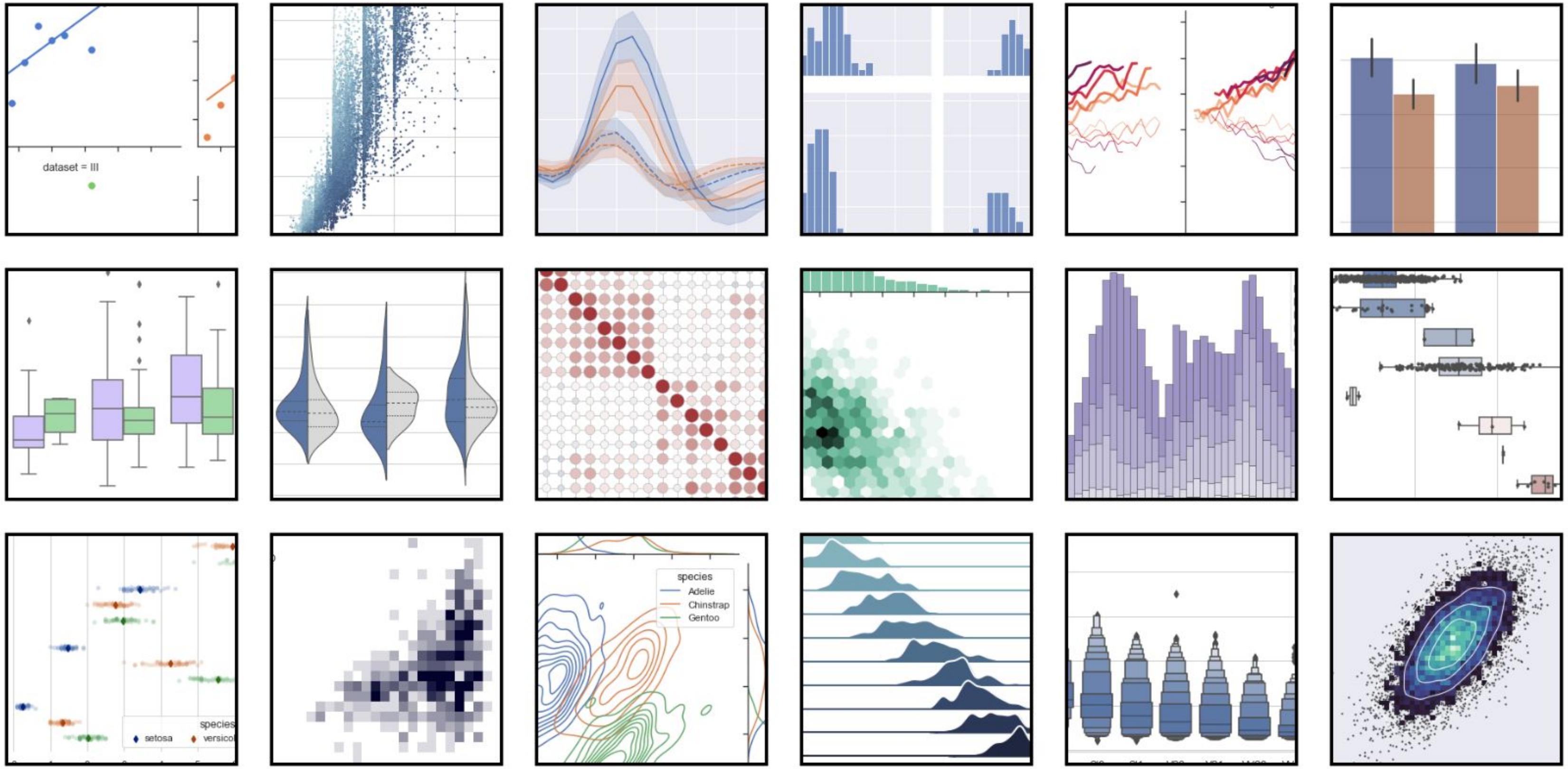
Introduction to Seaborn

Seaborn is a Python data visualization library based on matplotlib. It provides a high-level interface for drawing attractive and informative statistical graphics.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Seaborn 1st Steps: install and import

- Seaborn is an easy package to install. Open up your terminal program (shell or cmd) and install it using either of the following commands:

```
pip install seaborn
```

- To import seaborn we usually import it with a shorter name since it's used so much:

```
import seaborn as sns
```

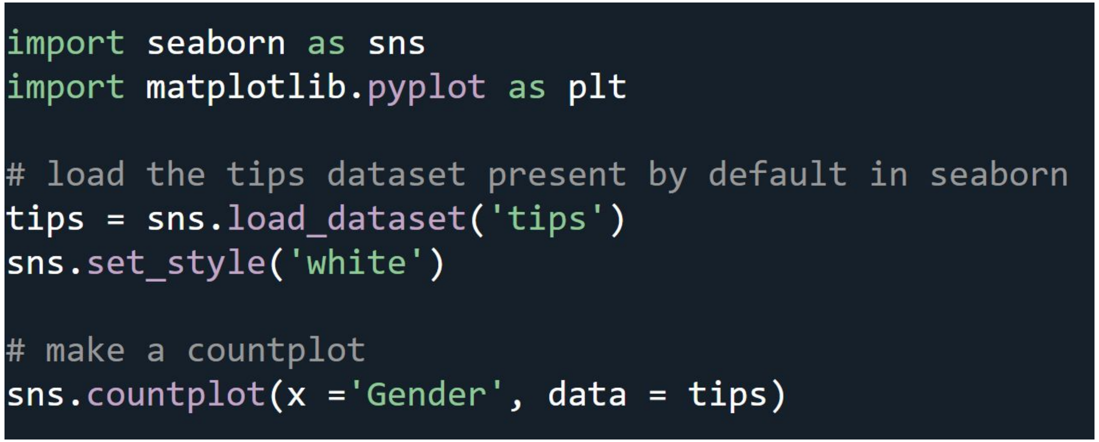
Seaborn | Style And Color

Seaborn Figure Styles: white, dark, whitegrid, darkgrid, ticks

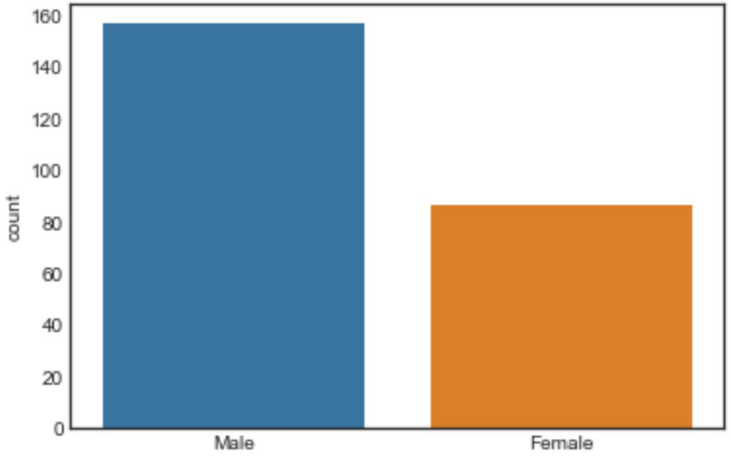
This affects things like the color of the axes, whether a grid is enabled by default, and other aesthetic elements.

load_dataset() - *function is used to load the dataset.*

set_style() - *function is used for plot styling.*

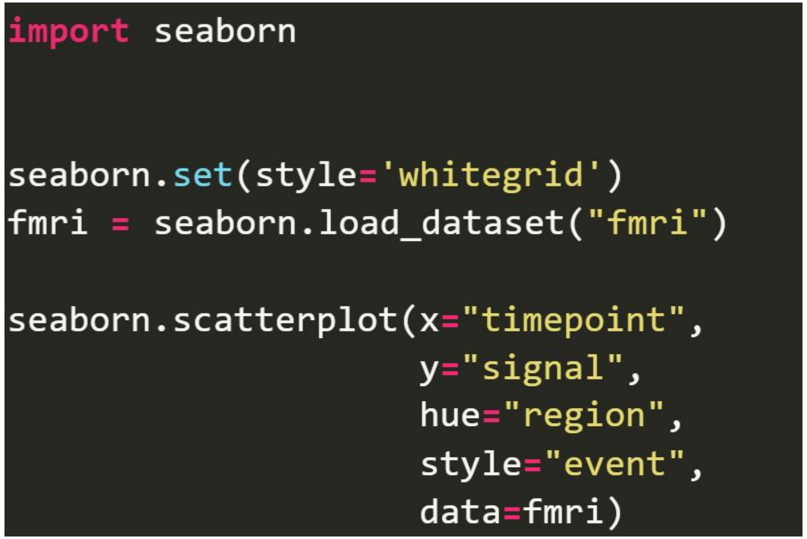


```python
import seaborn as sns
import matplotlib.pyplot as plt

# load the tips dataset present by default in seaborn
tips = sns.load_dataset('tips')
sns.set_style('white')

# make a countplot
sns.countplot(x ='Gender', data = tips)
```

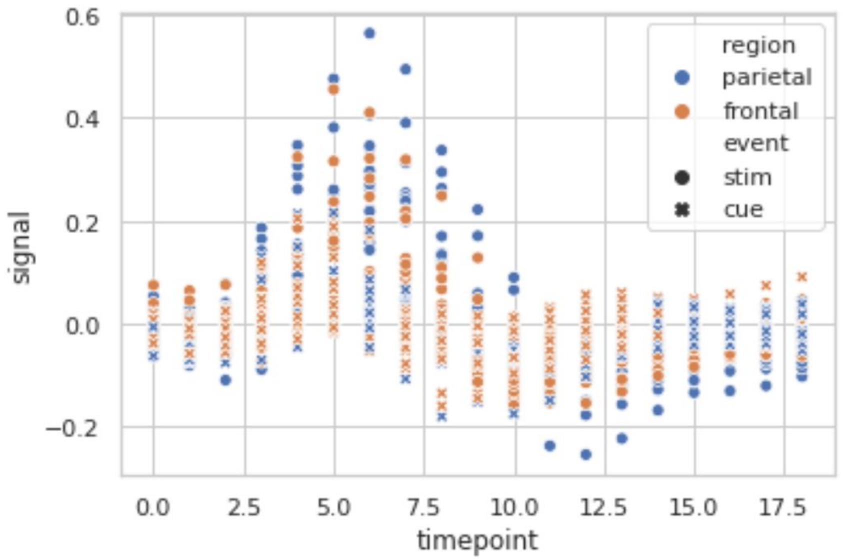


Seaborn Scatterplot

Scatterplot can be used with several semantic groupings which can help to understand well in a graph. You can use the .scatterplot() function to draw scatterplot:



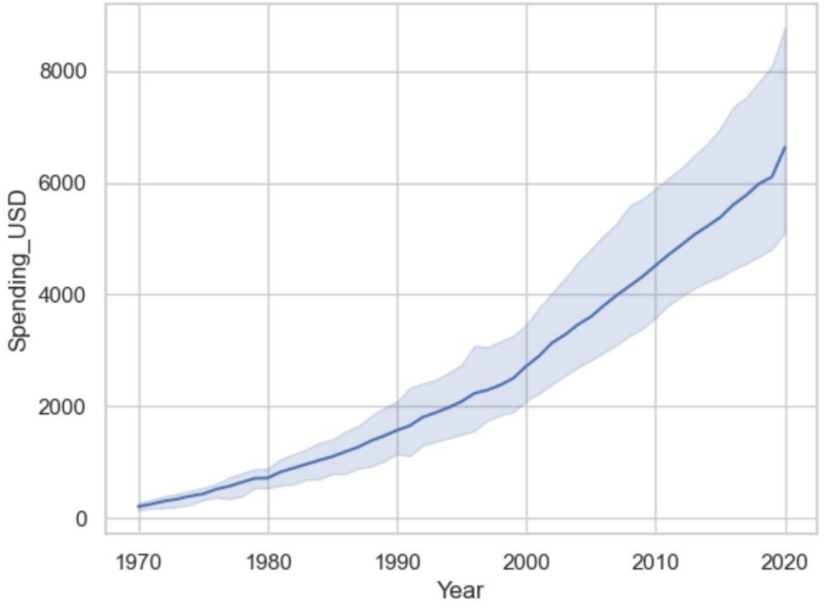
```
import seaborn


seaborn.set(style='whitegrid')
fmri = seaborn.load_dataset("fmri")

seaborn.scatterplot(x="timepoint",
                    y="signal",
                    hue="region",
                    style="event",
                    data=fmri)
```



Seaborn Line plot

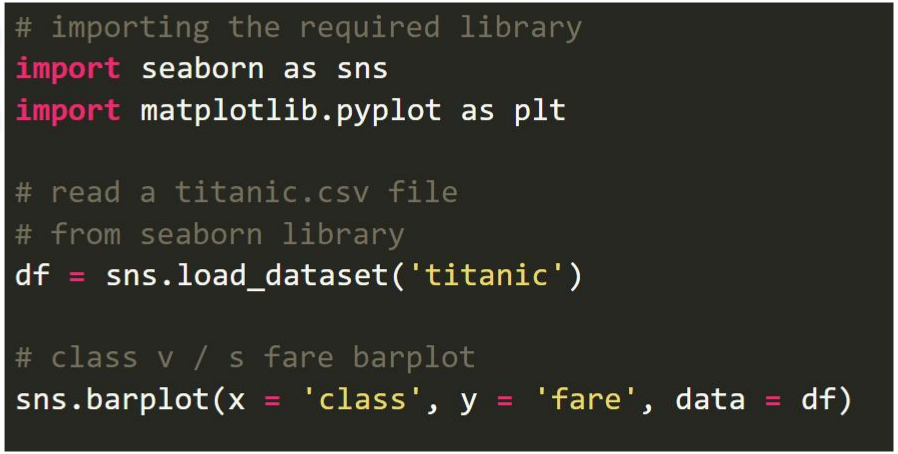
You can use the .lineplot() function to draw line plot:

```
# import data
data = sns.load_dataset('healthexp')


# selecting required rows and columns
data = data.loc[:, ['Year', 'Spending_USD']]

# plotting a single line graph
sns.lineplot(x="Year", y="Spending_USD", data=data)

# displaying the plot
plt.show()
```

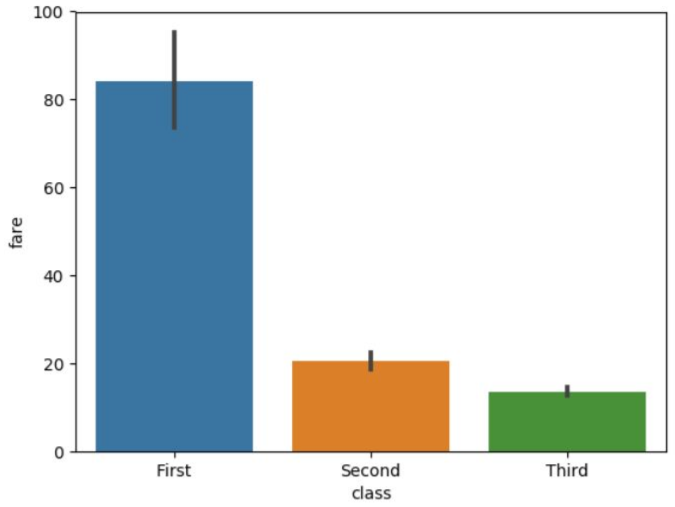


Seaborn Bar plot

You can use the .barplot() function to draw bar plot:



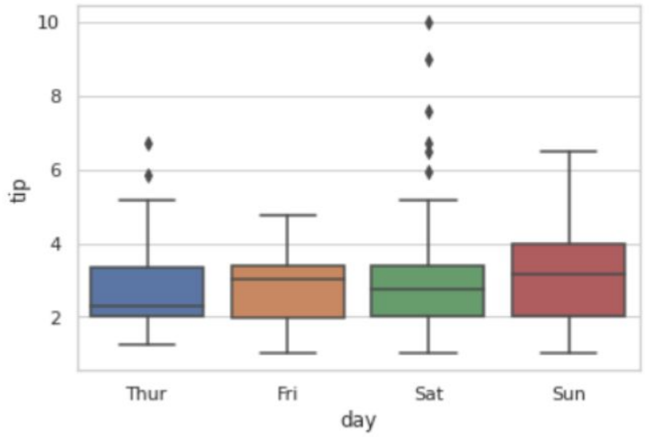
```
# importing the required library
import seaborn as sns
import matplotlib.pyplot as plt

# read a titanic.csv file
# from seaborn library
df = sns.load_dataset('titanic')

# class v / s fare barplot
sns.barplot(x = 'class', y = 'fare', data = df)
```



Seaborn Box plot

You can use the .boxplot() function to draw box plot:

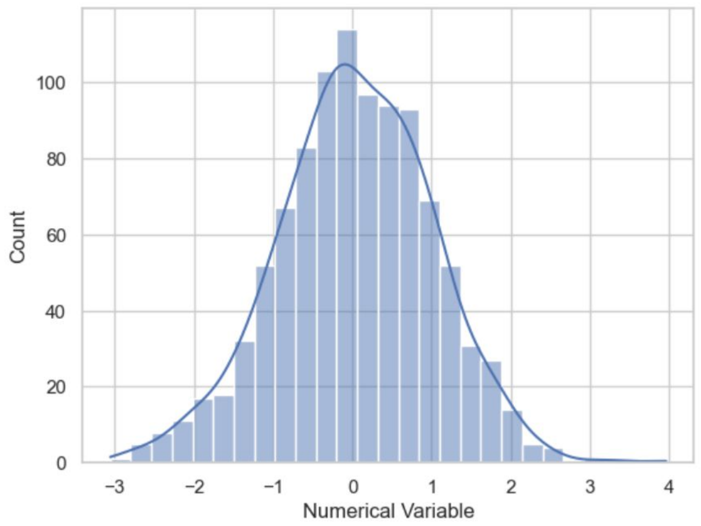
```
seaborn.set(style='whitegrid')
tip = seaborn.load_dataset('tips')

seaborn.boxplot(x='day', y='tip', data=tip)
```



Seaborn Histogram

You can use the .histplot() function to draw histogram:

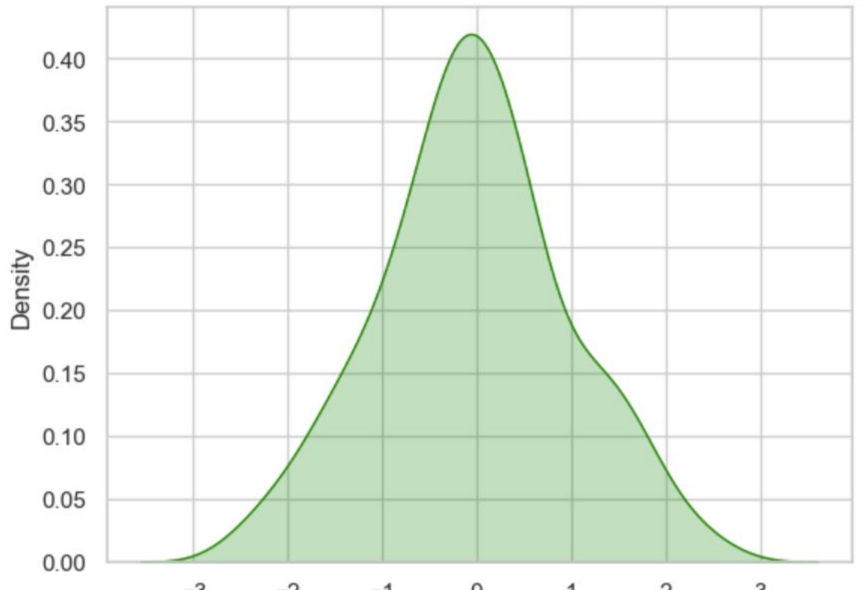
```
# Import necessary libraries
import seaborn as sns
import numpy as np
import pandas as pd

# Generating dataset of random numbers
np.random.seed(1)
num_var = np.random.randn(1000)
num_var = pd.Series(num_var, name = "Numerical Variable")

# Plot histogram
sns.histplot(data = num_var, kde = True)
```



Seaborn Kdeplot

Kdeplot allows us to estimate the probability density function of the continuous or non-parametric from our data set curve in one or more dimensions it means we can create plot a single graph for multiple samples which helps in more efficient data visualization. You can use the .kdeplot() function to draw kdeplot:

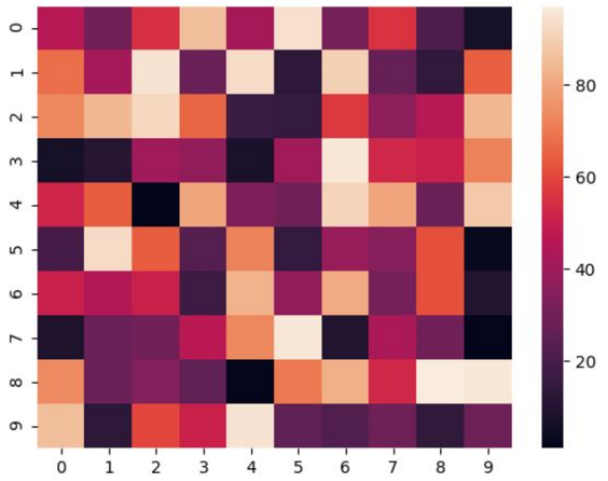
```
# data x and y axis for seaborn
x= np.random.randn(200)
y = np.random.randn(200)

sns.kdeplot(x, shade = True , color = "Green")
```



Seaborn Heatmap

Heatmap is defined as a graphical representation of data using colors to visualize the value of the matrix. Heatmaps in Seaborn can be plotted by using the seaborn.heatmap() function.

```
# generating 2-D 10x10 matrix of random numbers
# from 1 to 100
data = np.random.randint(low = 1,
                         high = 100,
                         size = (10, 10))
print("The data to be plotted:\n")
print(data)

# plotting the heatmap
hm = sns.heatmap(data = data)

# displaying the plotted heatmap
plt.show()
```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