Interesting Formula 1 Statistics

Made by:

Máté Vass
76220125

Presenting:

Project Proposal

Contents

- Motivation
- Related Work
- Dataset
- 5 Tasks
- Task Prototype
- Interaction

Motivation

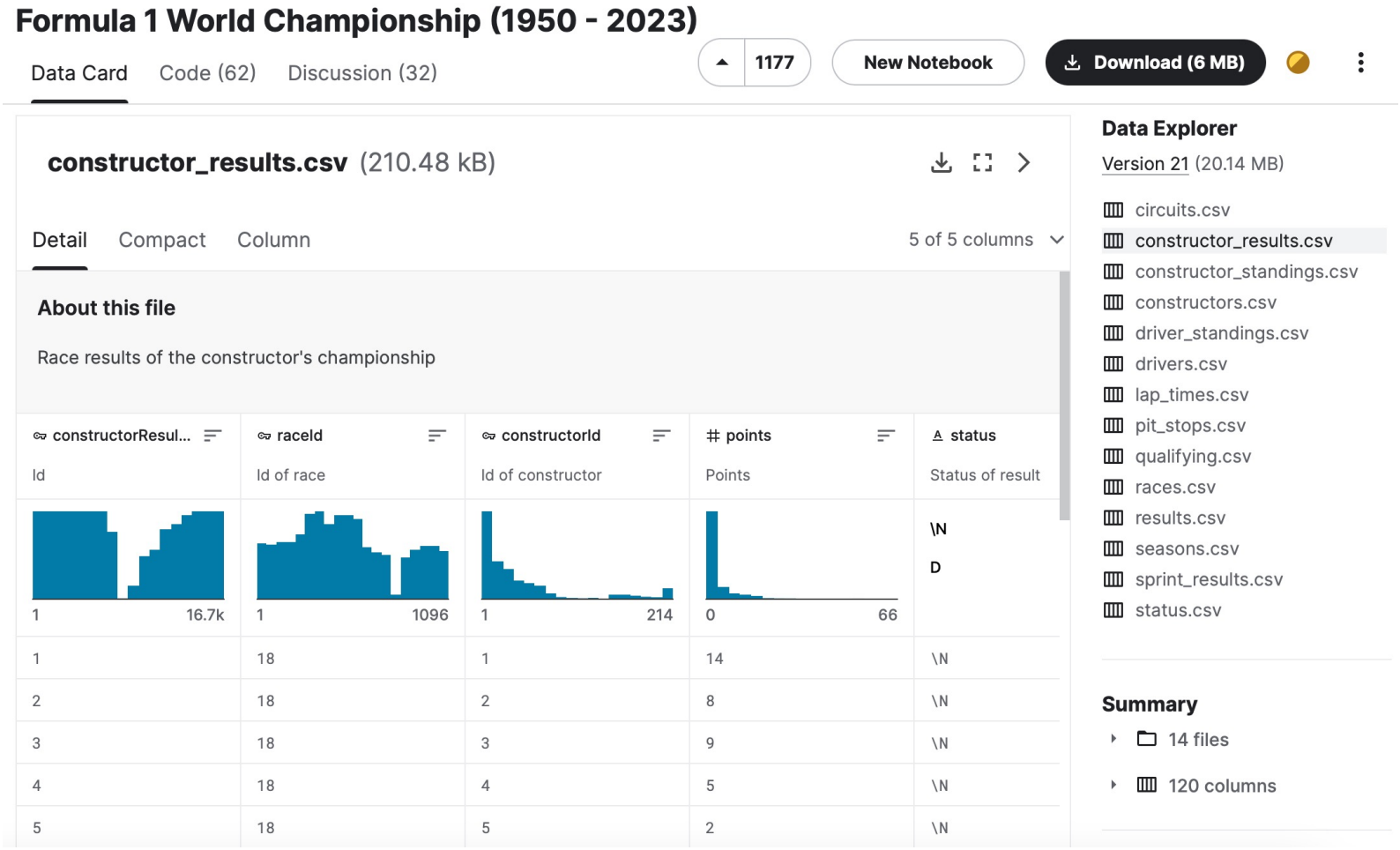
- Highest class international open-wheel single-seater formula racing series
- Huge viewer base
- Few free and publicly available tools to analyze results and statistics

Related Work

https://www.stat.cmu.edu/capstoneresearch/315files_f22/team19.html

(unfortunately, not available anymore)

Dataset - Kaggle

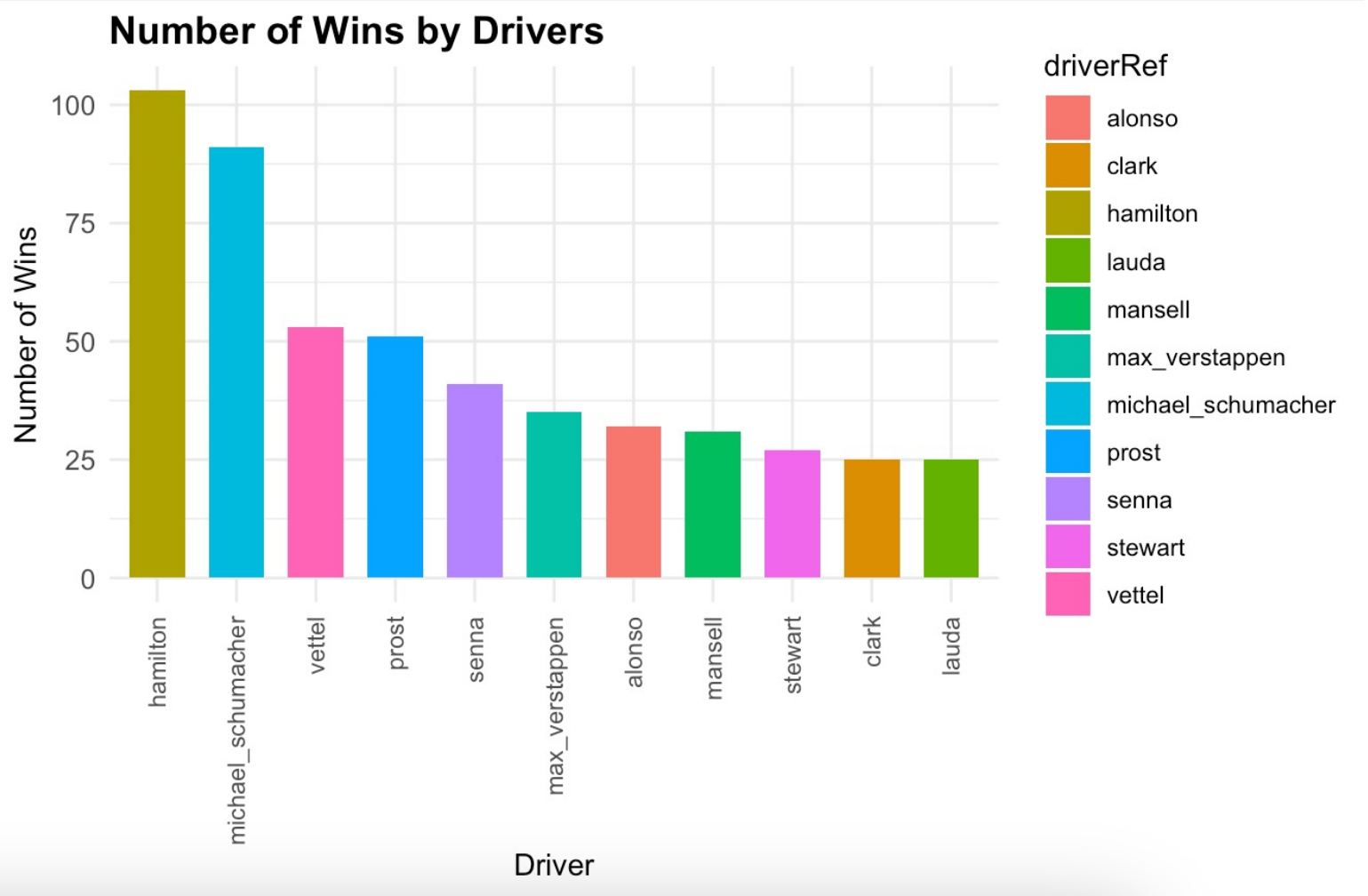


https://www.kaggle.com/datasets/rohanrao/formula-1-world-championship-1950-2020

5 Tasks

- Qualifying pole position time [by track] [from year to year]
- Number of wins per driver since [from year to year]
- Grid position to win conversion rate [by track] [from year to year]
- Driver championships animation from 1950 to 2022
- Constructor championships animation from 1950 to 2022

Task Prototype



RStudio

formula_1.R | exampleTask | nasatlx.R | ggplot2.R | ggplot2_example.R

```
1  install.packages(c("tidyverse", "ggplot2"))
2
3  library(tidyverse)
4  library(ggplot2)
5
6  setwd("~/Documents/Egyetem/_MSc/3_szemeszter/erasmus/information_visualization/project")
7
8  results <- read.csv("f1_dataset/results.csv", sep = ",")
9  drivers <- read.csv("f1_dataset/drivers.csv", sep = ",")
10
11 results.filtered <- results %>%
12   select(raceId, driverId, positionOrder) %>%
13   filter(, positionOrder == "1")
14
15 drivers.filtered <- drivers %>%
16   select(driverId, driverRef)
17
18 summarise <- merge(x = results.filtered, y = drivers.filtered, by = "driverId") %>%
19   group_by(driverId) %>%
20   summarise(sum = sum(positionOrder)) %>%
21   filter(, sum >= 25)
22
23 exampleTask <- merge(x = drivers.filtered, y = summarise, by = "driverId") %>%
24   arrange(desc(sum)) %>%
25   select(driverRef, sum)
26
27 ggplot(exampleTask, aes(x = reorder(driverRef, -sum), y = sum, fill = driverRef)) +
28   geom_bar(stat = "identity", width = 0.7) +
29   labs(x = "Driver", y = "Number of Wins", title = "Number of Wins by Drivers") +
30   theme_minimal() +
31   theme(plot.title = element_text(size = 14, face = "bold"),
32         axis.text.y = element_text(size = 10)) +
33   theme(axis.text.x = element_text(angle = 90, hjust = 1, vjust = .5))
34
```

Console | Terminal | Background Jobs

R 4.3.0 · ~/Documents/Egyetem/_MSc/3_szemeszter/erasmus/information_visualization/project/

```
+   summarise(sum = sum(positionOrder)) %>%
+   filter(, sum >= 25)
>
```

Environment | History | Connections | Tutorial

Import Dataset | 23 MiB | List

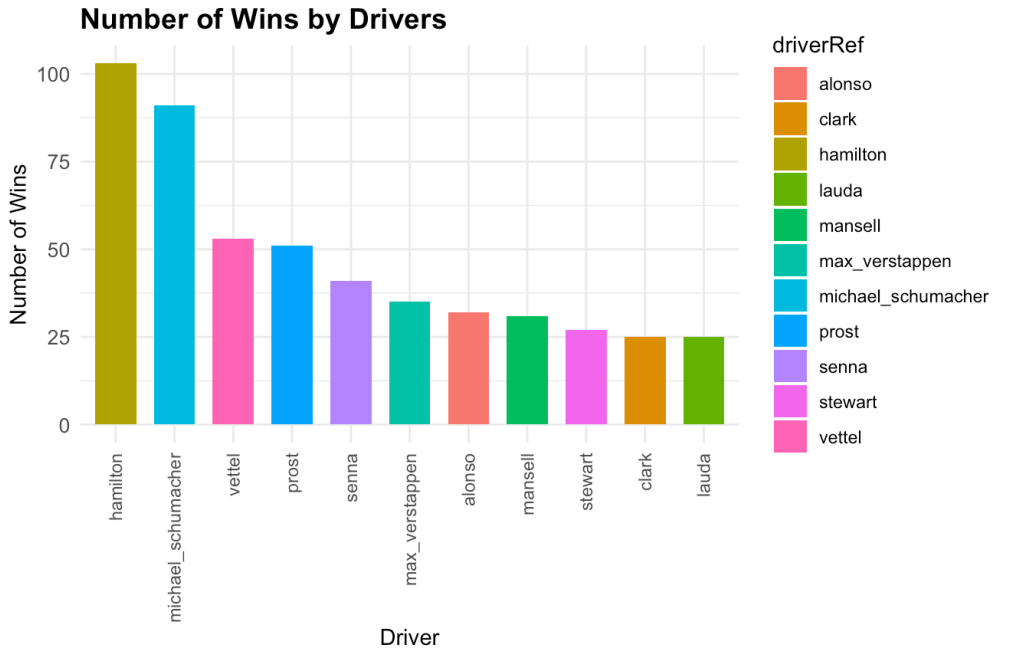
R | Global Environment

Data

drivers	857 obs. of 9 variables
drivers.filtered	857 obs. of 2 variables
exampleTask	11 obs. of 2 variables
results	25840 obs. of 18 variables
results.filtered	1082 obs. of 3 variables
summarise	11 obs. of 2 variables

Files | Plots | Packages | Help | Viewer | Presentation

Zoom | Export | Publish



Interaction

- Slider to select time period (from - to)
- Dropdown to select track by name
- Buttons to start, stop and rewind animation
- Mouse over to highlight certain elements

Thank you for your attention!