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GRADED ASSIGNMENT 5

```
import seaborn as sns
import matplotlib.pyplot as plt
import pandas as pd
```

Load the CSV file into a DataFrame

```
df = pd.read_csv("/content/drive/MyDrive/Automobile.csv")
print(df)
```

```
                          name   mpg  cylinders  displacement
horsepower  \
0    chevrolet chevelle malibu  18.0          8         307.0
130.0
1            buick skylark 320  15.0          8         350.0
165.0
2           plymouth satellite  18.0          8         318.0
150.0
3                amc rebel sst  16.0          8         304.0
150.0
4                  ford torino  17.0          8         302.0
140.0
..                         ...   ...        ...           ...
...
393            ford mustang gl  27.0          4         140.0
86.0
394                  vw pickup  44.0          4          97.0
52.0
395              dodge rampage  32.0          4         135.0
84.0
396                ford ranger  28.0          4         120.0
79.0
```

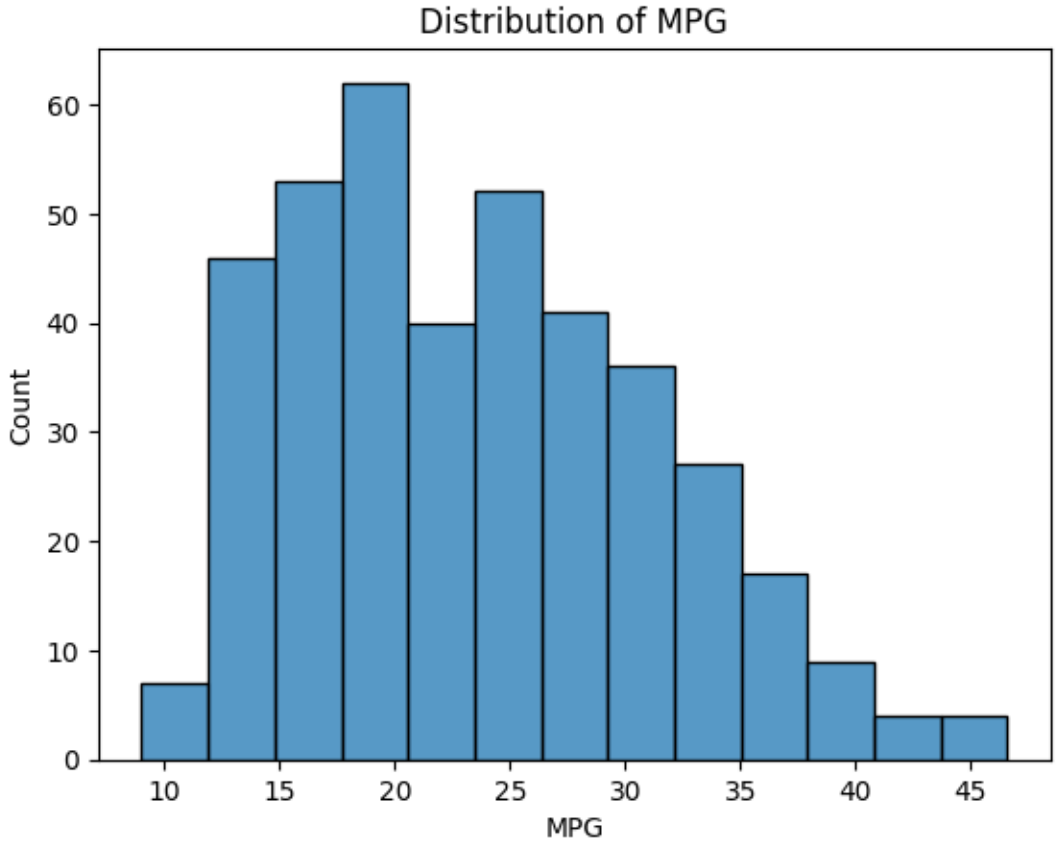
```
397                 chevy s-10  31.0          4         119.0
82.0
```

	weight	acceleration	model_year	origin
0	3504	12.0	70	usa
1	3693	11.5	70	usa
2	3436	11.0	70	usa
3	3433	12.0	70	usa
4	3449	10.5	70	usa
..	...	...	...	...
393	2790	15.6	82	usa
394	2130	24.6	82	europe
395	2295	11.6	82	usa
396	2625	18.6	82	usa
397	2720	19.4	82	usa

Statement 1: Plot the distribution of MPG (Miles Per Gallon)

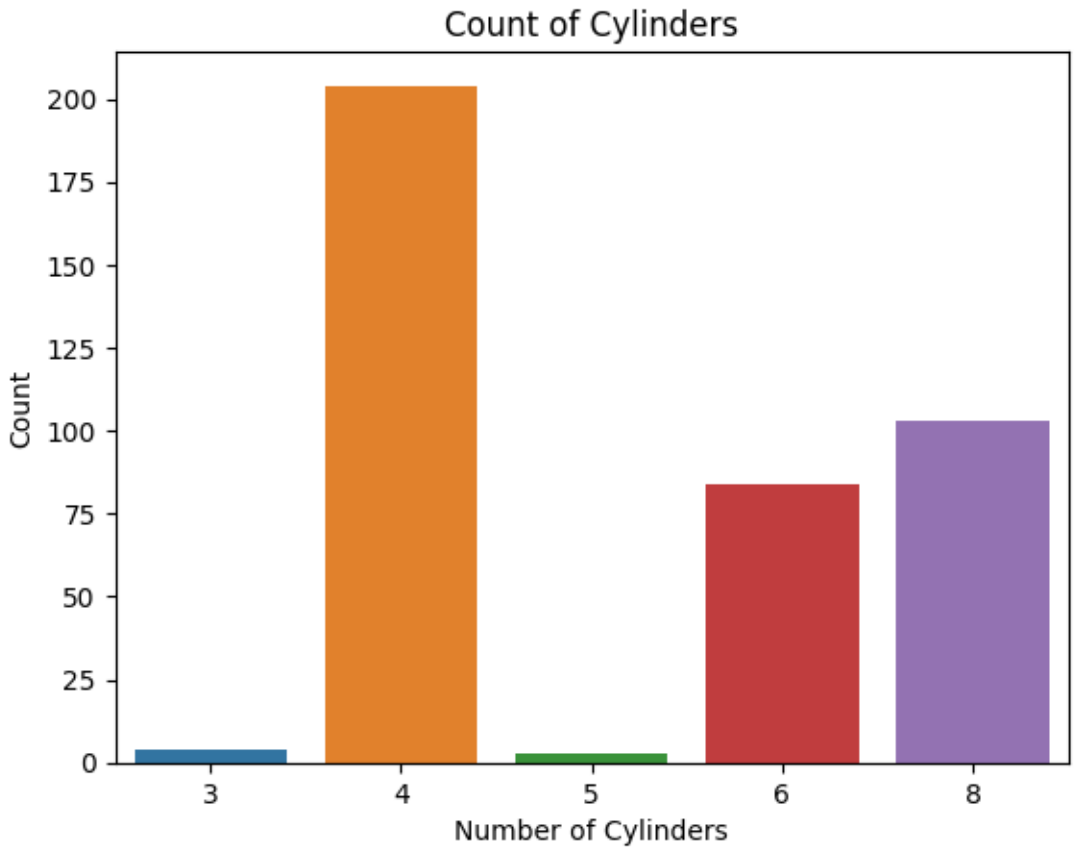
```
import seaborn as sns
import matplotlib.pyplot as plt
sns.histplot(data=df, x='mpg')
plt.xlabel('MPG')
plt.ylabel('Count')
```

```
plt.title('Distribution of MPG')plt.show()
```



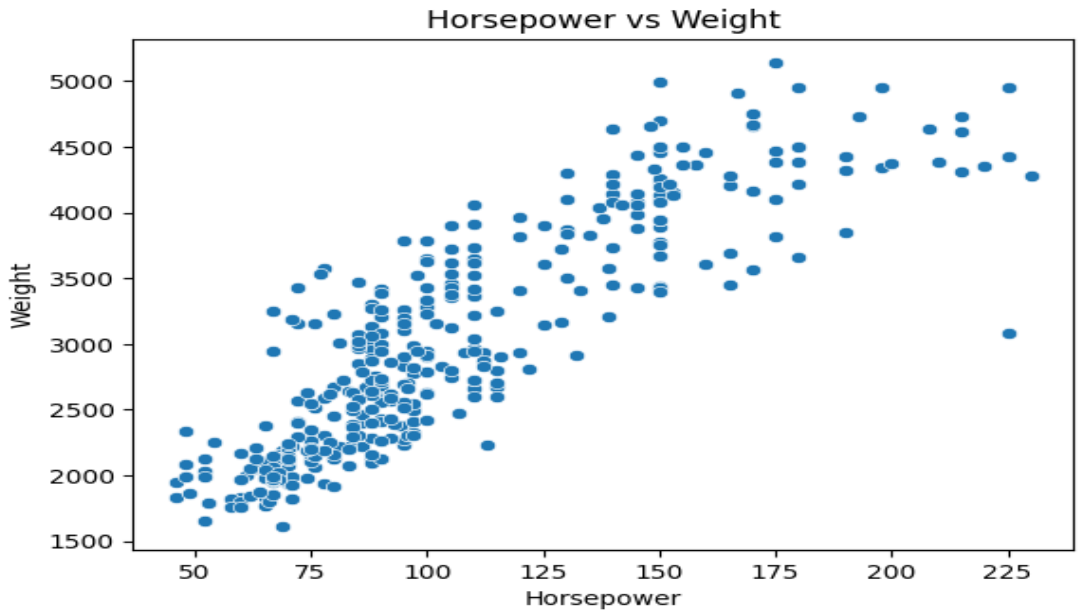
Statement 2: Display the count of each number of cylinders

```
sns.countplot(data=df, x='cylinders')
plt.xlabel('Number of Cylinders')
plt.ylabel('Count')
plt.title('Count of Cylinders')
plt.show()
```



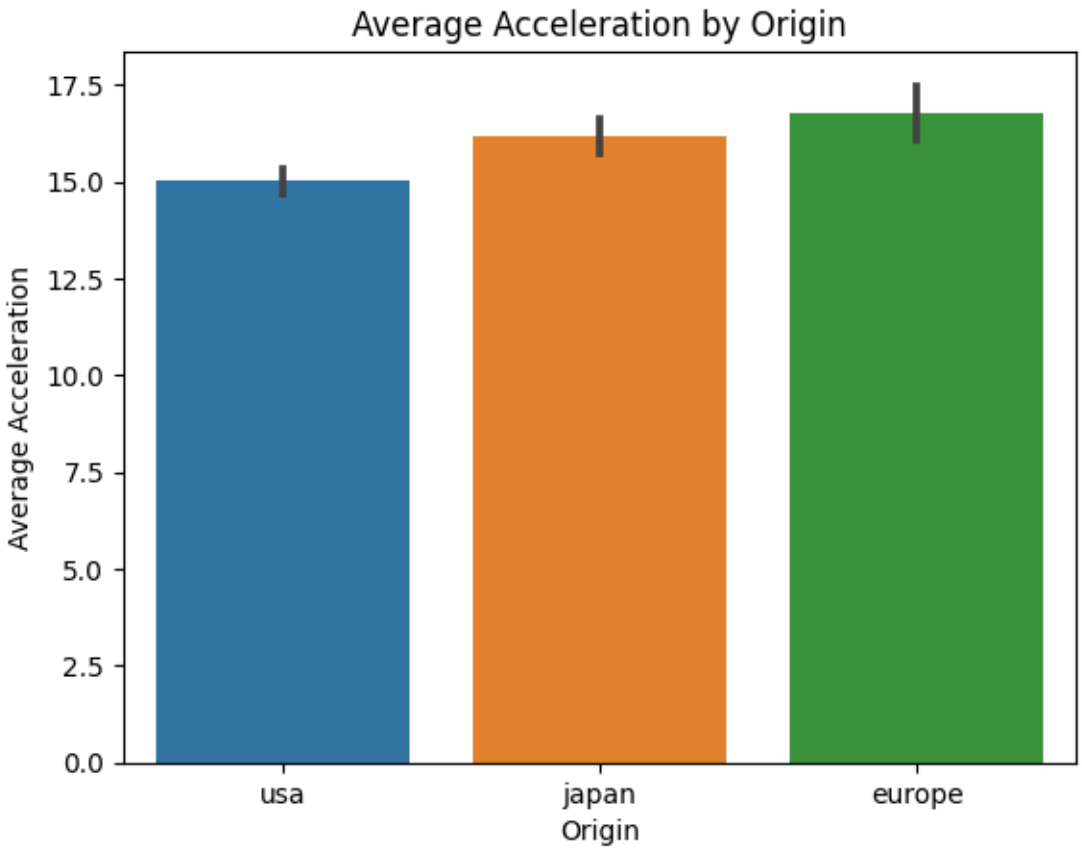
Statement 3: Show the relationship between horsepower and weight

```
sns.scatterplot(data=df, x='horsepower', y='weight')
plt.xlabel('Horsepower')
plt.ylabel('Weight')
plt.title('Horsepower vs Weight')
plt.show()
```



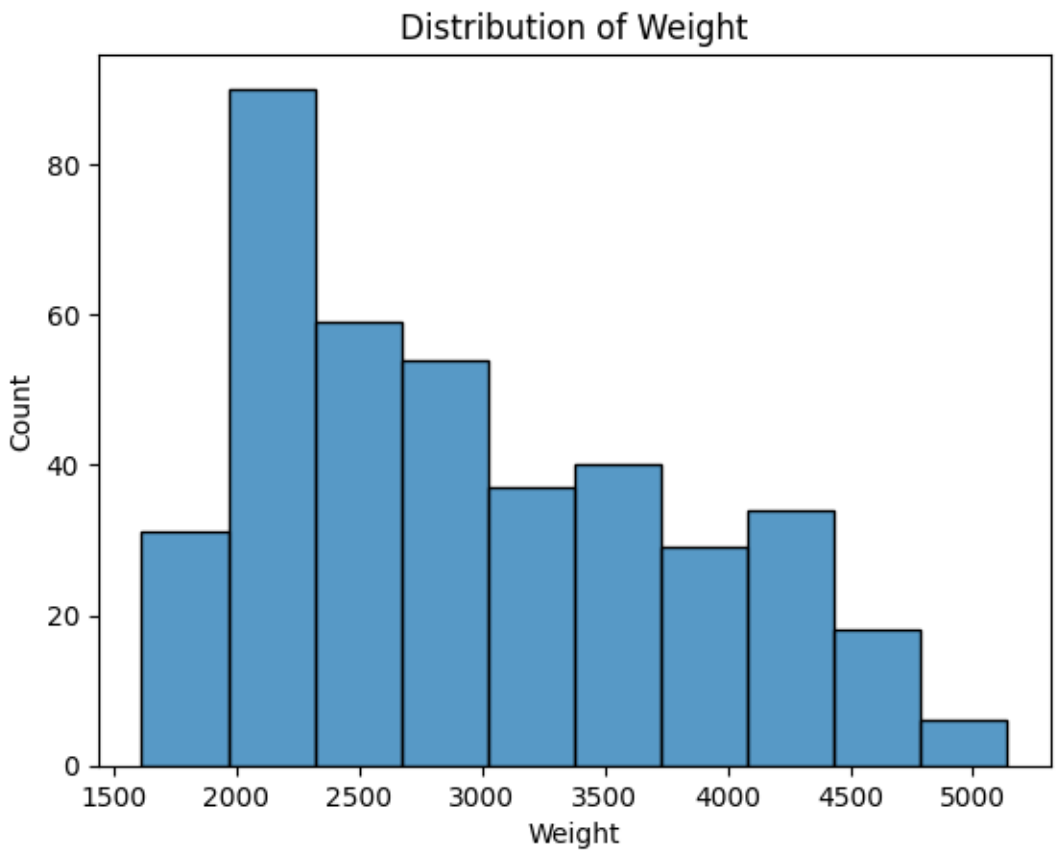
Statement 4: Compare the average acceleration for each origin

```
sns.barplot(data=df, x='origin', y='acceleration')
plt.xlabel('Origin')
plt.ylabel('Average Acceleration')
plt.title('Average Acceleration by Origin')
plt.show()
```



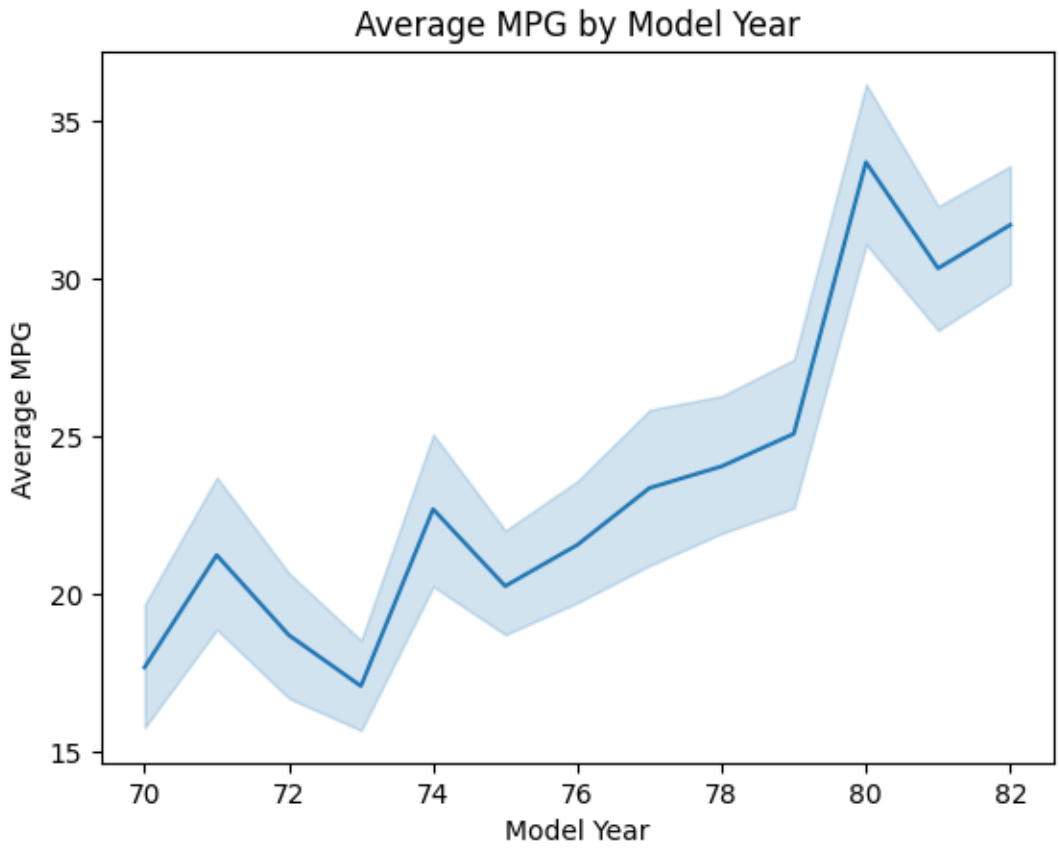
Statement 5: Visualize the distribution of weight

```
sns.histplot(data=df, x='weight')
plt.xlabel('Weight')
plt.ylabel('Count')
plt.title('Distribution of Weight')
plt.show()
```



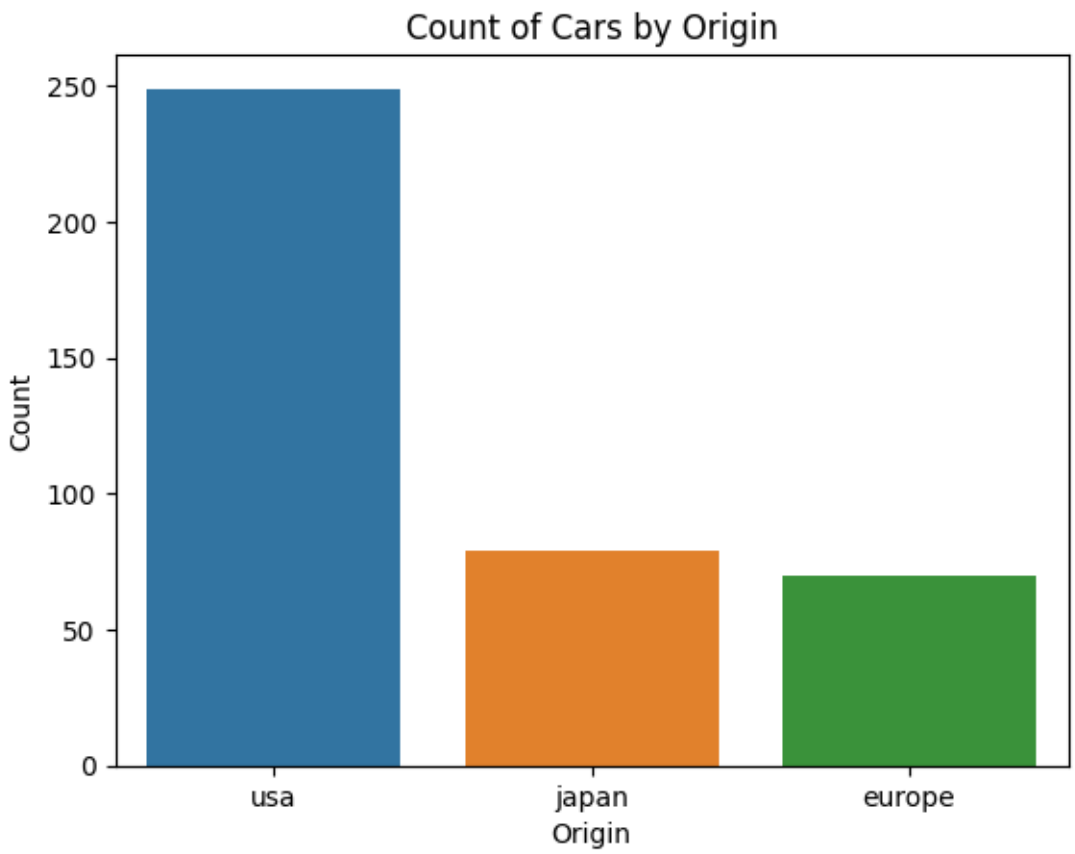
Statement 6: Plot the average MPG for each model year

```
sns.lineplot(data=df, x='model_year', y='mpg')
plt.xlabel('Model Year')
plt.ylabel('Average MPG')
plt.title('Average MPG by Model Year')
plt.show()
```



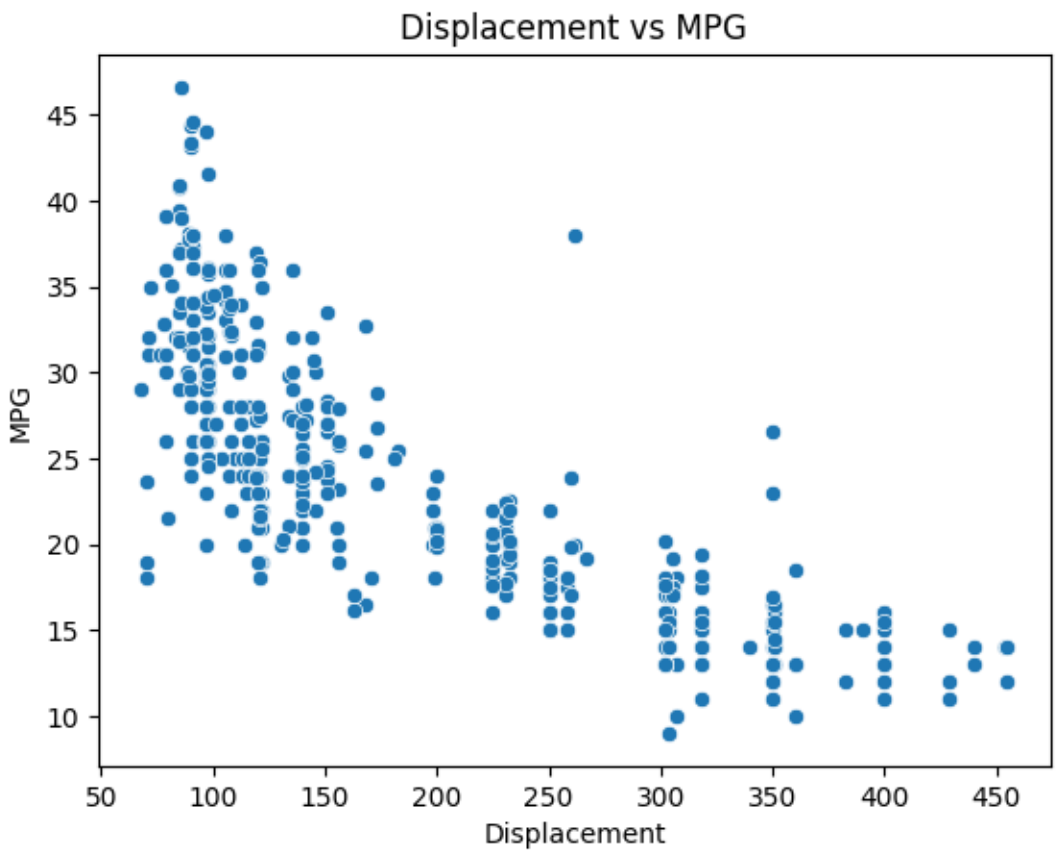
Statement 7: Display the count of cars for each origin

```
sns.countplot(data=df, x='origin')
plt.xlabel('Origin')
plt.ylabel('Count')
plt.title('Count of Cars by Origin')
plt.show()
```



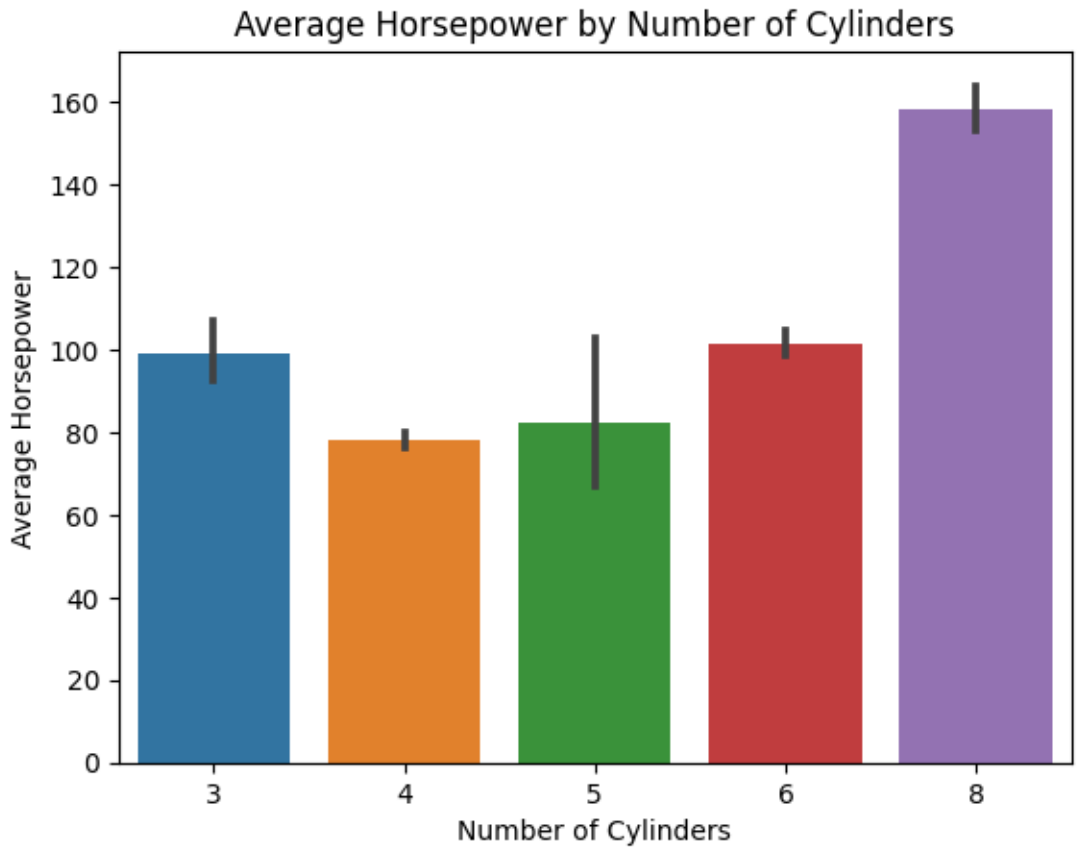
Statement 8: Show the relationship between displacement and MPG

```
sns.scatterplot(data=df, x='displacement', y='mpg')
plt.xlabel('Displacement')
plt.ylabel('MPG')
plt.title('Displacement vs MPG')
plt.show()
```



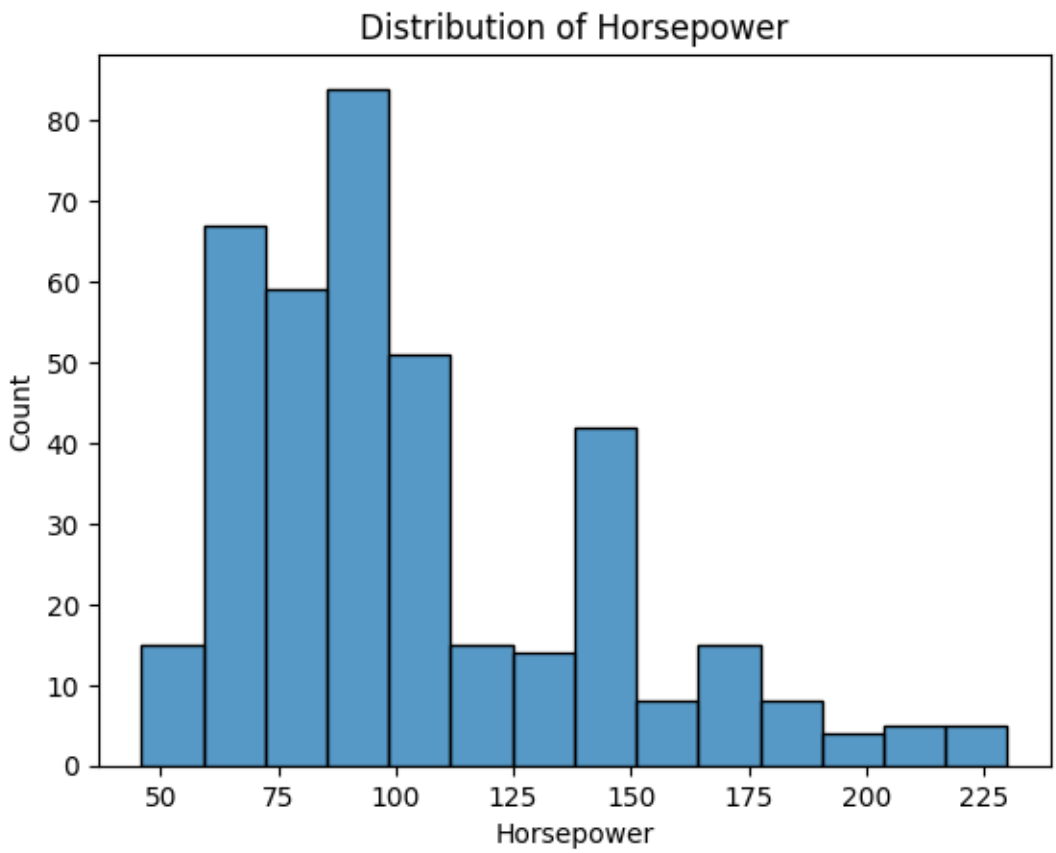
Statement 9: Compare the average horsepower for each number of cylinders

```
sns.barplot(data=df, x='cylinders', y='horsepower')
plt.xlabel('Number of Cylinders')
plt.ylabel('Average Horsepower')
plt.title('Average Horsepower by Number of Cylinders')
plt.sow()
```



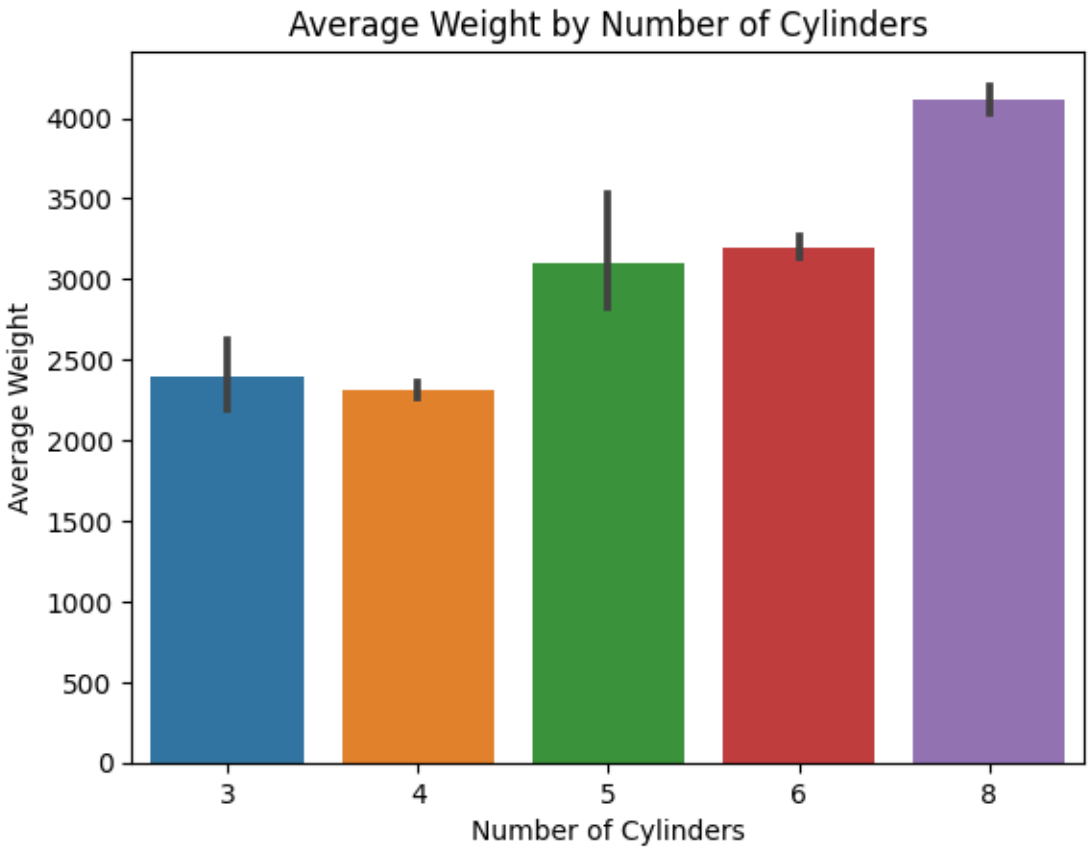
Statement 10: Visualize the distribution of horsepower

```
sns.histplot(data=df, x='horsepower')
plt.xlabel('Horsepower')
plt.ylabel('Count')
plt.title('Distribution of Horsepower')
plt.show()
```



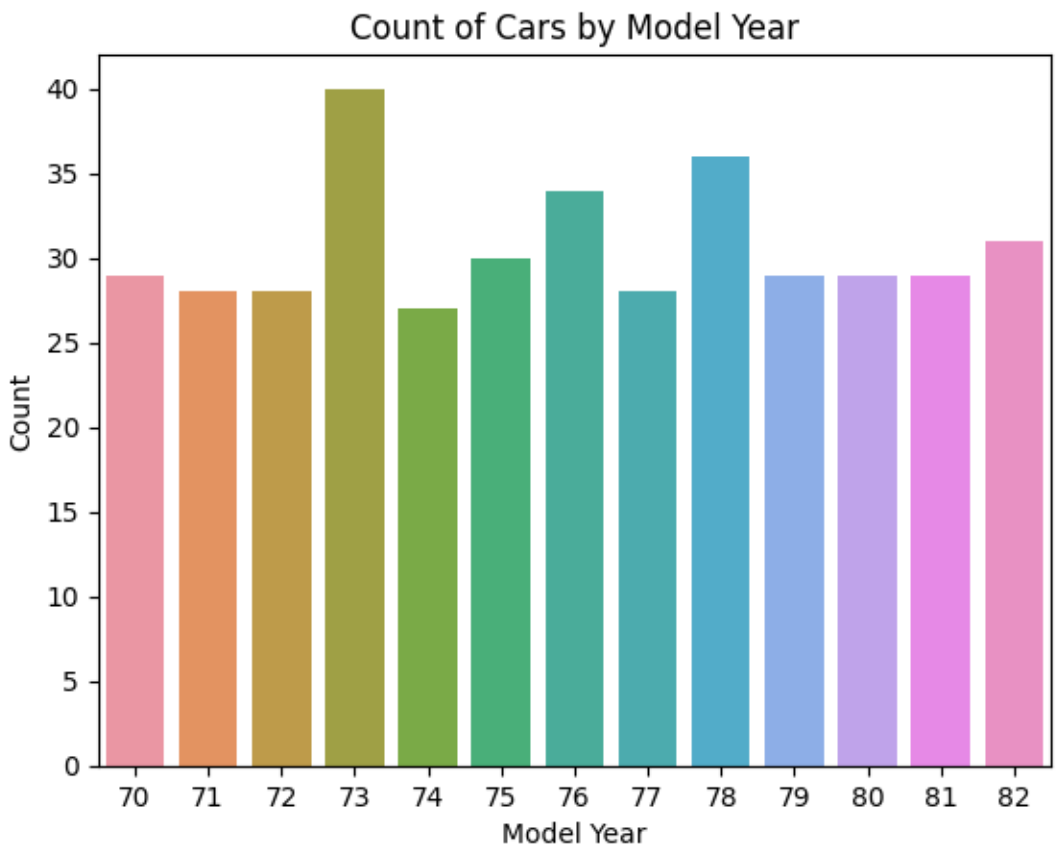
Statement 11: Plot the average weight for each number of cylinders

```
sns.barplot(data=df, x='cylinders', y='weight')
plt.xlabel('Number of Cylinders')
plt.ylabel('Average Weight')
plt.title('Average Weight by Number of Cylinders')
plt.show()
```



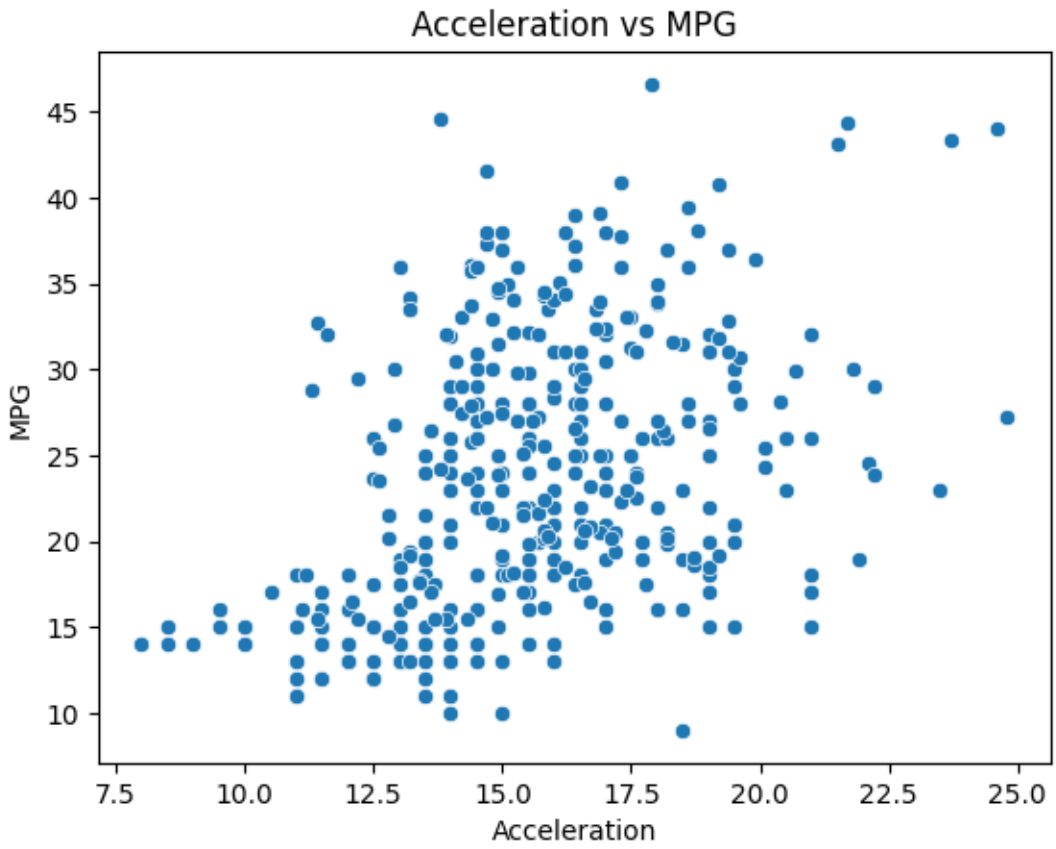
Statement 12: Display the count of cars for each model year

```
sns.countplot(data=df, x='model_year')
plt.xlabel('Model Year')
plt.ylabel('Count')
plt.title('Count of Cars by Model Year')
plt.show()
```



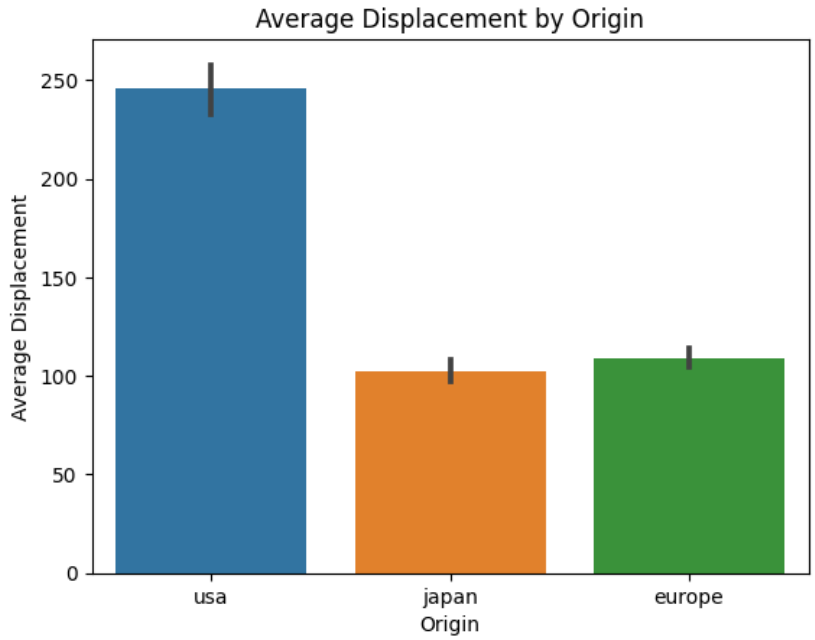
Statement 13: Show the relationship between acceleration and MPG

```
sns.scatterplot(data=df, x='acceleration', y='mpg')
plt.xlabel('Acceleration')
plt.ylabel('MPG')
plt.title('Acceleration vs MPG')
plt.show()
```



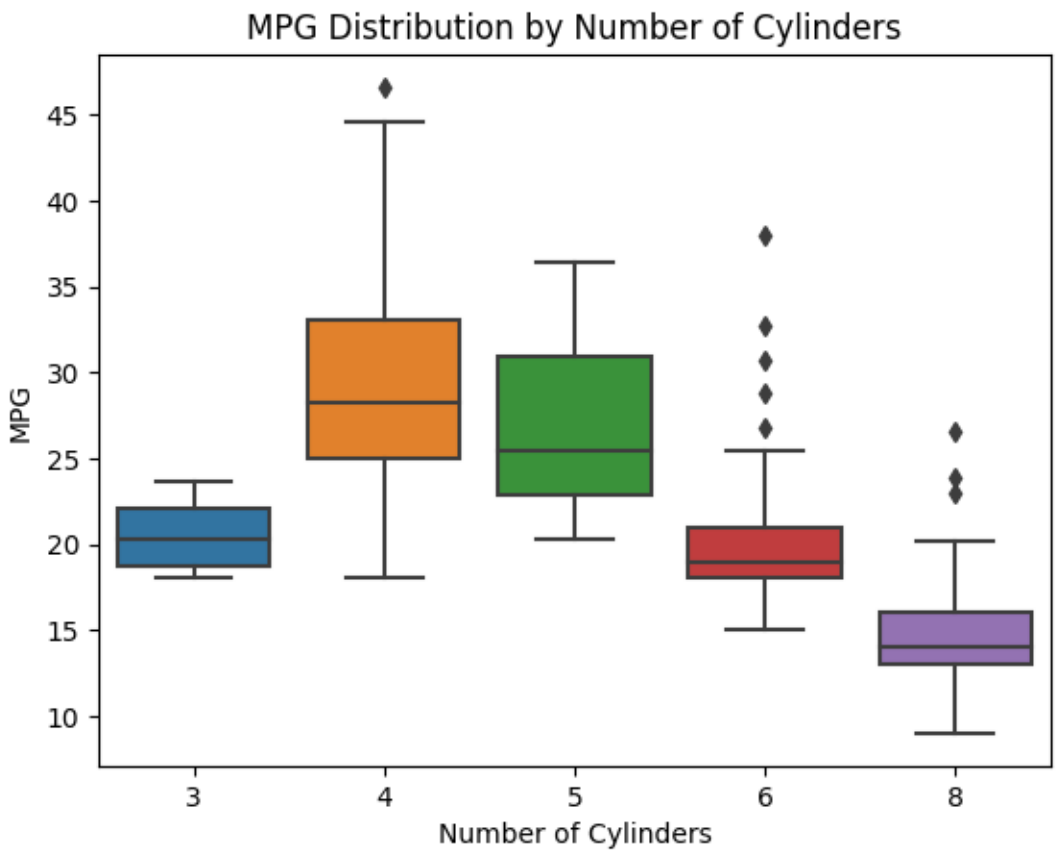
Statement 14: Compare the average displacement for each origin

```
sns.barplot(data=df, x='origin', y='displacement')
plt.xlabel('Origin')
plt.ylabel('Average Displacement')
plt.title('Average Displacement by Origin')
plt.show()
```



Statement 15: Visualize the distribution of MPG for each number of cylinders

```
sns.boxplot(data=df, x='cylinders', y='mpg')
plt.xlabel('Number of Cylinders')
plt.ylabel('MPG')
plt.title('MPG Distribution by Number of Cylinders')
plt.show()
```


MPG Distribution by Number of Cylinders
MPG
45
40
35
30
25
20
15
10
3
4
5
6
8
Number of Cylinders