Milestone 2

Tools and related lectures

The website is based on React, and the visualizations are made in D3.js.

Visualization	Tools	Related lectures
Global Leaderboard	d3, d3-color, d3-timer	do's and don'ts, interaction, d3.js
Hall of Fame	d3, d3-color	do's and don'ts,interaction,d3.js
Circuits World Map	d3, d3.geo , topojson	Maps, practical maps, perception and color,interaction, more interactions,d3.js
Season battles	d3	do's and don'ts, d3.js
Drivers and teams associations	d3, d3-force, d3-color	Graphs, do's and don'ts, d3,js

Project Goals

The goal of this project is to provide an insightful introduction to the world of Formula 1. We want to provide a global overview of the sport by highlighting the main facts in an interactive way, which will hopefully encourage new fans to dig further into this interesting sport.
To do so, we want to create a linear website so that the user follows the story as we intended it. He will of course be free to come back to the previous visualizations when he wants.

Below, we present what will be implemented for the minimum viable product. The numbers in the list below correspond to the figure numbers in the "Prototype" chapter.
0. The main page. It consists of a small textual presentation of Formula 1 and what we will investigate on this website.
1. Global leaderboard. It's a dynamic leaderboard that will show the drivers and the teams with the largest number of victories each year since the beginning of Formula 1. By clicking on a "play" button, the user starts an animation of the horizontal bars increasing according to each race. Below the charts, a small F1 car icon goes forward from 1950 to 2024, indicating the year in which the stats are computed. The goal of this visualization is to help the user get an overview of the most successful drivers and teams.
2. Hall of Fame (top 5 pilots of all time). After seeing the most successful drivers and teams' names, we take a closer look at the top 5 most successful drivers of all time, according to the number of championship wins. This consists of an interactive panel containing 3 parts: the podium subpanel which allows the user to select one or more drivers that he wants to inspect. The driving skill panel provides a summary of the selected drivers' overall performance based on race pace, qualifying pace, experience, and awareness. Selecting multiple drivers will superpose the spider charts. Finally, the summary subpanel will contain information about the drivers selected like the year of birth, the country of origin, the teams for which the driver competed, and the number of championship wins.
3. Circuit World map. This dynamic panel contains a 2D world map with each circuit location indicated by a map pin. The user can rotate this world map to inspect the circuit he

wants and click on the map pin to learn more about a circuit. This will display a superposed panel showing the circuit name, layout, and some representative information like the length, the fastest lap achieved here by which driver, and the year of the first GP held there. The 24 circuits present in the 2024 calendar will be presented on this map.

4. Season points. This dynamic graph will allow the user to inspect interesting battles in different seasons. The user will be able to select which season and which driver he wants to analyze. The y-axis is the number of championship points, and the x-axis is the flag of the country where the races were held, in the same order as in the season calendar. The circuit name is displayed when hovering over a country flag. Hovering a driver curve at a specific race displays its final position at this race.

5. Drivers and teams associations. This is a disjoint force-directed graph (example here https://observablehq.com/@d3/disjoint-force-directed-graph/2?intent=fork) which contains the teams as central points and the drivers as related points (different colors for teams and drivers), with the "driver has/had contract with team" relationship. Hovering a point displays the driver or team name. The user can select and drag any point he wants to focus on specific relations.

Note: We will assign a color to each team participating in the 2024 driver championship to have uniformity among the whole websites. The other teams will be displayed in grey.

Implementation strategy

The implementation steps are:
1. Find additional necessary data for Hall of Fame (all available on Wikipedia)
2. Export data
3. Implement each visualization
4. Adapt the website and add visualizations
5. Map data to visualizations
6. Write the story text and add it to the website

Extra Ideas

Global leaderboard: use a button that allows the user to visualize the animation for different stats like the number of years of experience in F1, the total number of laps done, and the championship wins so that the user can have a more complete overview.
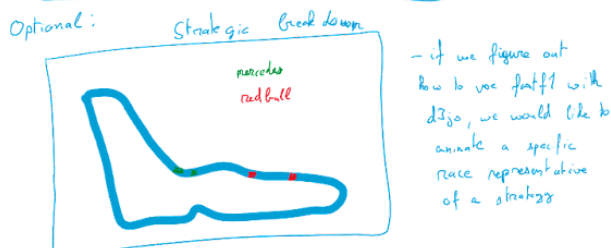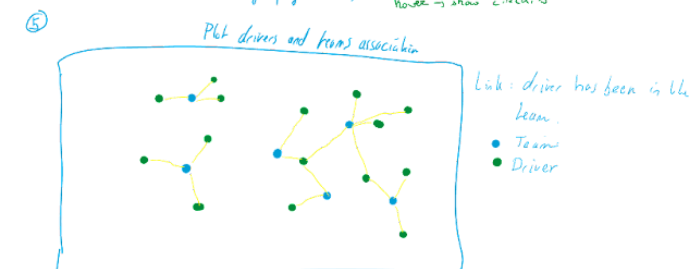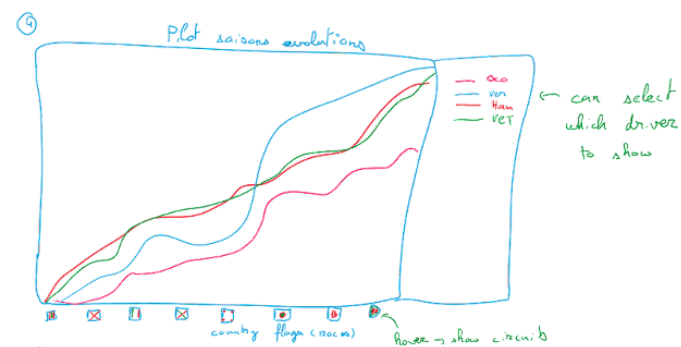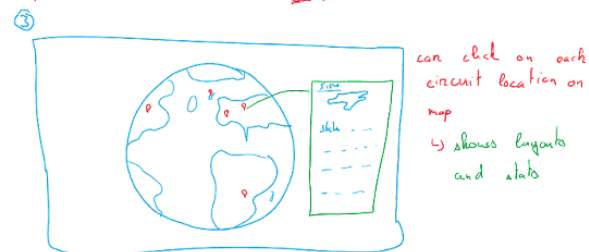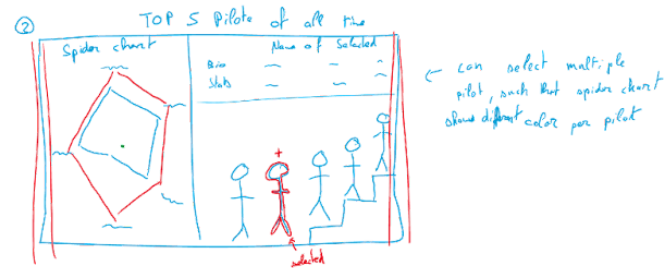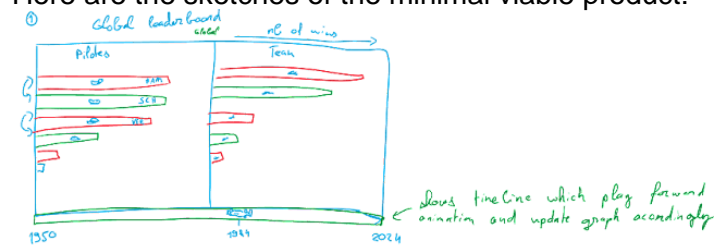
Season points: when the user clicks on a race, telemetry information is displayed on a specific "individual stats" panel containing telemetry information. This allows users to analyze the different strategies of the drivers during the race..

Drivers and teams associations: do different sizes for each point. The teams and drivers with more race wins are displayed as larger points than the others. This gives a more visually appealing graph where it's easier to spot the most important teams and drivers.

Strategy breakdown (optional new graph): to introduce the race strategies further, a graph breaking down the 2021 Spanish GP would show the cars of Max Verstappen and Lewis Hamilton moving on the circuit at each turn. By adding comments and pauses at specific times, we can explain how the strategy influenced the race. This would be an extremely interesting introduction to strategy.

Appendix - Prototypes

Here are the sketches of the minimal viable product:

① Global leaderboard

Pilotes | Team

nb of wins

← shows timeline which plays forward animation and update graph accordingly

1950 — 1984 — 2024

② TOP 5 Pilots of all time

Spider chart | Name of Selected

Bio
Stats

← can select multiple pilots, each but spider chart shows different color per pilot

selected

③

can click on each circuit location on map

↳ shows layouts and stats

④ Pilot saisons evolutions

oo
ver
Ham
VET

← can select which driver to show

country flags (races)   hover → show circuits

⑤ Plot drivers and teams association

Link: driver has been in the team.

• Team
• Driver

Optional: Strategic break down

mercedes
redbull

— if we figure out how to use flatf1 with d3js, we would like to animate a specific race representative of a strategy

Here are the enhanced visualizations containing the extra ideas presented previously. This corresponds to the "perfect" final product.