Group F Final Project Process Book

Formula One: Comparing the 2019 Formula One Season and the 2021 Formula One Season

This Process Book is organized in three different sections. The first section is a compilation of notes and agenda notes from various meetings throughout the semester, the second section is the mockup of what we wanted the final project website to look like, and the final section is made up of draft visualizations that we iterated through to bring you the final project website presented to you.

I. Meeting Agendas and Notes
   A. Planning Meeting I Notes
   B. Planning Meeting II Notes
   C. Post-Peer Review Meeting Notes
   D. Final Meeting Notes

II. Website Layout Sketch
   A. Sketch

III. Draft Visualizations
   A. Draft

Meeting Agendas and Notes

Meeting I Notes:

Notes from F1

- In the format of a newspaper

~~How did Max Verstap~~

→ How did 2019 go versus 2021? For all teams
  - 2 top teams that win in 2019
                              2021
  - total + average points earned 2019
                                  2021

→ individual
  - points totals.

Nikki → constructors
Christa → individual stuff
video, maps, etc.

I. Lewis v. max
  - Best of the best
  - Why are they the best?

~~video~~

| I. What is F1? |
| II. Drivers |
| III. Constructors. |

→ Map + Export Table

| text |

→ const. graph from Nikki

formula 1
Greetings

Meeting 2 Notes:

Initial Planning:

Upcoming deadlines:
- All visualizations (as complete as you can get 'em) into github by EOD Sunday.
  - They should be in their final or close to final form. Ie. It's okay if the viz isn't interactive yet, but should have colors, labels, be able to contribute to the narrative.
- Meeting on Monday at 8am to walk through for Lauren

- Overall Question: How did the 2019 season turn into LH44 winning the driver's championship and Mercedes winning the constructor's championship? How did LH44 win in 2019? How did Max Verstappen win in 2021?
  - Did LH just exceed all expectations in 2019?
  - Did the field/MV come to LH in 2021 or did LH come down to meet the field?

Elements of the Project:
- 2019 v 2021:
  - Wins by constructor + by driver (LD)
  - Points earned by constructor + by driver (LD)
  - Average points earned by constructor (NG)
  - Constructors status (DNF/etc) (NG)
    - Deeper dive into top four teams: Red Bull, Ferrari, McLaren, Merc
  - Incidents/crashes by circuit (CC)
    - Broken down by constructor
  - Average speed by circuit (CC)
    - Broken down by constructor
  - ☑ ~~Max speed by circuits (CC)~~
    - ☑ ~~Broken down by driver~~
  - Lap times by constructor (CC)
- ☑ ~~Sankey diagram of Qualifying positions to Final Positions (Christa)~~
- F1 background video (DS)
  - Add embedded video for F1 background section (DS) [DONE]
  - Replace embedded video with image and link (DS) [DONE]
- Interactive Leaflet world map of global racing circuits (zoom and click activated) (DS)
  - Connect to dropdown of country selector (DS) [DONE]
  - Remove "All" option in circuit filter (DS) [DONE]
- Interactive circuit and race tables with clickable links in grid (DS) [DONE]
- Interactive data table of drivers (DS)

- ○ Add link to site for more biographical information for each driver (DS) [DONE]
  - ○ CSV export button of data table (DS) [DONE]
  - ○ Change header titles to be more display friendly (DS) [DONE]
  - ○ Add 2021 world rankings (DS) [DONE]
- Add visualization for driver nationality (DS) [DONE]
- Driver ages (DS)
  - ○ Add distribution of driver ages (DS) [DONE]
  - ○ Apply geom_text or geom_label, along with geom_sement to add some sought of call out to ages of top two world ranked drivers (as of end of 2021) (DS) [DONE]

Post Peer Review Notes

Post peer review plan:
- Do your edits and push to github by the end of the weekend!
- Video clips to Nikki by Sunday evening
- Meeting on Sunday evening to wrap up loose ends

Post peer review to do:
- Overall: Get the visualizations side by side with html rendering (Donald)
- Overall: fix direction of text for chart labels and tick alignment (All!)
- Overall: For 2019 v 2021 series use team colors but a lighter version
  - ☑ ~~We need hex codes (Christa)~~
- Video fixing (Donald)
  - ☑ ~~Video comments/disclaimer to another site (Christa)~~
- Formula One Circuit Map
  - ☑ ~~Fix the (All) function in the mapping by moving to version 1.1.1 (Donald)~~
  - ☑ ~~Donald to send instructions~~
- Drivers data table (Lauren)
  - ☑ ~~Cut driver ID~~
  - ☑ ~~Fix drivers name~~
  - ☑ ~~Fix column name~~
- Winners by point totals and driver by standing
  - ☑ ~~Get drivers wins/points axes flipped (Lauren)~~
  - ☐ Work on filter (Donald)
- Constructor wins and points
  - ☑ ~~Join the two bar charts together into a grouped bar chart (Nikki)~~

Constructor	2019	2021

Ferrari	5	0

- ☑ ~~https://r-graph-gallery.com/48-grouped-barplot-with-ggplot2.html~~
- Constructor Finishing Statuses (Nikki)
    - ☑ ~~Turn into stacked bar chart, coord flip (as you had it in the raw)~~
    - ☑ ~~Cut one of the legends for continuity~~
- Incidents by Constructor (Christa)
    - ☑ ~~Turn into one chart~~
    - ☑ ~~Move labels to start towards the beginning of the bar (tick alignment)~~
- Sankey (Christa)
    - ☑ ~~Add labels on axes and hover~~
    - ☑ ~~Say more in text~~
- Fastest Laps (Christa)
    - ☑ ~~Put into one bar chart with 2019 and 2021 series~~
    - ☑ ~~Fix y axis title (or remove?)~~
- Process Book
    - ☑ ~~We made x changes as per y reasons~~

There were several major upgrades we made to the final project website: (1) combining the previously distinct 2019 and 2021 graphs or using html to set them side by side, (2) add color changes to combined 2019 and 2021 graphs, and (3) adding in additional driver visualizations.

We combined previous distinct 2019 and 2021 graphs when possible in order to increase the ease of comparison between the two seasons. This meant that we had to make additional distinctions between the two, and created a separate color story to help the reader visualize the differences between the two in the relevant clustered bar graphs.

We added additional driver visualizations in order to give the reader a sense of the drivers, where they come from and what ages active drivers are. This is meant to build on the information in the drivers data table as well.
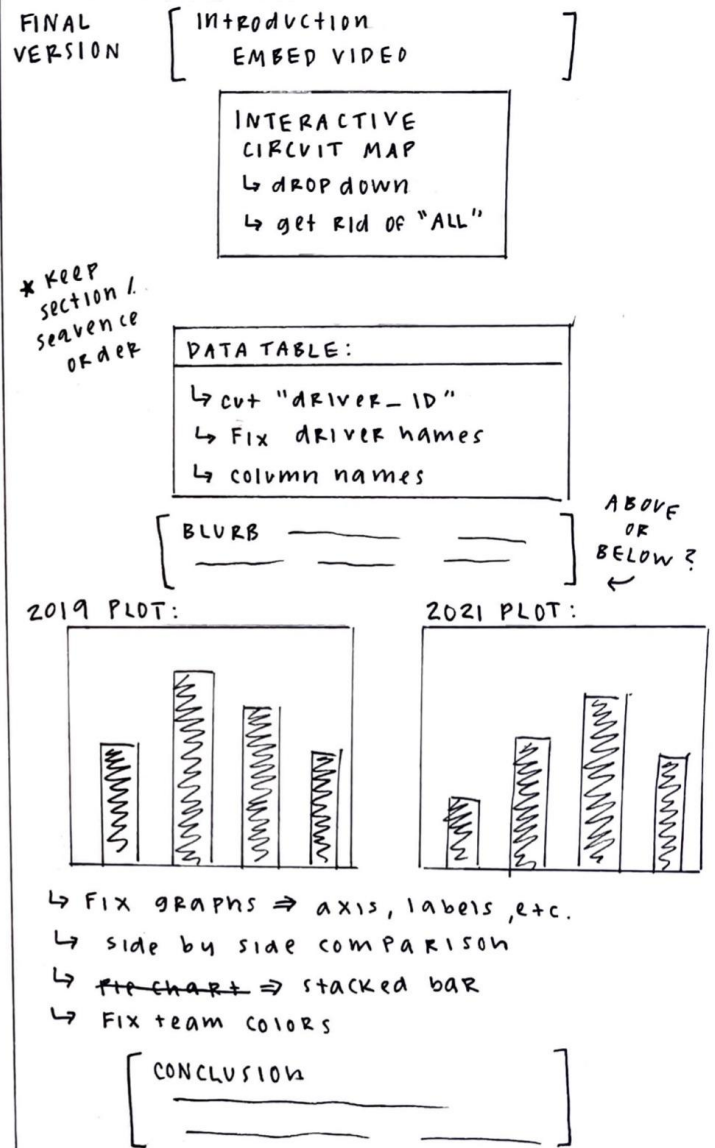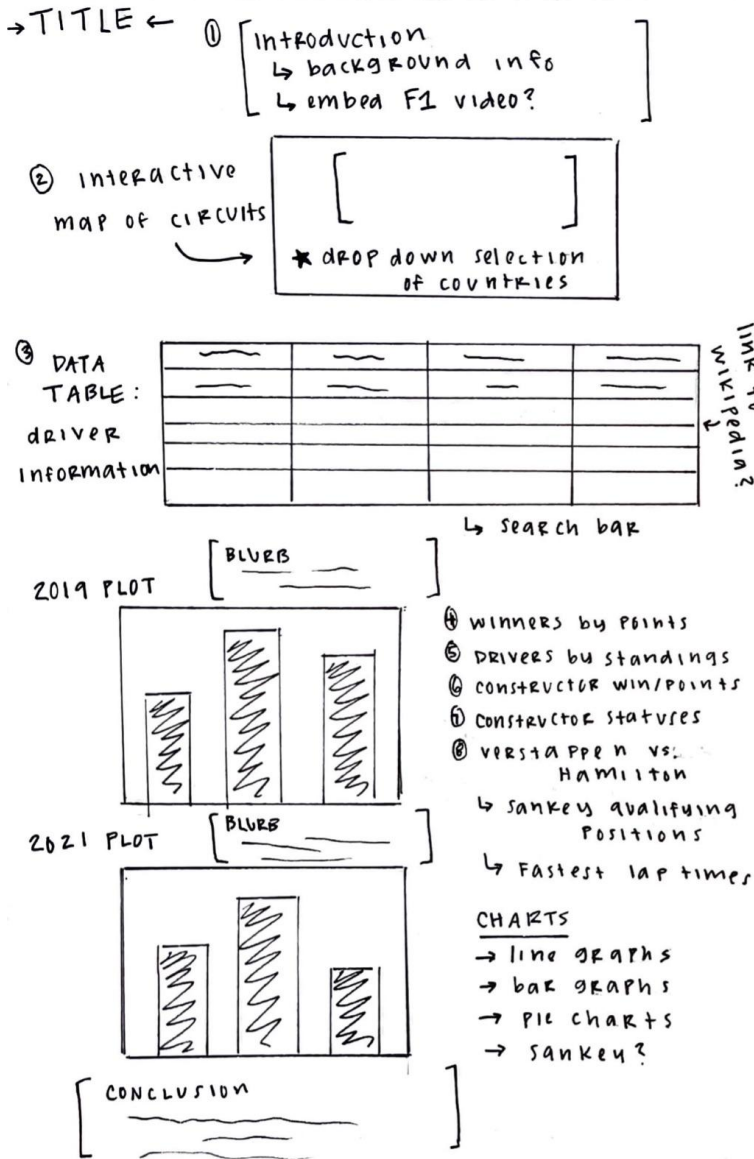
Another significant improvement was the building of the Sankey diagram. Previously the Sankey diagram was keyed on all places possible. This Sankey diagrams are limited to two drivers and two qualifying positions to remove the noise of all of the other qualifying positions and results.

Final Meeting Notes

To do 5/8/2022:
- Nationalities of Drivers:
  - ☑ ~~Christa to add more context/words~~
- Age of Active Drivers
  - ☑ ~~Change labels to be more clear (Donald)~~
  - ☑ ~~Add sentence about how max verstappen is youngest and lewis hamilton is oldest and they are both the best (Christa)~~
- Wins by Points and Position
  - ☑ ~~Change legend title to "Driver Name"~~
  - ☑ ~~Cut 2021 y axis title (Lauren)~~
- Constructor wins
  - ☑ ~~Remove side hover text that has series name (Christa)~~
- Constructors Finishing Statuses
  - ☑ ~~Add disqualified to legend~~
- Incidents
  - ☑ ~~Get rid of side hover text (Christa)~~
  - ☐ Double check code (Christa)
  - ☑ ~~Bold Number of Accidents or Collisions (Christa)~~
- Sankey
  - ☑ ~~Get them next to each other (Donald)~~
- Fastest Laps
  - ☑ ~~Remove team label (Christa)~~
  - ☑ ~~Number of Fastest Laps not bold in hover text (Christa)~~
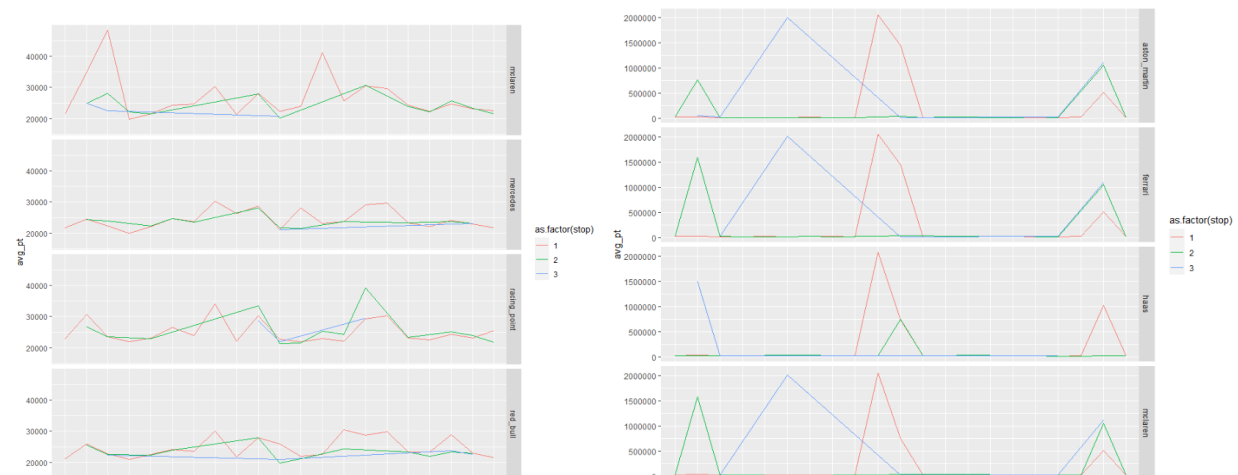- Conclusion (Christa)

Final Project Sketch

→TITLE← ① [Introduction
         ↳ background info
         ↳ embed F1 video?]

② interactive
map of circuits →   [   ]
                  ★ drop down selection
                     of countries

③ DATA
TABLE:
driver
information
↳ search bar

link to wikipedia?

[BLURB ———]

2019 PLOT

④ winners by points
⑤ drivers by standings
⑥ constructor win/points
⑦ constructor statuses
⑧ verstappen vs. Hamilton
↳ sankey qualifying positions
↳ fastest lap times

CHARTS
→ line graphs
→ bar graphs
→ pie charts
→ sankey?

2021 PLOT [BLURB ———]

[CONCLUSION
——— ———]

FINAL
VERSION   [Introduction
            EMBED VIDEO]

INTERACTIVE
CIRCUIT MAP
↳ drop down
↳ get rid of "ALL"

★ keep
section/
sequence
order

DATA TABLE:
↳ cut "driver_ID"
↳ fix driver names
↳ column names

[BLURB ——— ———]
                      ABOVE
                      OR
                      BELOW?

2019 PLOT: 2021 PLOT:

↳ fix graphs ⇒ axis, labels, etc.
↳ side by side comparison
↳ ~~pie chart~~ ⇒ stacked bar
↳ fix team colors

[CONCLUSION
——— ———]

Draft Visualizations

Lauren Draft Viz

Standings over the season
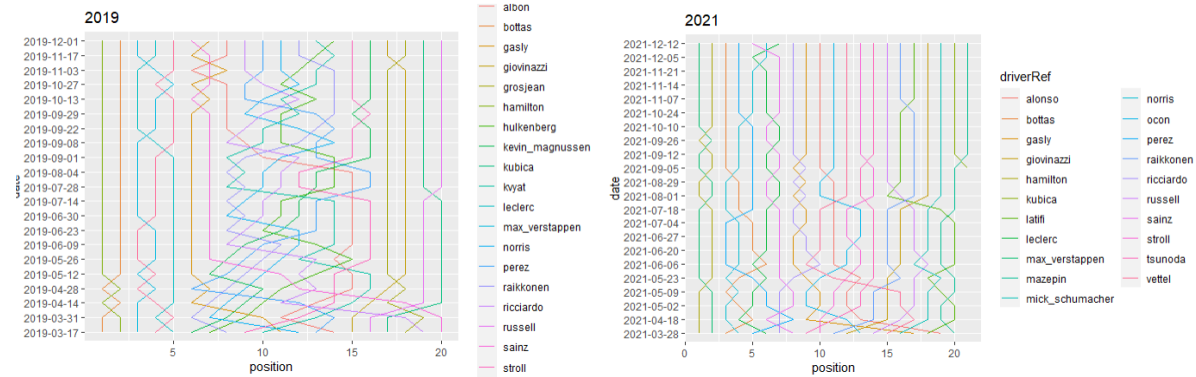
Points over the season
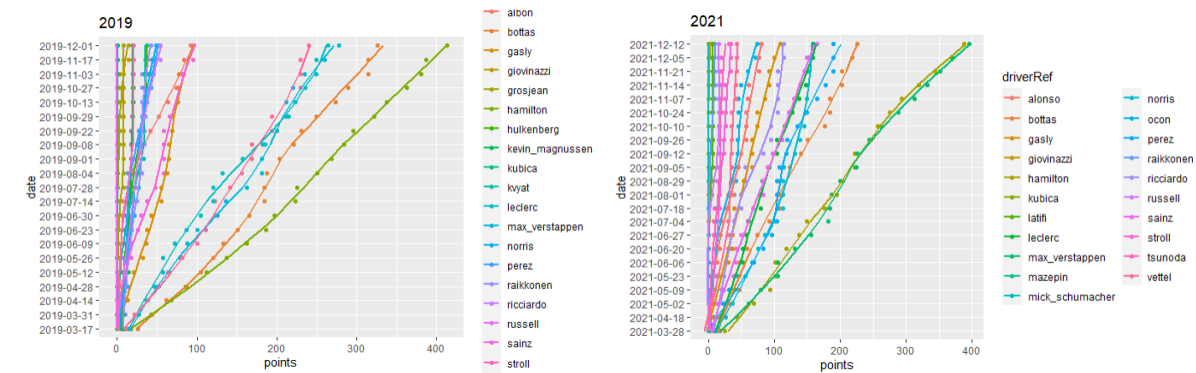
Average pit stop time comparison

Nikki's first draft plots:

These were the original graphs/visualizations that I drafted up in the early stages of our project. We hadn't yet decided that we wanted to narrow down the data to the 2019/2021 seasons and focus on the Verstappen/Hamilton Narrative. No color scheme.
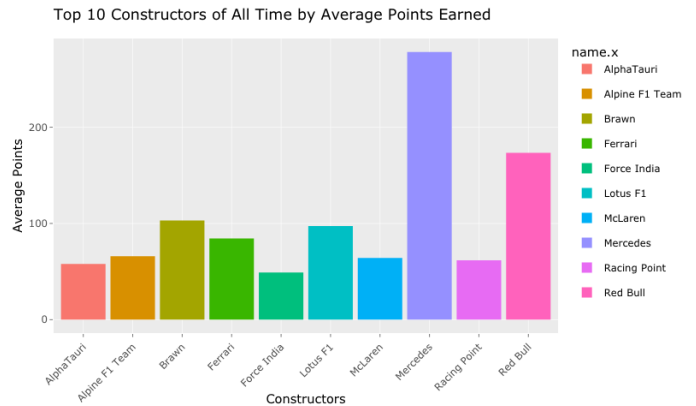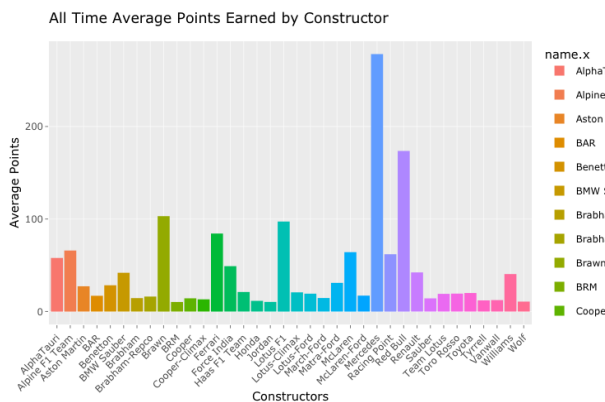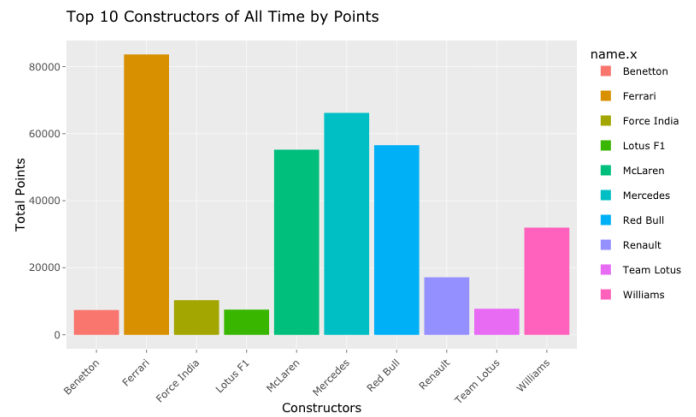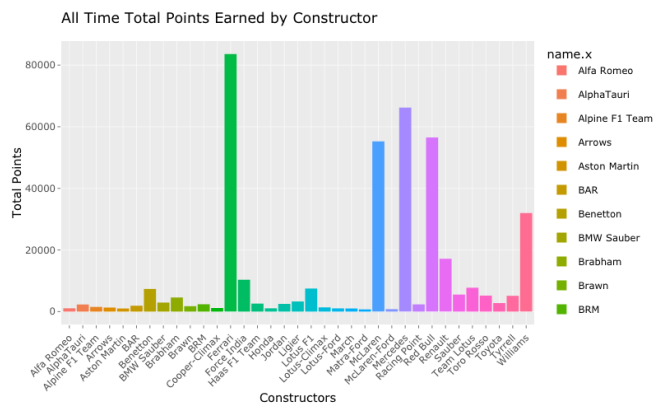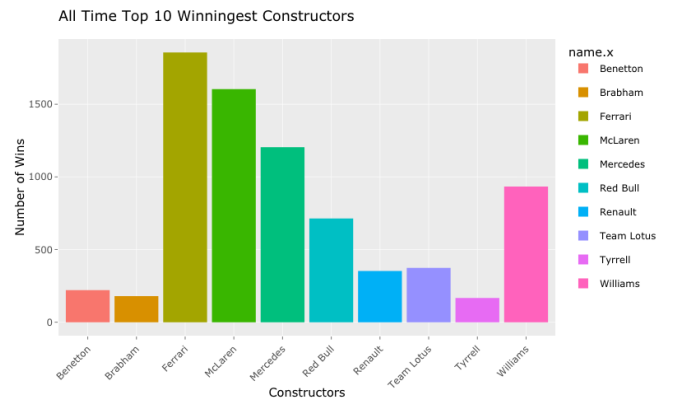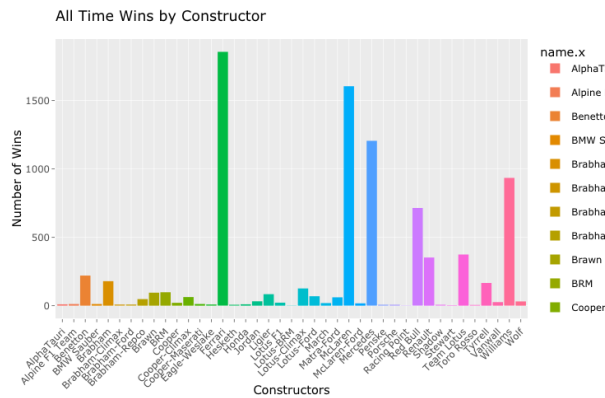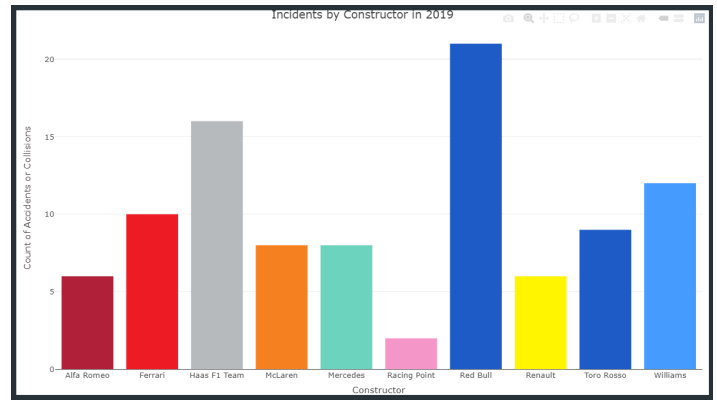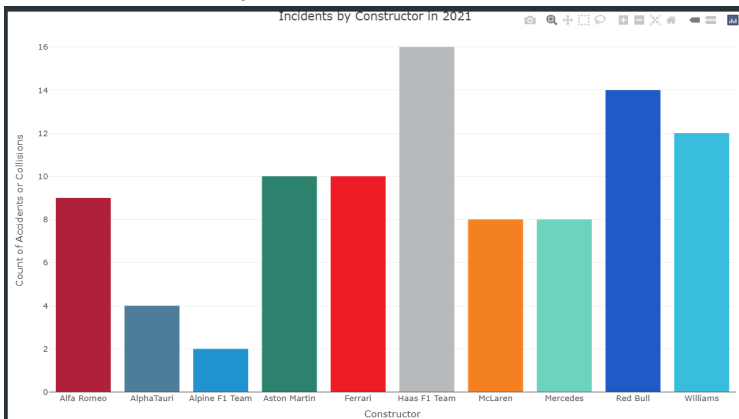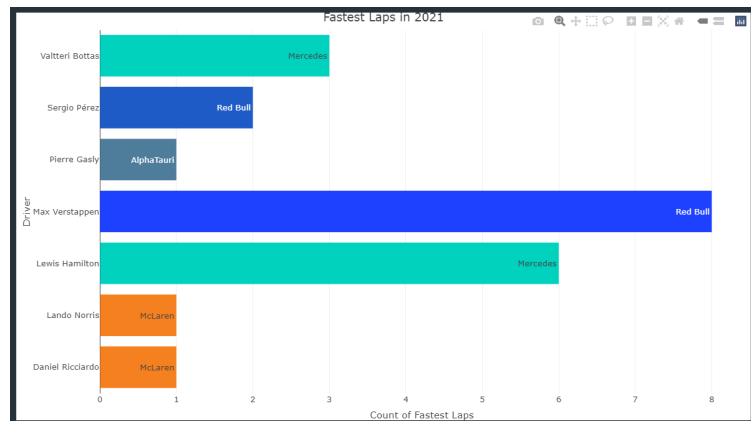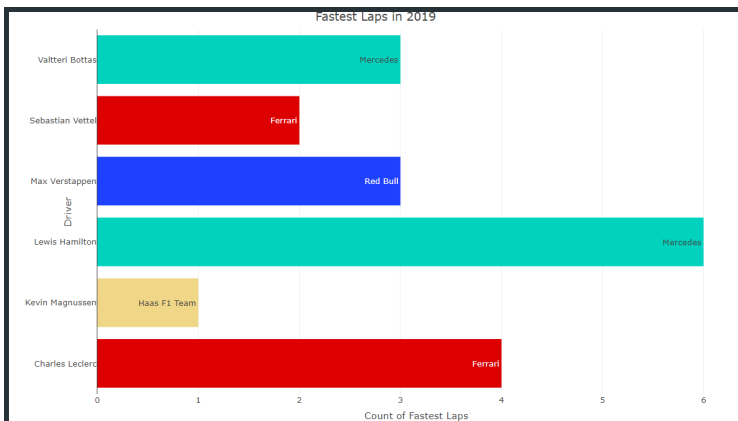
Christa Draft Viz:

All constructor sankey and Not Quite Figured it out Sankey:
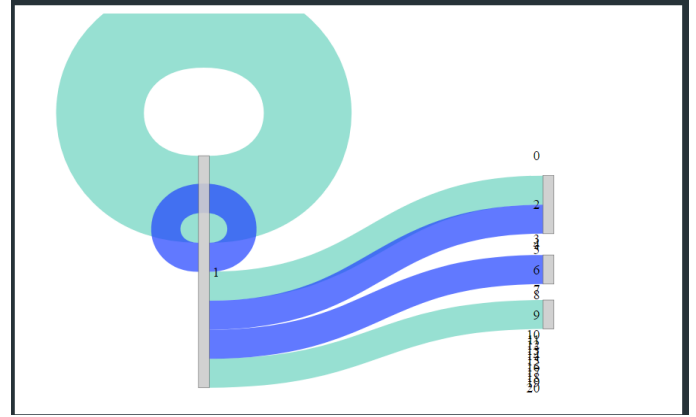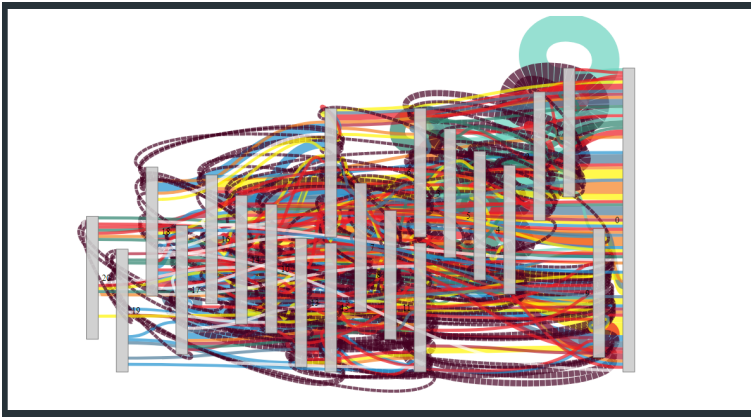
Incidents by constructor separate 2019 and 2021 graphs:


Fastest lap by constructor 2019 and 2021 separate graphs

Average lap speed over the course of the races by circuit in milliseconds:

Donald Draft Viz

Originally had video embedded in webpage (which didn't always play in site due to resharing concerns from video owner)	Later, changed from embedded video to image with icon that opens video in YouTube
Background Info on Formula 1	
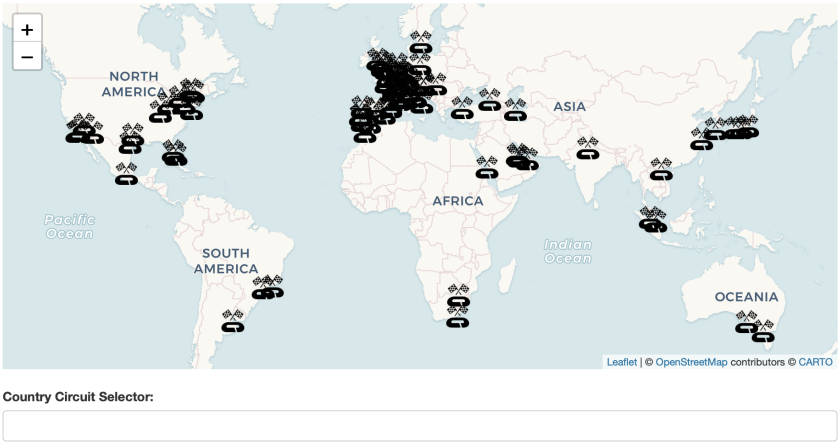
Country Circuit Selector:

CSV

Search: _____

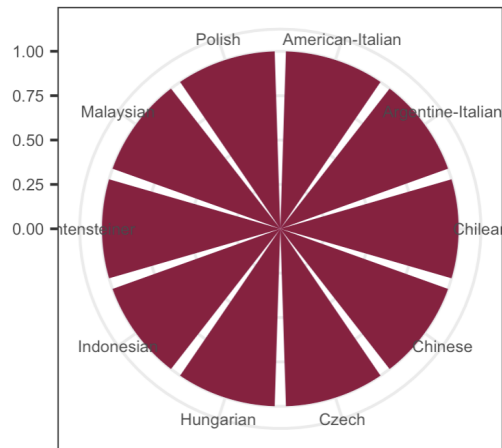|	First Name	Last Name	World Ranking (2021)	Birth Date	Driver Number	Nationality	information
1	Max	Verstappen	1	1997-09-30	33	Dutch	link
2	Lewis	Hamilton	2	1985-01-07	44	British	link
3	Valtteri	Bottas	3	1989-08-28	77	Finnish	link
4	Sergio	Pérez	4	1990-01-26	11	Mexican	link
5	Carlos	Sainz	5	1994-09-01	55	Spanish	link

Showing 1 to 5 of 854 entries

Previous 1 2 3 4 5 … 171 Next

Top 10 Nationalities with Most Drivers
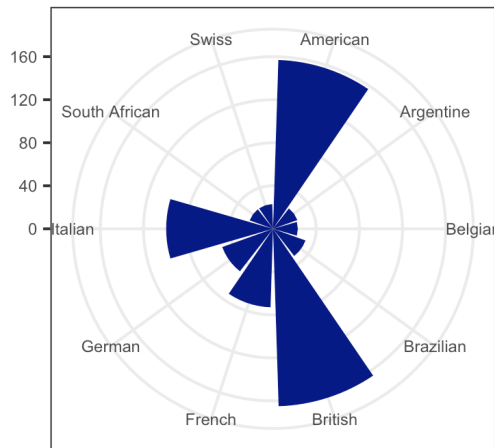
Top 10 Nationalities with Least Drivers

Age Distribution - 2021 Active Drivers

Max Verstappen (1st place, Age 24)

Lewis Hamilton (2nd place, Age 37)

Drivers (%)

Ages