**Summary**

Formula One (sometimes called F1) is the highest level of international auto racing for single-seater formula racing vehicles sanctioned by the Fédération Internationale de L'Automobile (FIA).

If F1 cars were created by different companies, both are credited, with the chassis designer's name appearing before the engine designers. A team may additionally run two additional drivers in Free Practice sessions, which are frequently used to evaluate the car or to test possible new drivers for a career in Formula One.

To gather, transmit, process, and analyze data, all modern F1 cars use sophisticated telemetry systems (Telemetry is a way of transferring data from a rotating assembly to a data gathering device that is stationary.)

In contrast to earlier years, when drivers typically participated on an ad hoc basis from race to race, most modern drivers are engaged for at least the course of a season, with driver changes occurring in between seasons.

The most successful team is Ferrari from Italy with the highest wins

To gain a point for setting the fastest lap of the race, a driver must finish in the top 10

If the driver who sets the fastest lap does not finish in the top ten, the fastest lap point is not granted for that race.

The pit lane is generally positioned next to the starting grid, where drivers stop for Tyres, aerodynamic tweaks, and minor repairs (such as adjusting the car's nose owing to front wing damage) during the race, retirements from the race, and where the teams work on the cars before the race.

Qualifying sessions are similar to practice sessions for much of the sport's history; drivers would have one or more sessions in which to set their fastest time, with the grid order determined by each driver's best single lap, with the fastest on pole.

Every Formula One race has counted toward the FIA World Championship, and every World Championship race has followed Formula One rules.

Normally, drivers choose 10 of the 13 sets available for a race weekend, but because of Pirelli's new tyres, the Italian company will require each driver to use the same allocations for the first five races as it learns about the new tyre.

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The effects and outcome of data visualization analysis in formula 1 displays all the activities that took place from 1950 to 2021 and the statistical data of the races, drivers, constructors, venue and many more. Graphical visualization such as Violin plot, Scatter plot, Histogram plot, Heatmap and bar charts. Each visualization represents a crucial representation as it is discussed before every visualization analysis. A few data files were created and merged which are: Cicuits.csv, constructor.csv, driver.csv, driveRank.csv, lapTime.csv, pointSystem.csv and others.

A model can be created using Linear Regression, a machine learning approach that allows us to map numeric inputs to numeric outputs, or models the relationship between one or more variables.

In Linear Regression, there are two sorts of variables: dependent variables and independent variables

Though there are different ways we can get the predicted circuit distance output by analyzing the datasets in Results.csv. Another method of analysis is Gaussian Process (GP). Gaussian Process is an addition to standard scikit-learn estimator API. Gaussian Process Regressor allows prediction, without prior fitting hence provides an additional method sample\_y(x), which evaluates samples drawn from the GPR at given inputs. But Gaussian Process was unable to analysis the datasets due to the datatypes of each data in the columns. Gaussian Process only works with, float types or integer types and since the data in Results.csv have strings and some are object, the analysis was unable to work.

Linear Regression was successful because it we cleaned the data and calculated for the prediction. In addition, in GP, it does not clean data before prediction like Linear regression.