# Seaborn

**Assignment**

# Que 1: Name any five plots that we can plot using the Seaborn library. Also, state the uses of each plot.

The Seaborn library is a powerful data visualization library in Python. Here are five common plots that can be created using Seaborn, along with their typical uses:

1. Scatter Plot:

Uses: It shows the relationship between two variables by representing data points as individual dots on a two-dimensional plane. It helps visualize patterns, clusters, and trends in the data.

1. Line Plot:

Uses: It displays the relationship between two continuous variables with continuous lines connecting the data points. Line plots are useful for visualizing trends over time or any other ordered variable.

1. Bar Plot:

Uses: It represents categorical data with rectangular bars. It is used to compare and display the distribution of a variable across different categories. Bar plots are effective for visualizing frequency counts or aggregations.

1. Histogram:

Uses: It displays the distribution of a continuous variable using bars. The height of each bar represents the frequency or proportion of data falling within a specific range. Histograms help understand the shape, central tendency, and spread of the data.

1. Heatmap:

Uses: It represents data in a tabular form using a color-encoded matrix. Heatmaps are commonly used to visualize correlations between variables, highlight patterns, and identify relationships in large datasets.

# Que 2: Load the "fmri" dataset using the load\_dataset function of seaborn. Plot a line plot using x = "timepoint" and y = "signal" for different events and regions.

import seaborn as sns

import matplotlib.pyplot as plt

# Load the fmri dataset

fmri = sns.load\_dataset("fmri")

# Plot a line plot for each event and region

for event in fmri["event"].unique():

for region in fmri["region"].unique():

data = fmri.loc[(fmri["event"] == event) & (fmri["region"] == region)]

sns.lineplot(data=data, x="timepoint", y="signal")

plt.show()

# Que 3: Load the "titanic" dataset using the load\_dataset function of seaborn. Plot two box plots using x =

# 'pclass', y = 'age' and y = 'fare'.

# Note: pclass, age, and fare are columns in the titanic dataset.

import seaborn as sns

import matplotlib.pyplot as plt

# Load the Titanic dataset

titanic = sns.load\_dataset('titanic')

# Plot a box plot of age vs pclass

plt.figure(figsize=(10, 6))

sns.boxplot(x='pclass', y='age', data=titanic)

plt.title('Age vs Pclass')

plt.show()

# Plot a box plot of fare vs pclass

plt.figure(figsize=(10, 6))

sns.boxplot(x='pclass', y='fare', data=titanic)

plt.title('Fare vs Pclass')

plt.show()

# Que 4: Use the "diamonds" dataset from seaborn to plot a histogram for the 'price' column. Use the hue

# parameter for the 'cut' column of the diamonds dataset.

The necessary libraries and load the dataset:

import seaborn as sns

# Load the diamonds dataset

diamonds = sns.load\_dataset('diamonds')

The histplot function from seaborn to create the histogram:

# Plot histogram with 'cut' as the hue parameter

sns.histplot(data=diamonds, x='price', hue='cut', kde=True)

# Display the plot

import matplotlib.pyplot as plt

plt.show()

The complete code snippet is as follows:

import seaborn as sns

import matplotlib.pyplot as plt

# Load the diamonds dataset

diamonds = sns.load\_dataset('diamonds')

# Plot histogram with 'cut' as the hue parameter

sns.histplot(data=diamonds, x='price', hue='cut', kde=True)

# Display the plot

plt.show()

# Que 5: Use the "iris" dataset from seaborn to plot a pair plot. Use the hue parameter for the "species" column of the iris dataset.

import seaborn as sns

# Load the iris dataset

iris = sns.load\_dataset('iris')

The pairplot function from seaborn to create the pair plot:

# Plot pair plot with 'species' as the hue parameter

sns.pairplot(data=iris, hue='species')

# Display the plot

import matplotlib.pyplot as plt

plt.show()

The complete code snippet is as follows:

import seaborn as sns

import matplotlib.pyplot as plt

# Load the iris dataset

iris = sns.load\_dataset('iris')

# Plot pair plot with 'species' as the hue parameter

sns.pairplot(data=iris, hue='species')

# Display the plot

plt.show()

# Que 6: Use the "flights" dataset from seaborn to plot a heatmap.

import seaborn as sns

import matplotlib.pyplot as plt

# Load the "flights" dataset

flights\_data = sns.load\_dataset("flights")

# Reshape the data into a pivot table

flights\_pivot = flights\_data.pivot("month", "year", "passengers")

# Create a heatmap

sns.heatmap(flights\_pivot, annot=True, fmt="d", cmap="YlGnBu")

# Set the plot title

plt.title("Passenger Traffic Heatmap")

# Display the plot

plt.show()