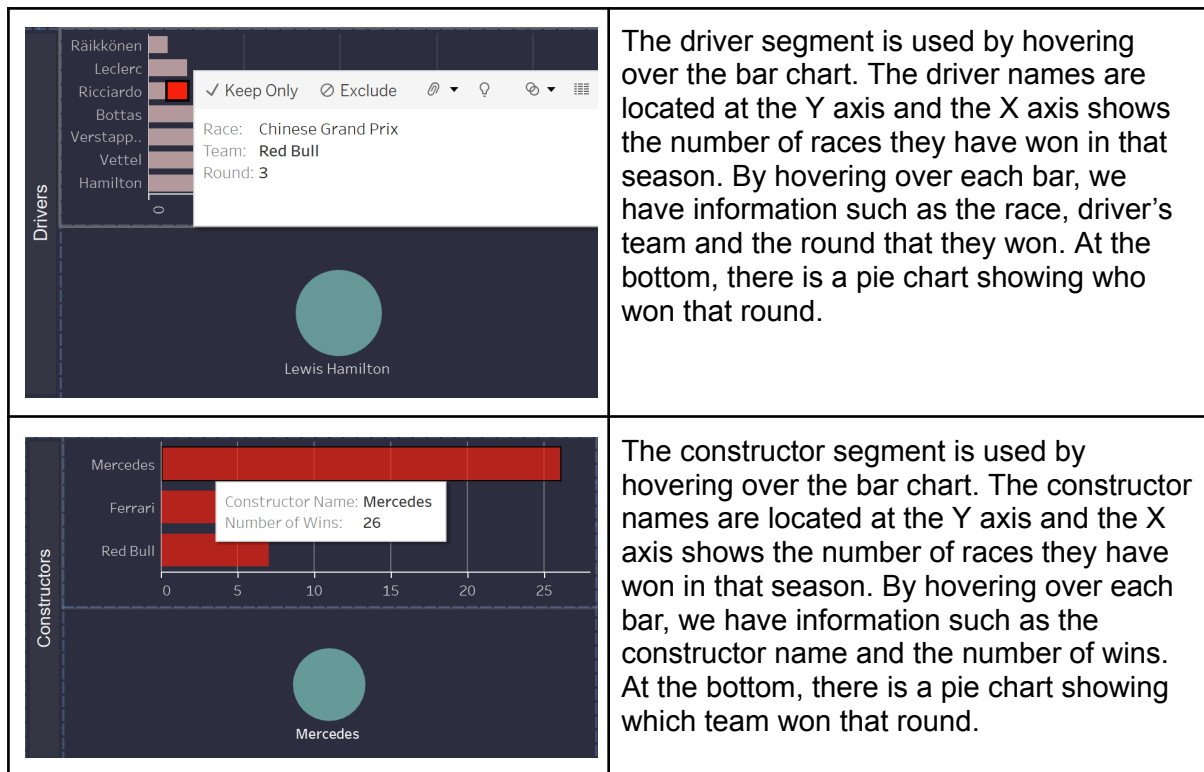
1.3.   Race information

The race information section contains a dynamic map and a bubble chart of the most popular race tracks during certain years.
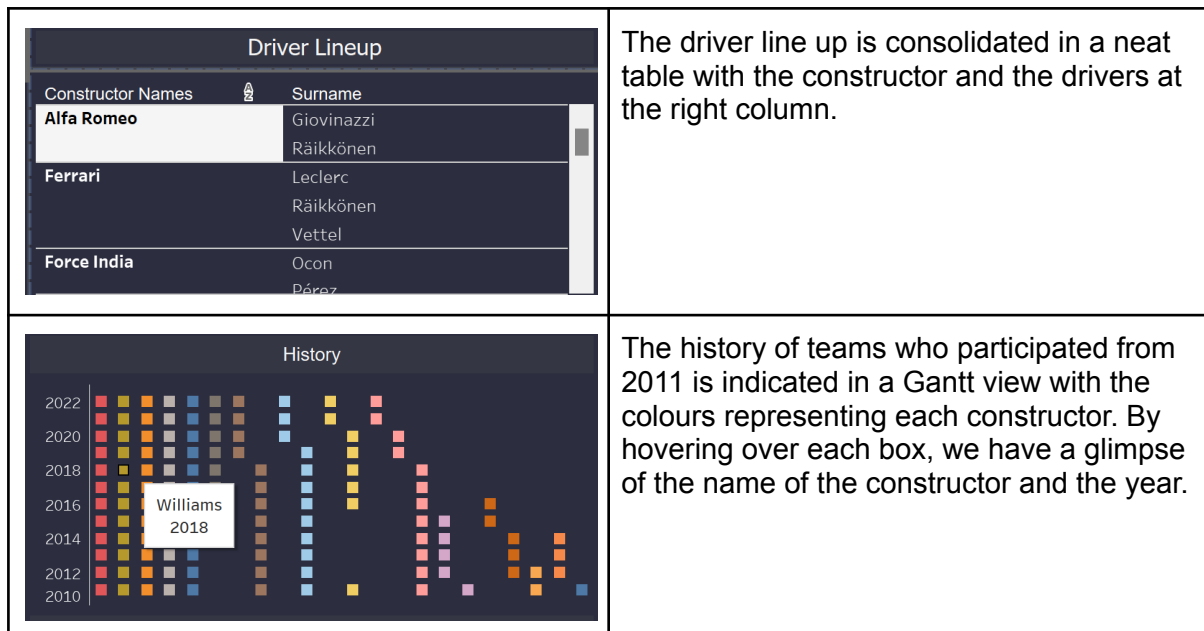

The map shows the countries where the races took place by hovering and zooming in on the map. The red area indicates the countries while the dots pinpoints the exact city where the races took place.

The bubble chart shows the country that was involved in the chosen years and the number of races it hosted, as well as the number of circuits that they offer. This can be observed by hovering over each bubble.
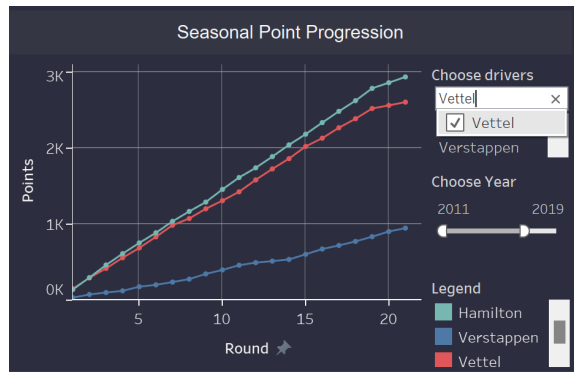
1.4.   Champions

The champions section comprises two components: the drivers and the constructors, with each chart offering an insightful look into their accomplishments.

	The driver segment is used by hovering over the bar chart. The driver names are located at the Y axis and the X axis shows the number of races they have won in that season. By hovering over each bar, we have information such as the race, driver's team and the round that they won. At the bottom, there is a pie chart showing who won that round.
	The constructor segment is used by hovering over the bar chart. The constructor names are located at the Y axis and the X axis shows the number of races they have won in that season. By hovering over each bar, we have information such as the constructor name and the number of wins. At the bottom, there is a pie chart showing which team won that round.

1.5.   Driver Lineup, History and Seasonal Point Progression

The next few visualisations serve as general information about drivers who participated in the selected year's season, the history of teams who participated in the past, and seasonal point progression of selected drivers.

	The driver line up is consolidated in a neat table with the constructor and the drivers at the right column.
	The history of teams who participated from 2011 is indicated in a Gantt view with the colours representing each constructor. By hovering over each box, we have a glimpse of the name of the constructor and the year.

Seasonal Point Progression

Choose drivers
Vettel
☑ Vettel
Verstappen

Choose Year
2011   2019

Legend
Hamilton
Verstappen
Vettel

The Seasonal Point Progression can be used by typing in the driver's name under 'choose drivers', and clicking on the + button. We can use the year slider to change the data as well.

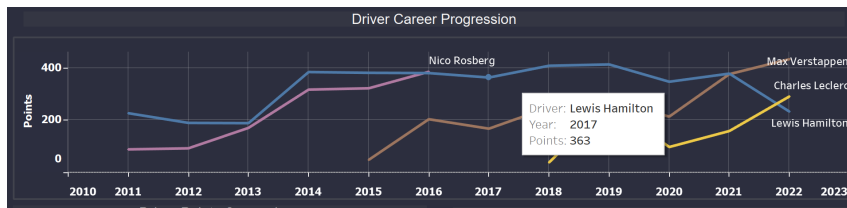## 2. Driver

2.1. Main Driver Dashboard

The driver dashboard helps to give a overview performance of drivers based on year, name of race track , fastest lap speed, position order, fastest lap.The driver dashboard helps to track and compare drivers based on performance metrics such as points accumulated over the year, a driver's career progression based on selected race(s), year, driver.

2.2. Filters and Navigation

Users are able to select year in "Select Year" for a specific time period for these visualisation in the dashboard :
- Driver Points Comparison
- Top 10 Drivers
- Driver Nationality
- Driver Race Detail

Users are able to search for drivers in "Select Year" for these visualisation :
- Driver Career Progression
- Driver Points Comparison

Users are able to search for races in "Select Race" for these visualisation::
- Driver Point Comparison
- Driver Race Details

2.3.   Driver Career Progression

The driver career progression chart allows to track the accumulated points gained in a year by the drivers over the year based on selected year(s) from "Select Year" filter and selected driver(s) from "Select Driver" filter. The colours are categorised based on driver name. When hover the chart, we can see the driver name, points and year
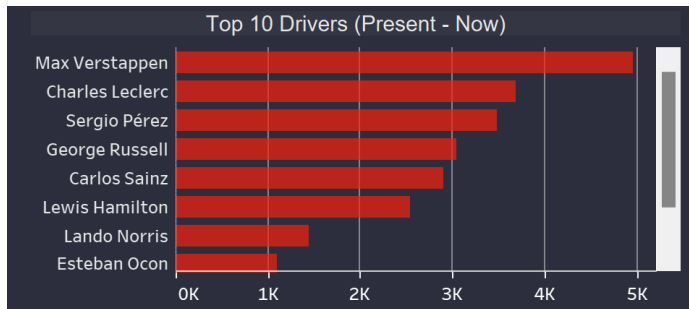
2.4.   Driver Point Comparison
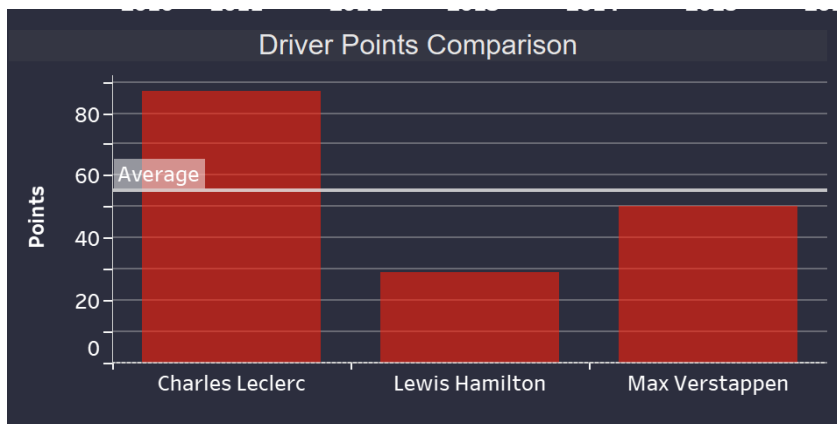
The drivers points comparison chart shows the drivers based on selected drivers from "Search drivers" and selected year(s) from "Select Year" and "Select race" filter. Average reference line are calculated based on average point accumulated by the selected drivers has been added to compare between these drivers
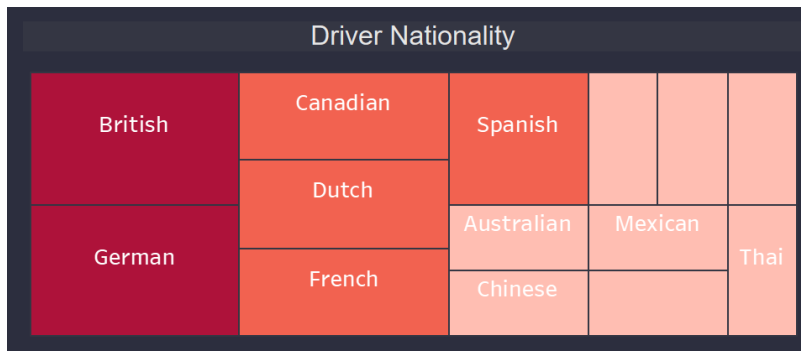
2.5.   Top 10 Drivers

Top 10 Drivers (Present - Now) Max Verstappen Charles Leclerc Sergio Pérez George Russell Carlos Sainz Lewis Hamilton Lando Norris Esteban Ocon 0K 1K 2K 3K 4K 5K	The top 10 drivers chart are accumulated points gained by the drivers based on "Select Year" filter and has sorted in descending order

2.6.   Driver Nationality

Driver Nationality British, German, Canadian, Dutch, French, Spanish, Australian, Mexican, Chinese, Thai	The driver nationality chart are the number of drivers based on "Select Year" filter and the sequential colour saturation is based on the number of drivers that took part of the race

2.7.   Driver Race Details

|	
Driver Race Details	The driver race details chart shows the KPI of race performance metrics based on "Select Year" and "Select Race" filter .

|		Position Order	Fastest Lap Speed	Fastes
Charles Leclerc	Ferrari	6.0	846.2	
Lando Norris	McLaren	22.0	837.3	
George Russell	Mercedes	26.0	843.4	
Sergio Pérez	Red Bull	26.0	832.9	
Max Verstappen	Red Bull	28.0	843.4	
Daniel Ricciardo	McLaren	29.0	826.4	

3.   Team

3.1.   Main Team Dashboard

The team dashboard gives an overview of the performance comparisons among F1 teams based on year, nationality, points, laps, lap speed, lap time and average pit stop duration.
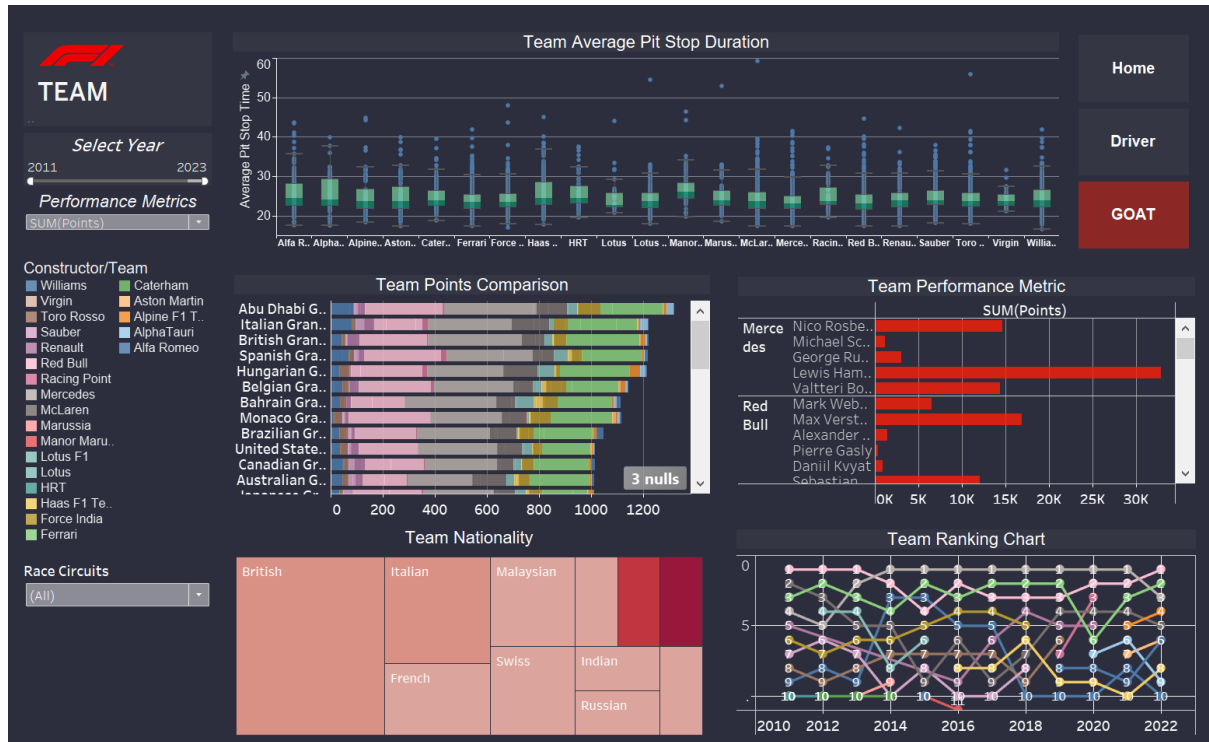

On the leftmost side of the dashboard, users can filter by the year range, performance metrics and race circuits. Furthermore, the relevant constructors/teams will be colour-coded and labelled here too.

3.2.   Team Nationality
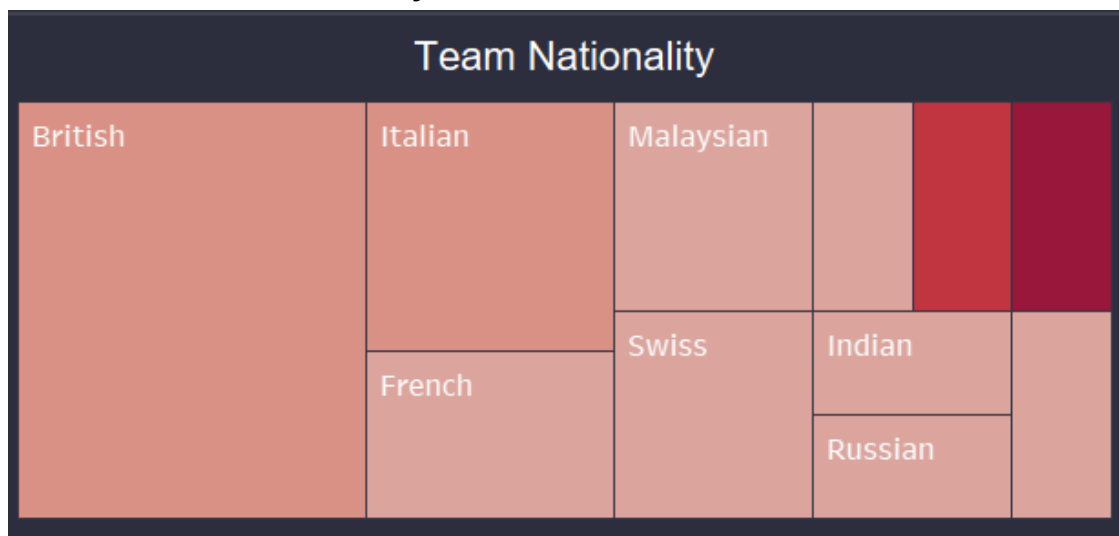
This is a treemap of the nationality of F1 teams, with size based on number of teams and colour based on number of wins for the nationality.
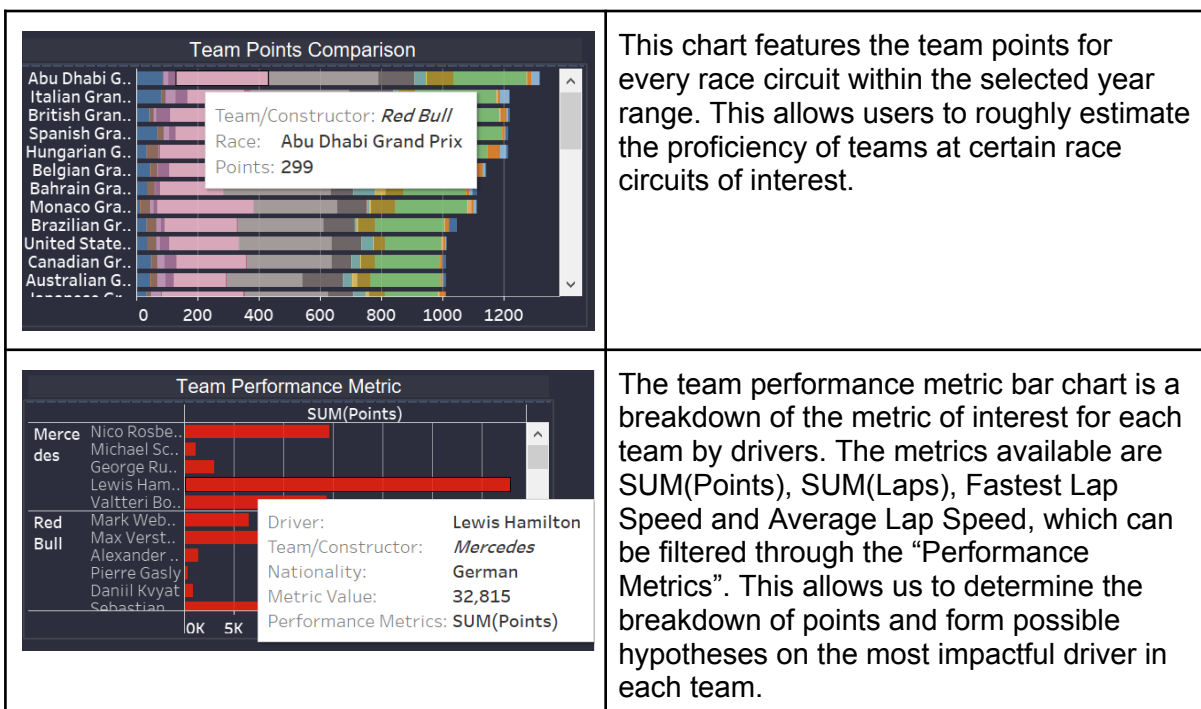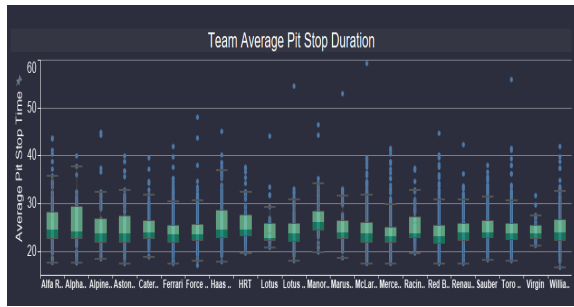
3.3. Team Ranking Chart
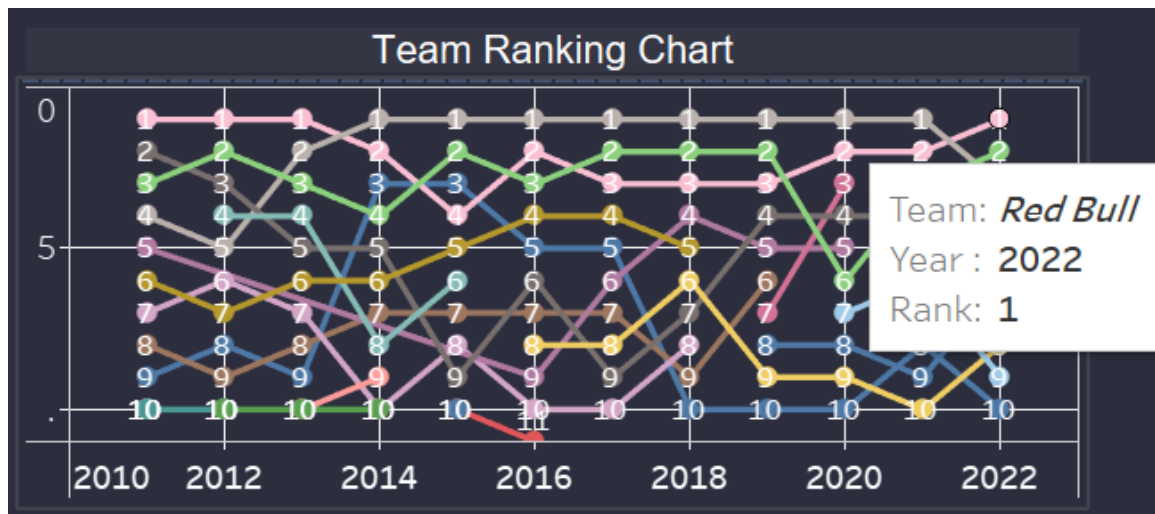
The team ranking chart is a static visualisation of the different rankings of the F1 teams over the years, ranked by their points accumulated for that year. Users can hover over the point to obtain the team, year and rank for a quick overview of the team performance over time.

3.4. Comparisons of Team Performances

This section features 3 charts which are best analysed together to derive insights regarding the team points by race circuits, team performance metric and team average pit stop duration. These 3 charts can be filtered at the same time using "Year" and "Race Circuits".

|	
	This chart features the team points for every race circuit within the selected year range. This allows users to roughly estimate the proficiency of teams at certain race circuits of interest.
	The team performance metric bar chart is a breakdown of the metric of interest for each team by drivers. The metrics available are SUM(Points), SUM(Laps), Fastest Lap Speed and Average Lap Speed, which can be filtered through the "Performance Metrics". This allows us to determine the breakdown of points and form possible hypotheses on the most impactful driver in each team.

Team Average Pit Stop Duration

With this box-and-whiskers plot, we can compare the average pit stop duration for the different teams by looking at the range of the box plots. Furthermore, we can compare the outlier points that lie outside of the box plots, where the higher the point, the longer the pit stop duration, which indicates a worse team pit stop performance.

A better way to use this chart would be to filter for a year and/or race circuit so that averaging of pit stop duration would be more accurate.
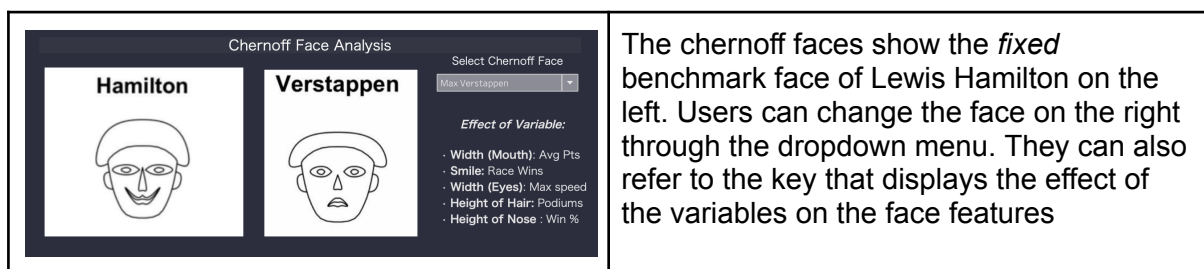
4.   GOAT Dashboard
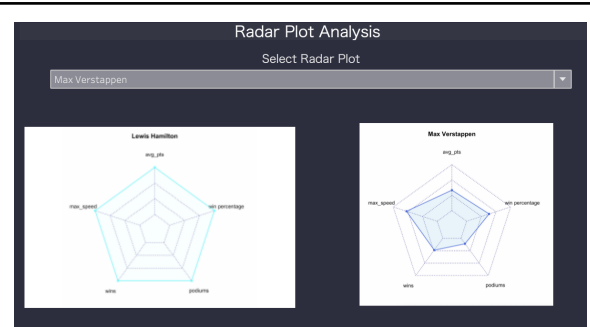
4.1.   Main GOAT Dashboard

The dashboard serves the primary function of comparing Lewis Hamilton to the other 4 top drivers of the decade. It contains information on Lewis Hamilton through the linked Wikipedia page along with his picture. It shows the Chernoff Face, Radar Plots and Age vs Wins graph.
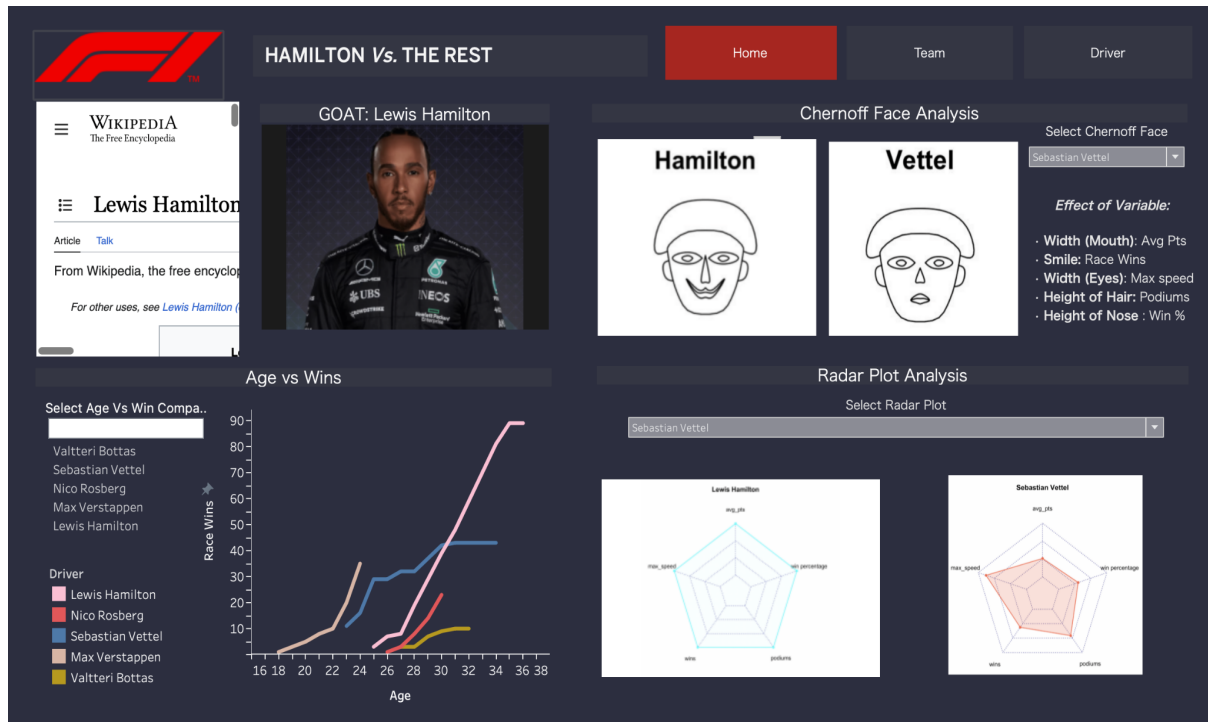

4.2.   Individual Plots and Customization

Each of the 3 plots use Lewis Hamilton as the benchmark, and users are able to select the other driver to compare alongside Hamilton through a drop-down menu.

The chernoff faces show the *fixed* benchmark face of Lewis Hamilton on the left. Users can change the face on the right through the dropdown menu. They can also refer to the key that displays the effect of the variables on the face features

The radar plot follows a similar layout. Users can compare the star plots of different drivers to Hamilton by changing the plot on the right using a dropdown menu (with a custom list).
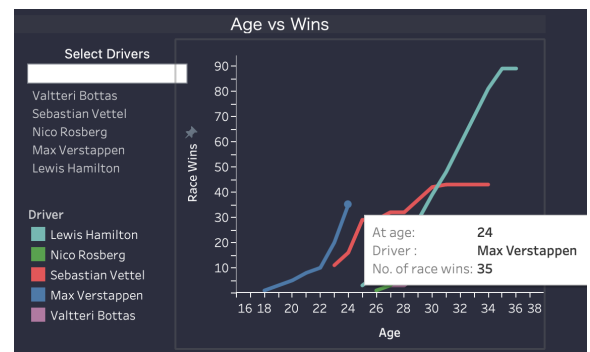
The Age vs Wins plot is a line chart that allows the users to see the success of drivers evolving over their life. Users can customise this graph by selecting the drivers they wish to compare. They can also hover their cursor over the line to see the exact age the driver was when he had x number of wins.