Exp.No: 10

Visualize Data using Any plotting Framework

AIM:

To Visualize Data using Any plotting Frame work using R programming.

PROCEDURE:

- Install Plotly if it's not already present by running pip install plotly.
- Import the required libraries: import plotly.express as px and import pandas as pd.
- Load your dataset into a DataFrame using pd.read_csv() or other suitable methods for data loading.
- Examine the dataset to grasp its structure, variables, and potential visualizations.
- Select the appropriate Plotly function (e.g., px.scatter, px.bar, px.line) based on the data type and the visualization you wish to create.
- Specify the x and y axes by selecting the corresponding columns from the DataFrame.
- Enhance the plot by adding titles, axis labels, color coding, and other relevant attributes.
- A Introduce interactive features such as hover data, tooltips, or facet plots for enriched insights.
- Render the plot using fig.show() to display it in a web browser or inline within a notebook.
- Save the visualization to an HTML file or as a static image using `fig.write_html()` or `fig.write_image()`.

PROGRAM:

Scatter Plot.R:

```
# Install ggplot2 (if not already installed)
install.packages("ggplot2")
# 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
```

Bar Chart.R:

```
# Install ggplot2 (if not already installed)
install.packages("ggplot2")
# 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()
```

Histogram.R:

```
# Install ggplot2 (if not already installed)
install.packages("ggplot2")
# 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()
```

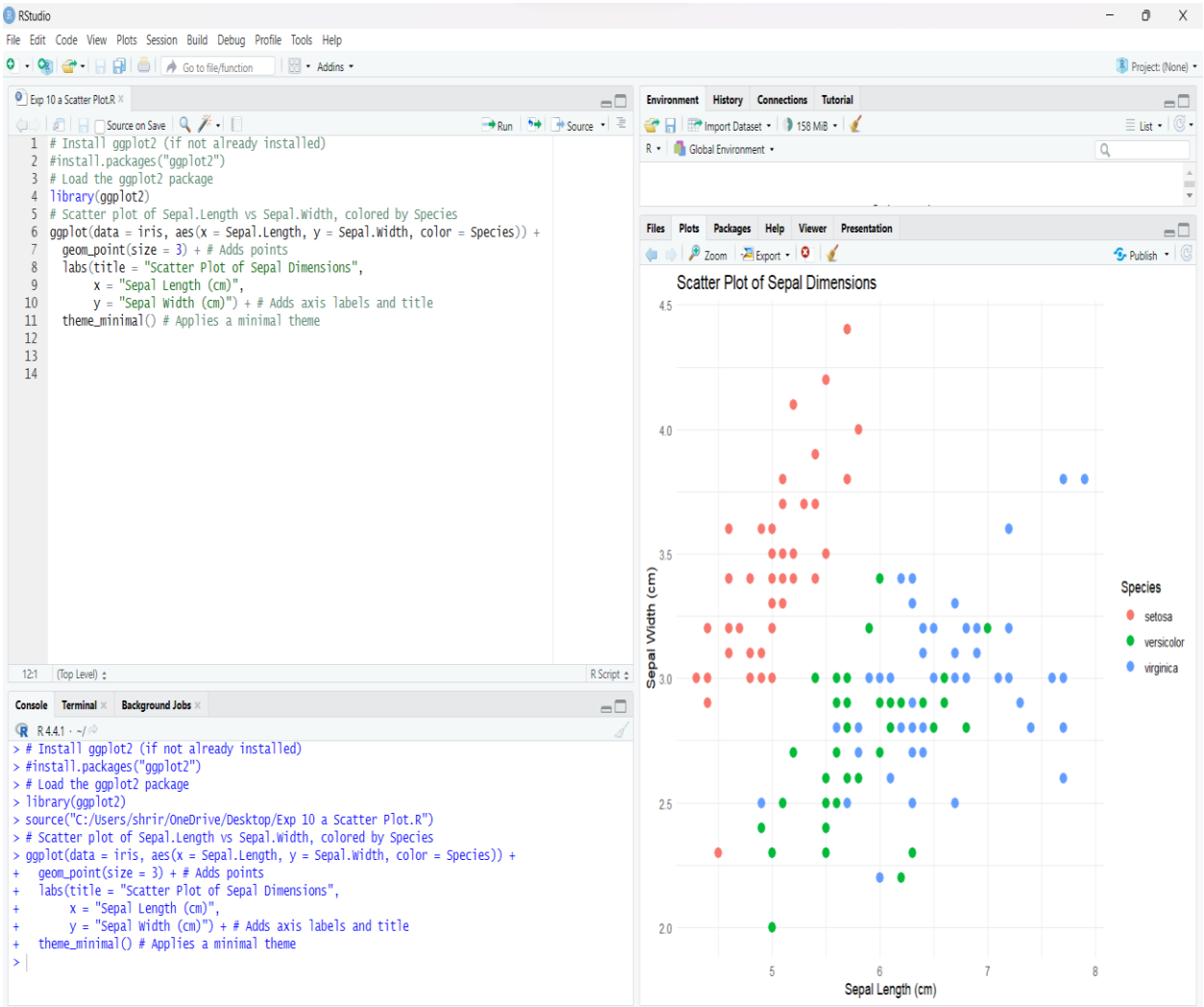
Box Plot.R:

```
# Install ggplot2 (if not already installed)
install.packages("ggplot2")
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
```

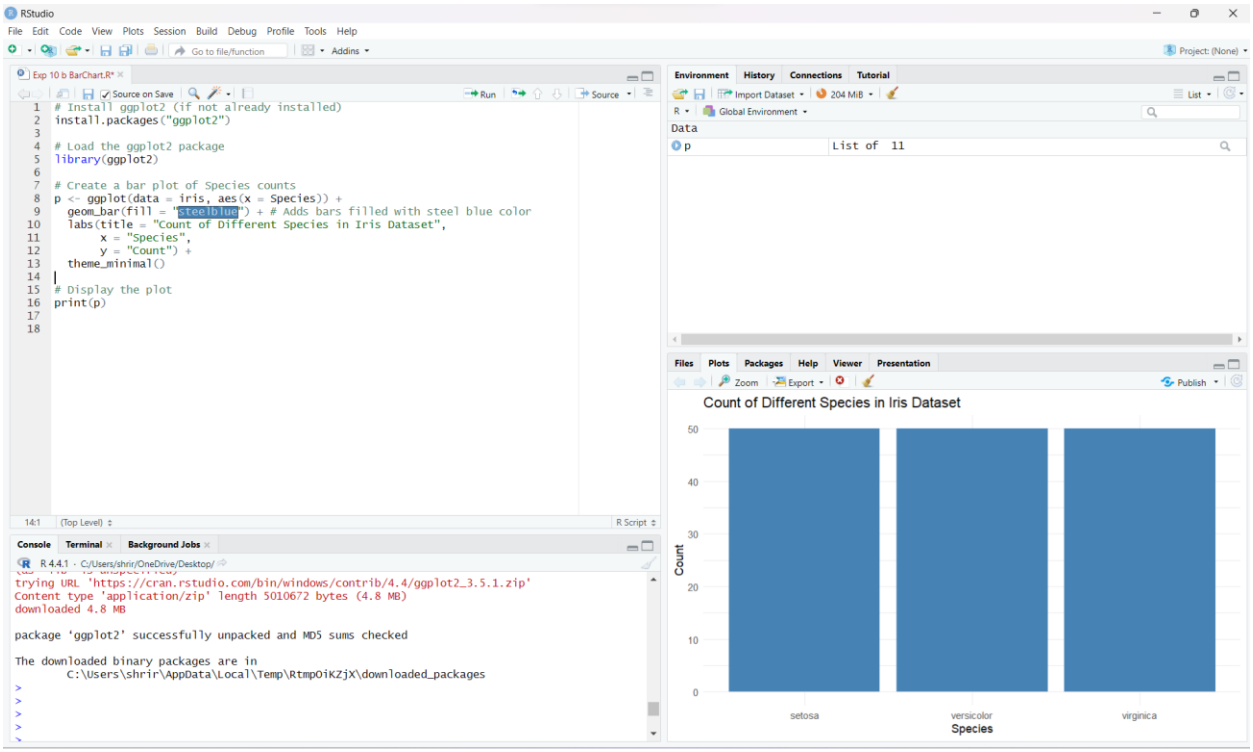
```
labs(title = "Box Plot of Sepal Length by Species",
     x = "Species",
     y = "Sepal Length (cm)") +
theme_minimal()
```

OUTPUT:

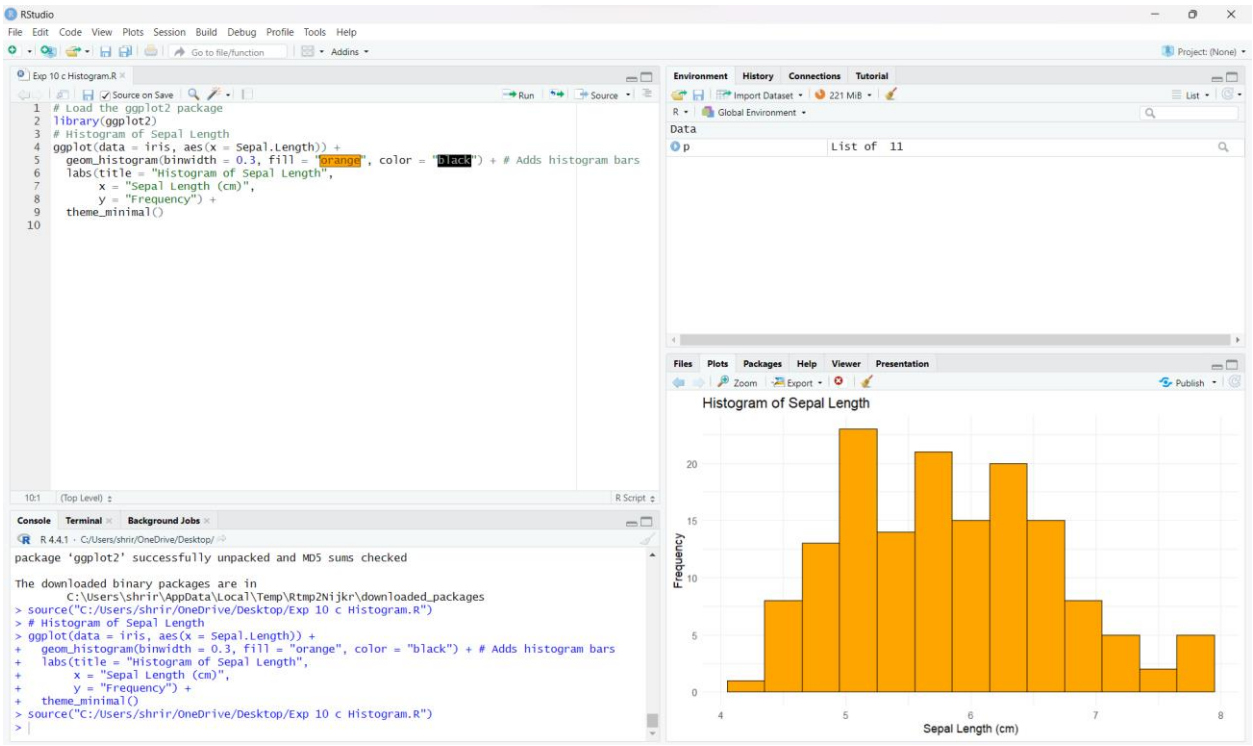
Scatter Plot:



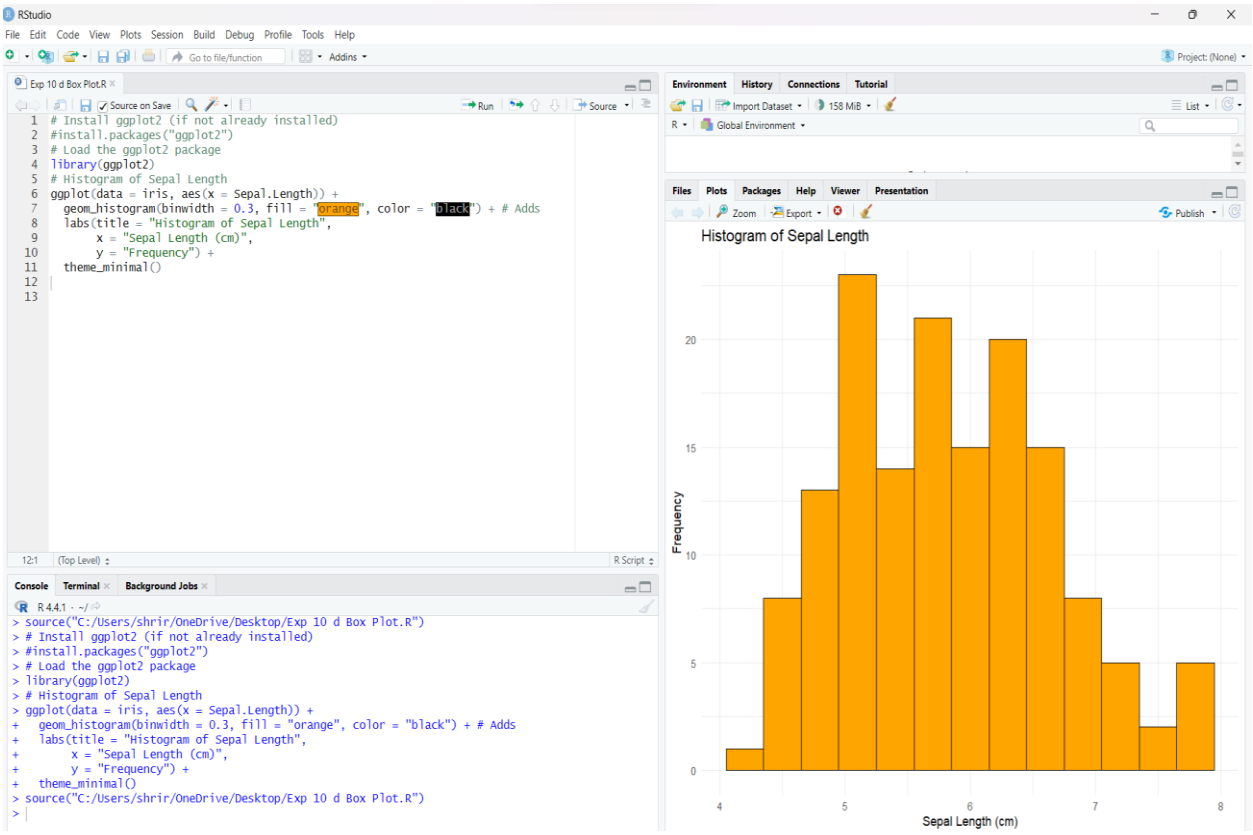
Bar Chart:



Histogram:



Box Plot:



RESULT:

Thus, Visualizing Data using any plotting framework using R programming has been successfully executed.