

Ex No:10**VISUALIZE DATA USING ANY PLOTTING FRAMEWORK****AIM:**

To write an R code to visualize data using plotting framework such as scatter plot, bar char, histogram and box plot.

PROCEDURE:

1. Install and Load ggplot2: Ensure the ggplot2 package is installed and loaded to use its plotting functions.
2. Scatter Plot: Create a scatter plot of Sepal Length vs. Sepal Width, colored by Species, to visualize the relationship between these two variables across different species in the iris dataset.
3. Bar Chart: Generate a bar chart to show the count of different Species in the iris dataset, using bars filled with a specified color to represent the counts.
4. Histogram: Create a histogram of Sepal Length to visualize the frequency distribution of this variable within the dataset, specifying the bin width and colors for the histogram bars.
5. Box Plot: Plot a box plot of Sepal Length for each Species to compare the distribution and central tendency of Sepal Length across the different species in the dataset.

1) SCATTER PLOT

```
# 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)) +
```

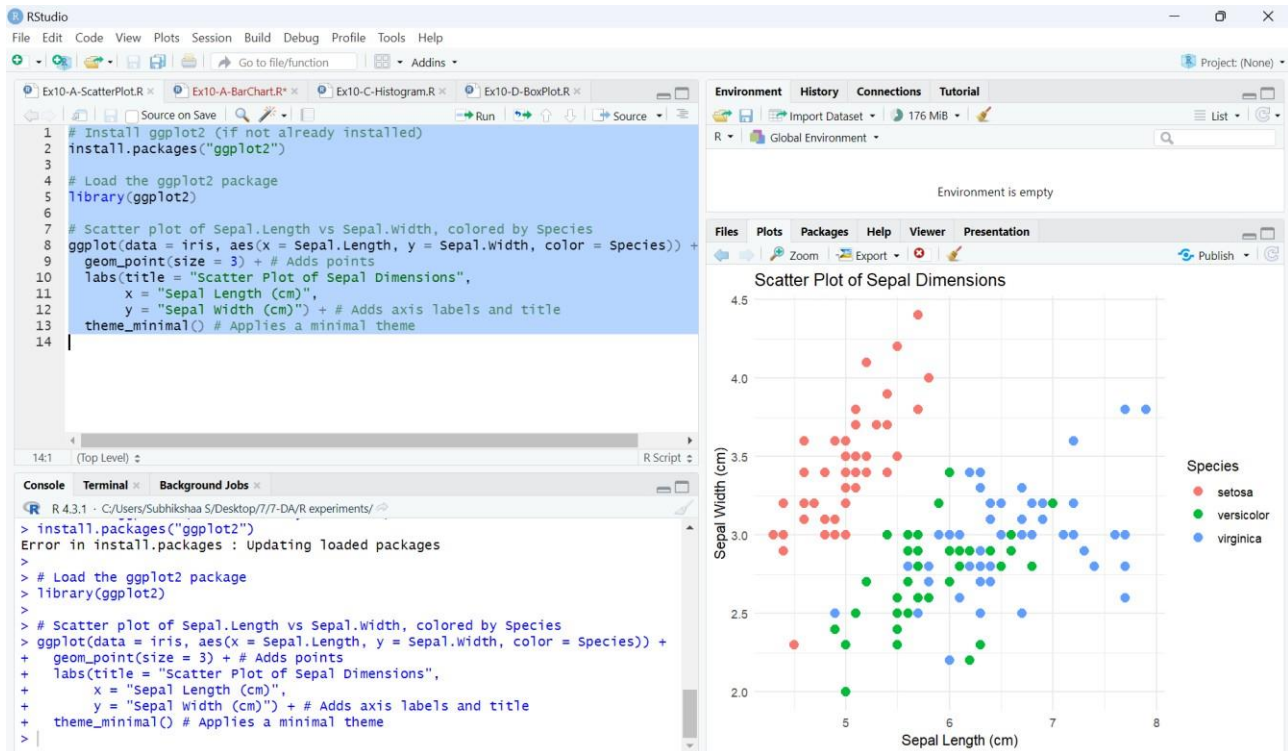
```
geom_point(size = 3) + # Adds points
```

```
  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
```

OUTPUT:**2) BAR CHART**

```

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

```

```

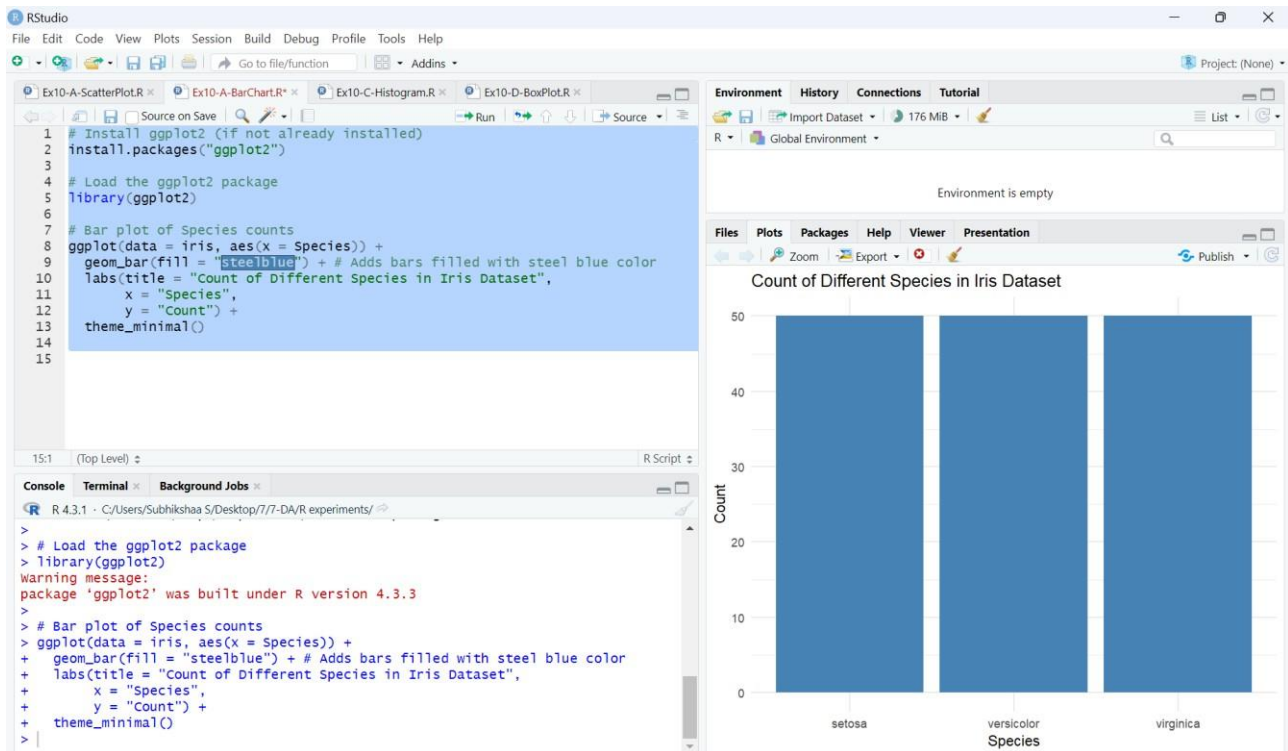
# Load the ggplot2 package
library(ggplot2)

```

```

# 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()

```

OUTPUT:**3) HISTOGRAM**

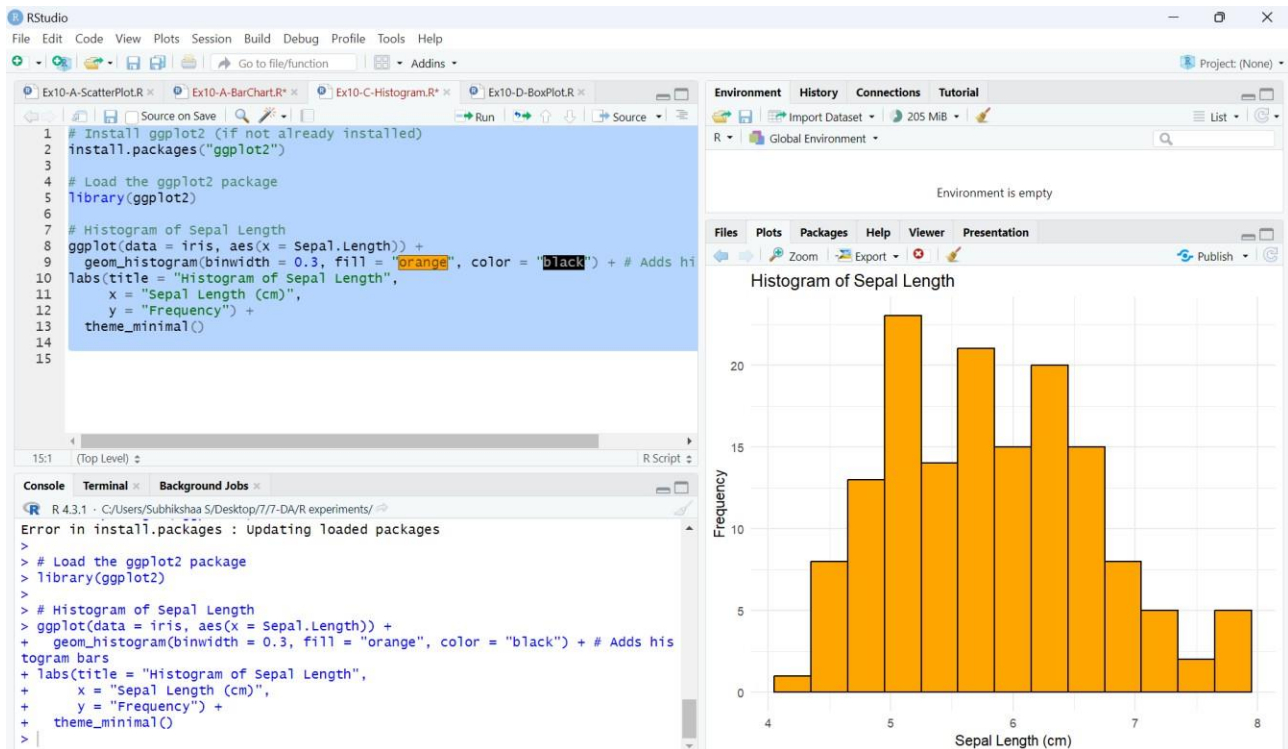
Histogram of Sepal Length

```

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()

```

OUTPUT:



4) BOX PLOT

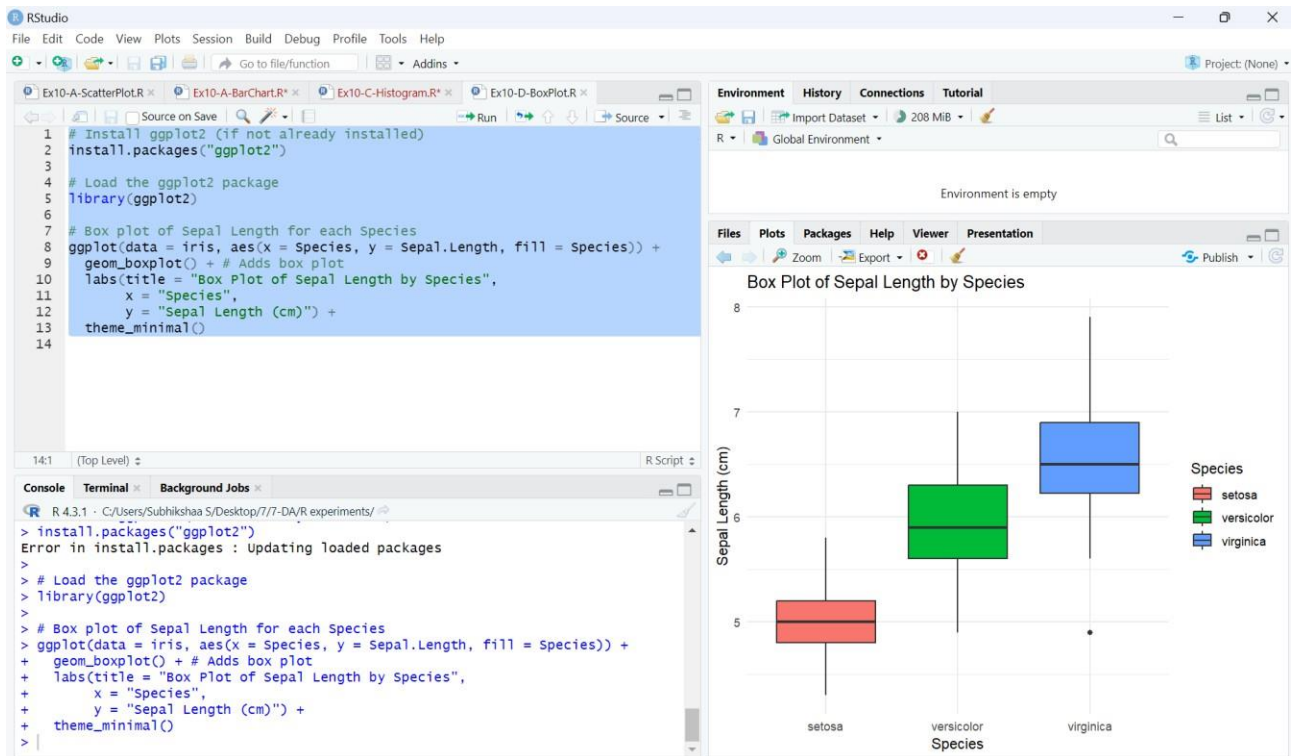
Box plot of Sepal Length for each Species

```

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:

**RESULT:**

Thus the R program to visualize data using plotting framework such as scatter plot, bar char, histogram and box plot has been Ex ecuted and verified successfully.