Exercise: Visualizing Auto MPG Dataset

This lesson provides a few exercises to test your understanding of the seaborn module for visualization.

WE'LL COVER THE FOLLOWING

In the challenges below, we will use the same data frame as read in from the Reading Data exercise.

Scatter plot

Create an additional function `scatter_plot` that takes a data frame `df` and plot relationship between the following two attributes:

- `displacement` over **x-axis**
- `acceleration` over **y-axis**

Try to implement the function below. Good Luck!

```
import pandas as pd
import seaborn as sns

# Load data
def read_csv():
    # Define the column names as a list
    names = ["mpg", "cylinders", "displacement", "horsepower", "weight", "acceleration", "mod
    # Read in the CSV file from the webpage using the defined column names
    df = pd.read_csv("auto-mpg.data", header=None, names=names, delim_whitespace=True)
    return df

# Create the scatter plot
def scatter_plot(df):
    return

# Call the function
scatter_plot(read_csv())
```

Bar plot

Create an additional function `bar_plot` that takes a data frame `df` and compares the `cylinders` of all the cars from **1975** `model_year` and `ford` company.

To check whether a car is owned by `ford` company, you can use the following line:

```
df.car_name.str.contains('ford')
```

This statement will only be *true* for the cars of the `ford` company, that's how you can filter the cars.

To check whether a car belongs to `model-year` of **1975**, you can use the following line:

```
df["model_year"].isin([75])
```

This statement will only be *true* for the cars of the **1975** `model_year`.

Try to implement the function below. Good Luck!

```
import pandas as pd
import seaborn as sns

# Load data
def read_csv():
    # Define the column names as a list
    names = ["mpg", "cylinders", "displacement", "horsepower", "weight", "acceleration", "moc
    # Read in the CSV file from the webpage using the defined column names
    df = pd.read_csv("auto-mpg.data", header=None, names=names, delim_whitespace=True)
    return df


def bar_plot(df):
    return

# Call the function
bar_plot(read_csv())
```

Line plot

Create an additional function `line_plot` that takes a data frame `df` and then plots the change in `weight` throughout the years for the cars of `ford` company.

Try to implement the function below. Good Luck!

```
import seaborn as sns            # importing seaborn functionality
import pandas as pd


# Load dataset
def read_csv():
    # Define the column names as a list
    names = ["mpg", "cylinders", "displacement", "horsepower", "weight", "acceleration", "mod
    # Read in the CSV file from the webpage using the defined column names
    df = pd.read_csv("auto-mpg.data", header=None, names=names, delim_whitespace=True)
    return df


def line_plot(df):
    return

# Call the function
line_plot(read_csv())
```

We hope that you were able to solve the challenges. The next lesson brings you the solutions to the above challenges.