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MCA1-B

FORMULA 1 DATA ANALYSIS

Chart, bar chart

Description automatically generated

Formula 1 started from 1950 and collectively these are the top10 drivers. To be noted that Sir Lewis Hamilton from mercedes is still racing his record is yet to be broken by himself. He is considered as the most successfull driver in the history

#all gp winners

gp\_winners1950 = df.loc[df['positionOrder'] == 1].groupby('driver')['positionOrder'].count().sort\_values(ascending = False).to\_frame().reset\_index()

plt.figure(figsize=(15,8))

sns.barplot(x = 'driver', y = 'positionOrder', data = gp\_winners1950.head(10))

#sns.barplot(data = gp\_winners1950, x = 'driver', y = 'positionOrder')

plt.title('Most Race Winners since 1950', fontsize = 20,)

plt.xlabel('Drivers' )

plt.ylabel('GP Wins')

plt.xticks(rotation = 90)

plt.show()

Chart, bar chart

Description automatically generated

Ferrari are the world famous known super cars and hyper cars , hey have been in the sport from the starting and they have quite a lot of dominationa dn similary Mclaren. They have had very succesfullc ars and drivvrs and have won and made an extensive records already.

constructor\_winners = df.loc[df['positionOrder'] == 1].groupby('constructor\_name')['positionOrder'].count().sort\_values(ascending = False).to\_frame().reset\_index()

sns.barplot(x = 'constructor\_name', y = 'positionOrder', data = constructor\_winners.head(10))

plt.title('Most Constructor Winners', fontsize = 20)

plt.xlabel('Constructors')

plt.ylabel('Constructor Wins')

plt.xticks(rotation = 90)

plt.show()

Chart, bar chart

Description automatically generated

We can see that Max Vertapen from Redbull Racing is the most race winner. And he is the **\*\*Drivers World Champion\*\*** of the year 2021 and is guessed to be the winner in 2021

df = df[df['year']==2021]

#all gp winners

gp\_winners = df.loc[df['positionOrder'] == 1].groupby('driver')['positionOrder'].count().sort\_values(ascending = False).to\_frame().reset\_index()

#barplot

plt.figure(figsize=(15,8))

sns.barplot(x = 'driver', y = 'positionOrder', data = gp\_winners.head(10))

#sns.barplot(data = gp\_winners, x = 'driver', y = 'positionOrder', color='blue', alpha = 0.8)

plt.title('Most Wins in 2021', fontsize = 20)

plt.xlabel('Drivers')

plt.ylabel('GP Wins')

plt.xticks(rotation = 90)

plt.show()

Chart, bar chart

Description automatically generated

We can see as max won more than lewis hamilton, Redbull has won more races

constructor\_winners = df.loc[df['positionOrder'] == 1].groupby('constructor\_name')['positionOrder'].count().sort\_values(ascending = False).to\_frame().reset\_index()

#barplot

plt.figure(figsize=(15,8))

sns.barplot(x = 'constructor\_name', y = 'positionOrder', data = constructor\_winners.head(10))

#sns.barplot(data = gp\_winners, x = 'driver', y = 'positionOrder', color='blue', alpha = 0.8)

plt.title('Most GP Winners', fontsize = 20)

plt.xlabel('Drivers')

plt.ylabel('GP Wins')

plt.xticks(rotation = 90)

plt.show()

Chart, scatter chart

Description automatically generated

Here comes the top speed, if the driver manages to clocking in a great speed it will be recorded in respect of any track

#Topspeed

fastestLap = df.groupby(['driver','constructor\_name'])['fastestLapSpeed'].mean().sort\_values(ascending = False).to\_frame().reset\_index()

plt.figure(figsize=(15,8))

sns.scatterplot(x = 'driver', y = 'fastestLapSpeed', data = fastestLap.head(10))

plt.title('Top Speed', fontsize = 20)

plt.xlabel('Drivers')

plt.ylabel('Fastest Lap Speed')

plt.xticks(rotation = 90)

plt.show()

Chart, scatter chart

Description automatically generated

Every race has a fastest Laptime, and we can see Max Verstappen winning more than twice. Fastest time is nothing but he fastest time which a aperson took complete one lap

fastestLap = df.groupby(['driver','constructor\_name'])['fastest\_lap\_rank'].mean().sort\_values(ascending = True).to\_frame().reset\_index()

plt.figure(figsize=(15,8))

sns.scatterplot(x = 'driver', y = 'fastest\_lap\_rank', data = fastestLap.head(20))

plt.title('Fastest Lap', fontsize = 20)

plt.xlabel('Drivers')

plt.ylabel('Fastest Lap Rank')

plt.xticks(rotation = 90)

plt.show()

Chart, histogram

Description automatically generated

This is the final scoreboard or point table of 2021 drivers championship. We can see that there is nots big gap between lewis hamilton and max verstappen as they awer head on head in the season and other maintian a decent amount of gap to top2.

#drivers with most points

mostpoints = df.groupby(['driver','constructor\_name'])['points'].sum().sort\_values(ascending = False).to\_frame().reset\_index()

plt.figure(figsize=(15,8))

sns.barplot(x = 'driver', y = 'points', data = mostpoints.head(20))

plt.title('Most Points', fontsize = 20)

plt.xlabel('Drivers')

plt.ylabel('Points')

plt.xticks(rotation = 90)

plt.show()

Chart, bar chart

Description automatically generated

We can see the scoreboard of 2021 Constructor Championship.

Mercedes are the constrcutor championship winner and have been consistently winning this from past 8 years.

mostpoints\_teams = df.groupby(['constructor\_name'])['points'].sum().sort\_values(ascending = False).to\_frame().reset\_index()

plt.figure(figsize=(15,8))

sns.barplot(x = 'constructor\_name', y = 'points', data = mostpoints\_teams.head(20))

plt.title('Most Points', fontsize = 20)

plt.xlabel('Teams')

plt.ylabel('Points')

plt.xticks(rotation = 90)

plt.show()

END