

**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",
```

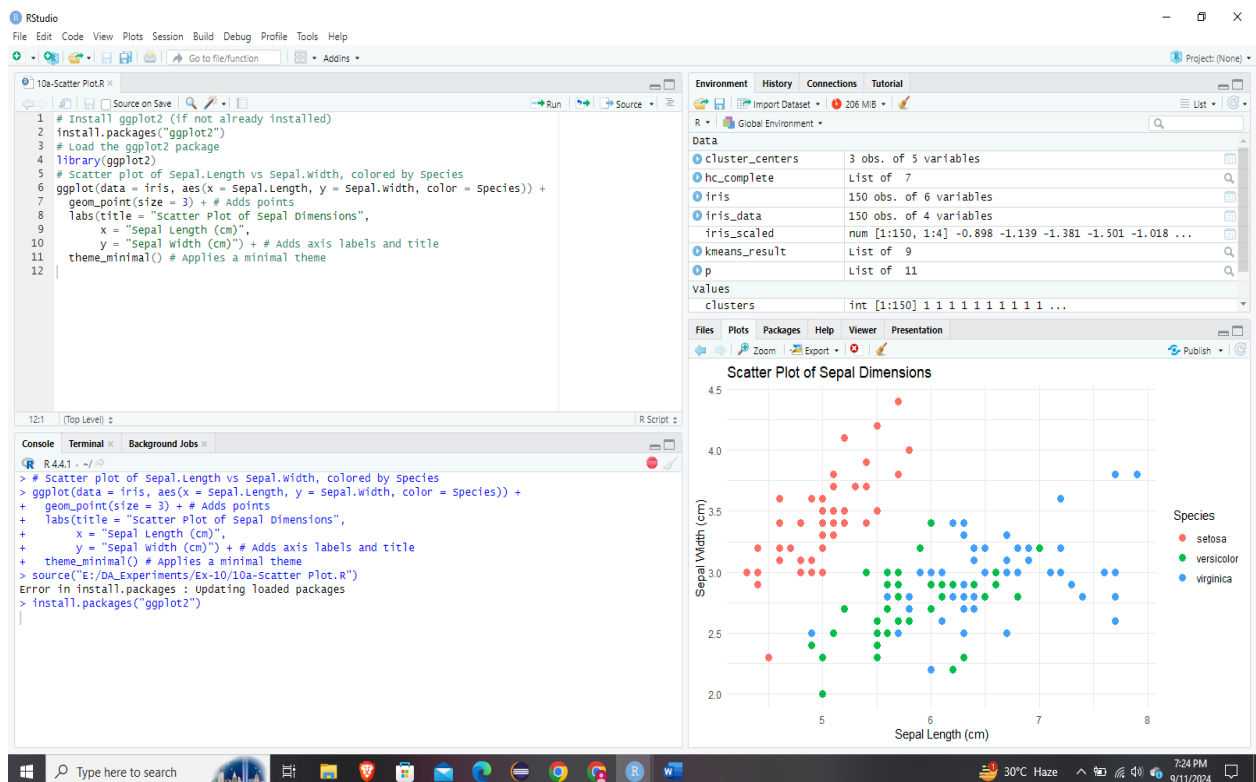
```
x = "Sepal Length (cm)",
y = "Frequency") +
theme_minimal()
```

### Box Plot.R:

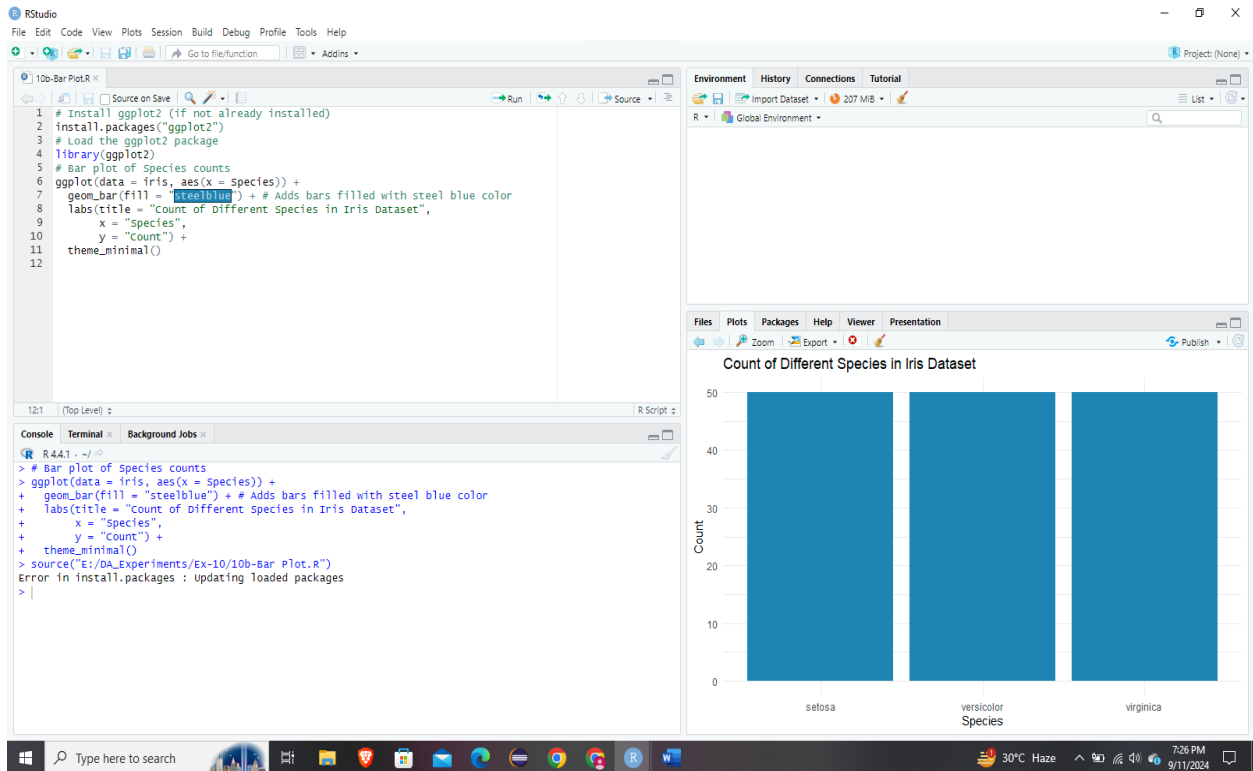
```
# Install ggplot2 (if not already installed)
install.packages("ggplot2")
library(ggplot2)
# Box plot of Sepal Length for each Species
ggplot(data = iris, aes(x = Species, y = Sepal.Length, fill = Species)) +
  geom_boxplot() + # Adds box plot
  labs(title = "Box Plot of Sepal Length by Species",
       x = "Species",
       y = "Sepal Length (cm)") +
  theme_minimal()
```

### OUTPUT:

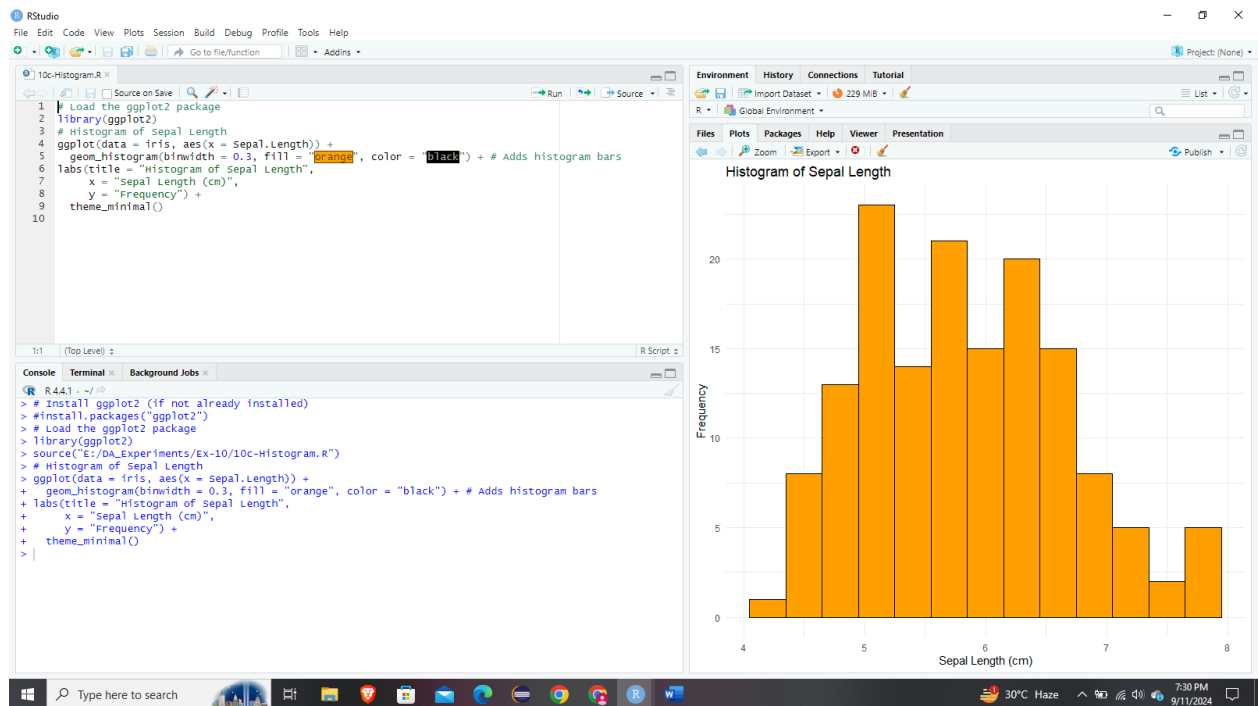
#### Scatter Plot:



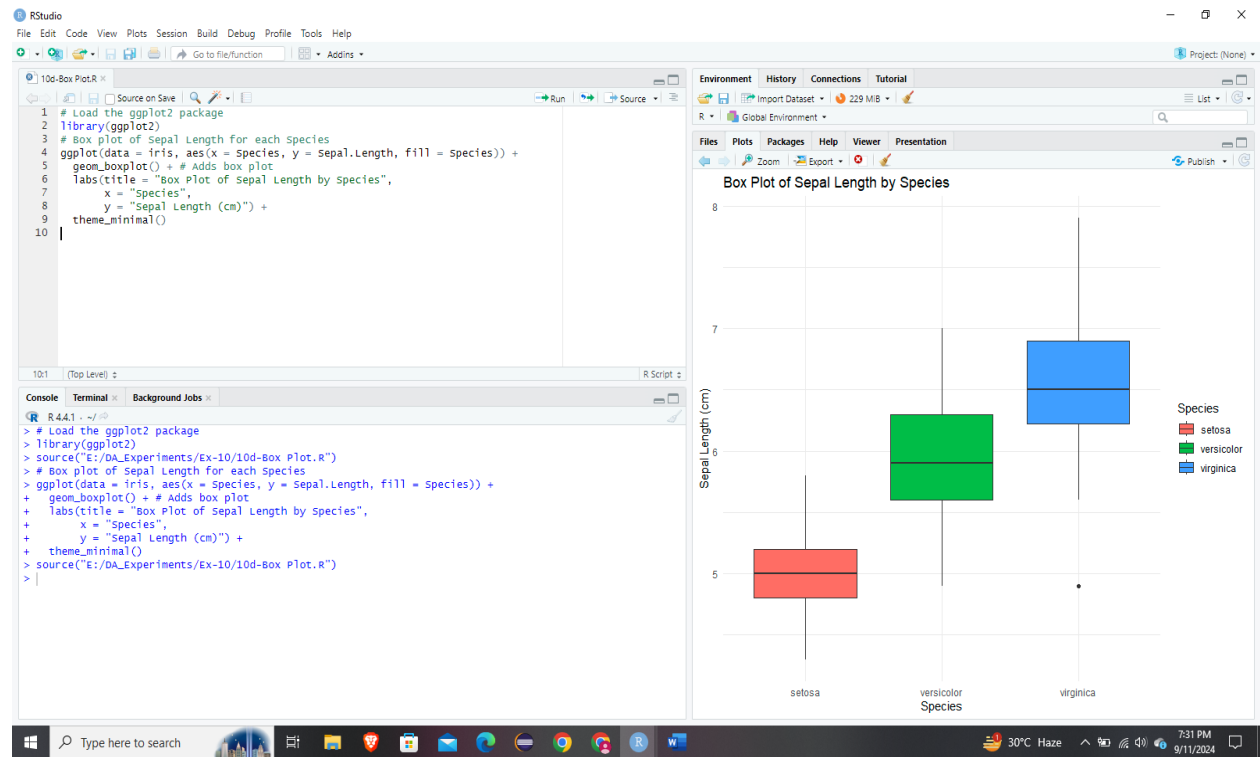
## Bar Chart:



## Histogram:



## Box Plot:



## RESULT:

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