Ex.No : 10 **Roll No: 210701159**

Visualize Data Using any Plotting Framework

AIM:

To visualize data using any plotting framework in python.

PROCEDURES:

1. Install Plotly using pip install plotly if it's not already installed.
2. Import the necessary libraries: import plotly.express as px and import pandas as pd.
3. Load your dataset into a DataFrame using pd.read_csv() or other data loading methods.
4. Explore the dataset to understand its structure, variables, and potential visualizations.
5. Choose the appropriate Plotly function (e.g., px.scatter, px.bar, px.line) based on the type of data and the desired plot.
6. Define the x and y axes by specifying the columns from the DataFrame.
7. Customize the plot by adding titles, labels, color coding, and other plot-specific attributes.
8. Add interactive elements like hover data, tooltips, or facet plots for deeper insights.
9. Render the plot using fig.show() to display it in a web browser or inline in a notebook.
10. Save the plot to an HTML file or as a static image using fig.write_html() or fig.write_image().

CODE:

BarChart.r

```
# Load the ggplot2 package
library(ggplot2)
# Bar plot of Species counts
ggplot(data = iris, aes(x = Species)) +
```

```
  geom_bar(fill = "steelblue") + # Adds bars filled with steel blue color
  labs(title = "Count of Different Species in Iris Dataset",
       x = "Species",
       y = "Count") +
  theme_minimal()
```

BoxPlot.r

```
# Load the ggplot2 package
library(ggplot2)
# Box plot of Sepal Length for each Species
ggplot(data = iris, aes(x = Species, y = Sepal.Length, fill = Species)) +
  geom_boxplot() + # Adds box plot
  labs(title = "Box Plot of Sepal Length by Species",
       x = "Species",
       y = "Sepal Length (cm)") +
  theme_minimal()
```

Histogram.r

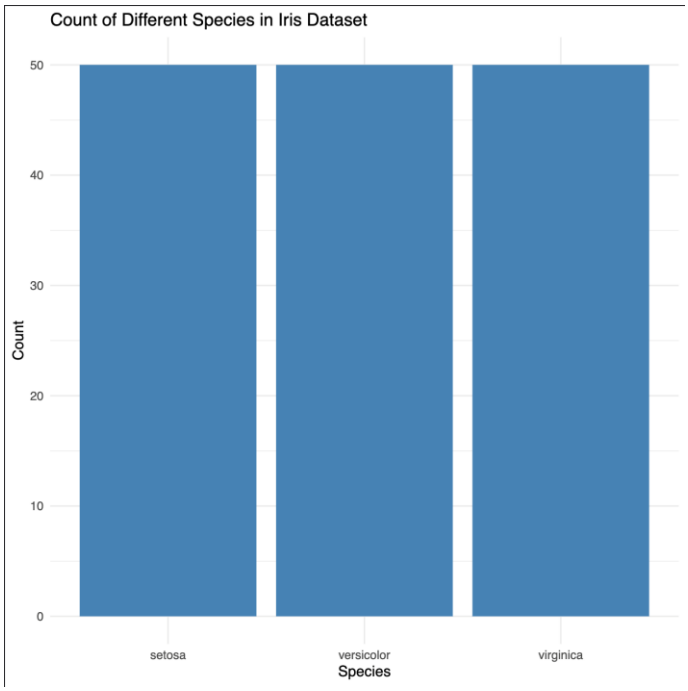
```
# Load the ggplot2 package
library(ggplot2)
# Histogram of Sepal Length
ggplot(data = iris, aes(x = Sepal.Length)) +
  geom_histogram(binwidth = 0.3, fill = "orange", color = "black") +
  # Adds histogram bars
  labs(title = "Histogram of Sepal Length",
       x = "Sepal Length (cm)",
       y = "Frequency") +
  theme_minimal()
```

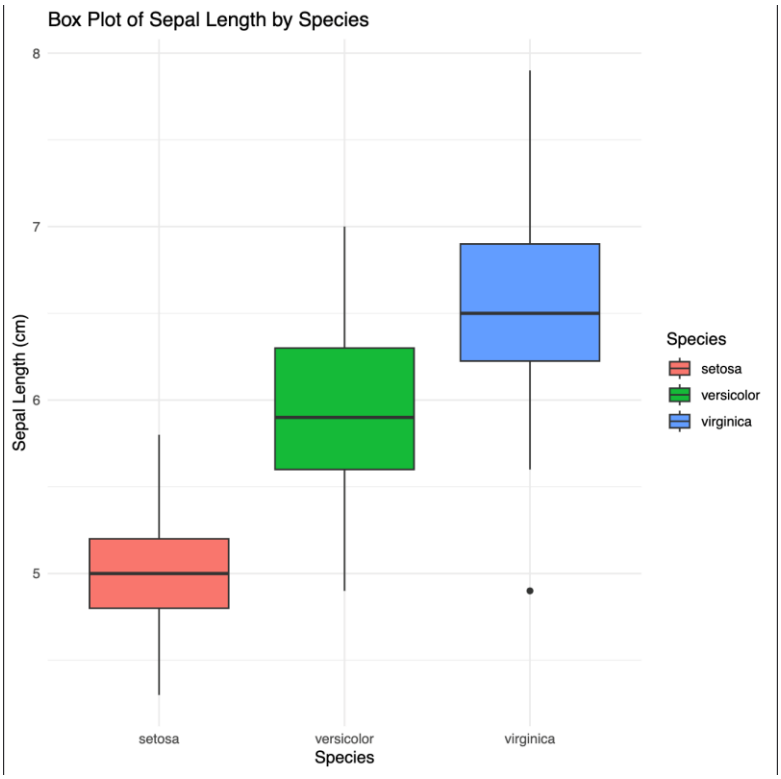
ScatterPlot.r

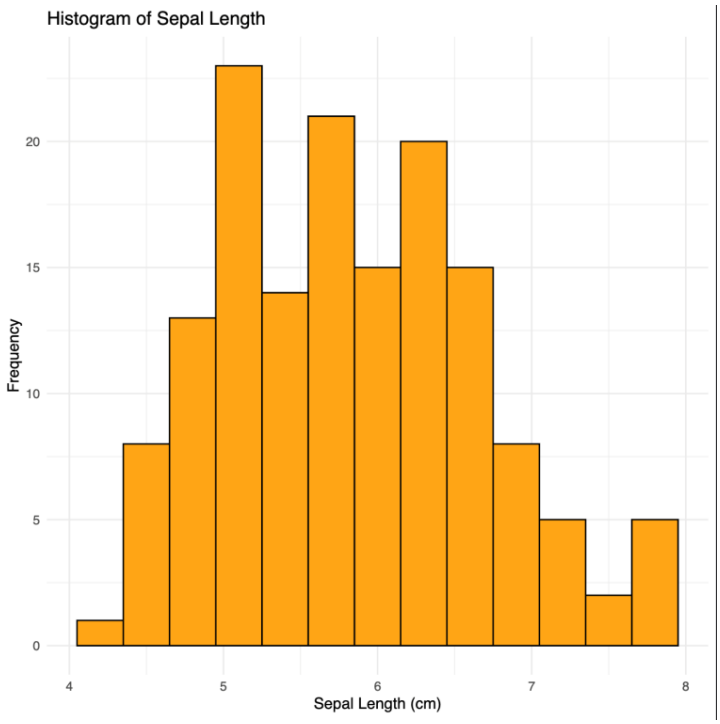
```
# Load the ggplot2 package
```

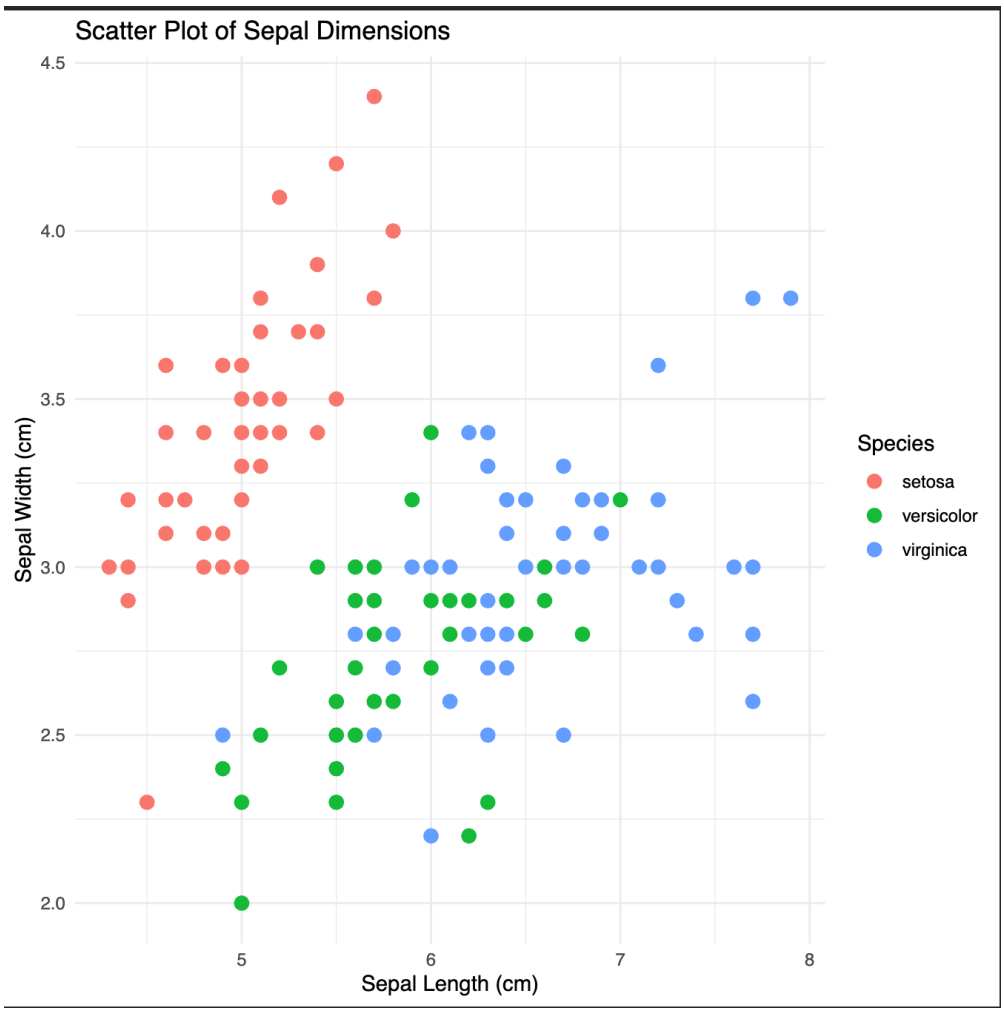
```
library(ggplot2)
# Scatter plot of Sepal.Length vs Sepal.Width, colored by Species
ggplot(data = iris, aes(x = Sepal.Length, y = Sepal.Width, color = Species)) +
geom_point(size = 3) + # Adds points
  labs(title = "Scatter Plot of Sepal Dimensions",
       x = "Sepal Length (cm)",
       y = "Sepal Width (cm)") + # Adds axis labels and title
  theme_minimal() # Applies a minimal theme
```

OUTPUT:




Box Plot of Sepal Length by Species
Sepal Length (cm)
8
7
6
5
setosa
versicolor
virginica
Species
Species
setosa
versicolor
virginica


Histogram of Sepal Length
Frequency
20
15
10
5
0
4
5
6
7
8
Sepal Length (cm)



RESULT:

Thus, to visualize data using any plotting framework in python is done successfully.