Exp.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.

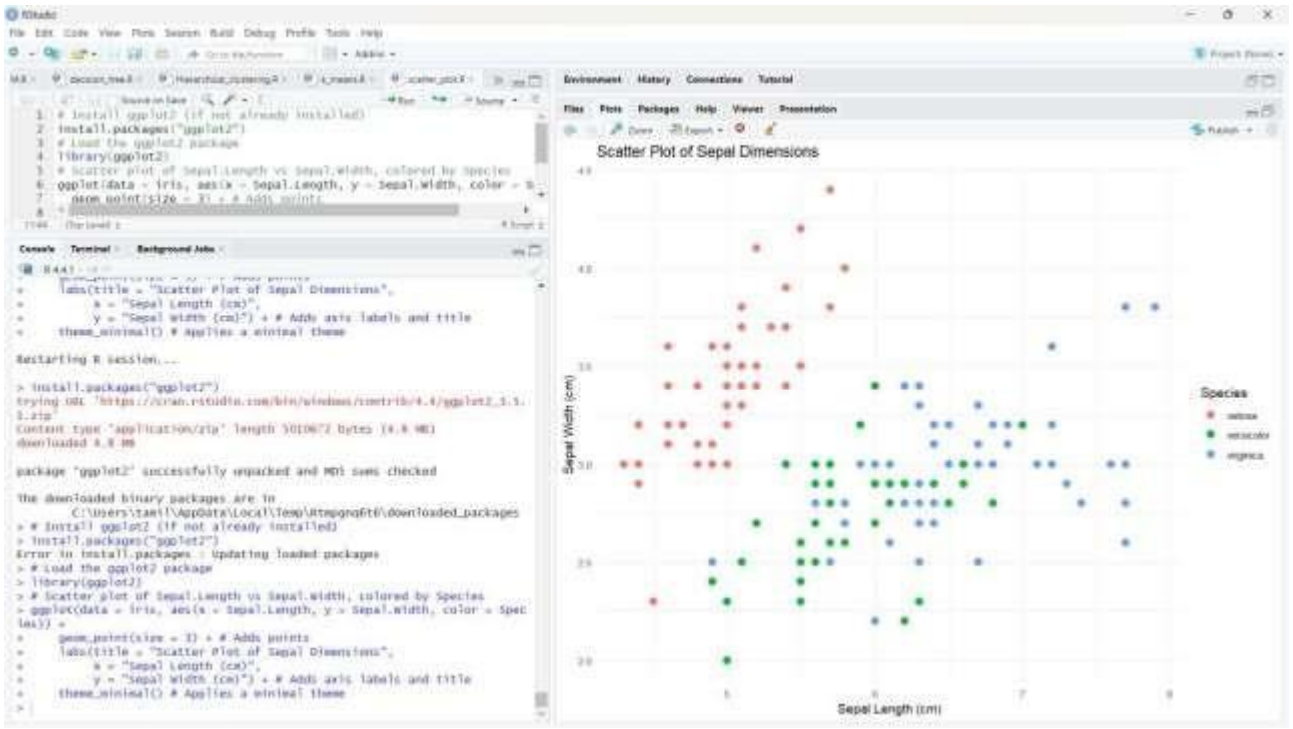
1) SCATTER PLOT

```
# 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:



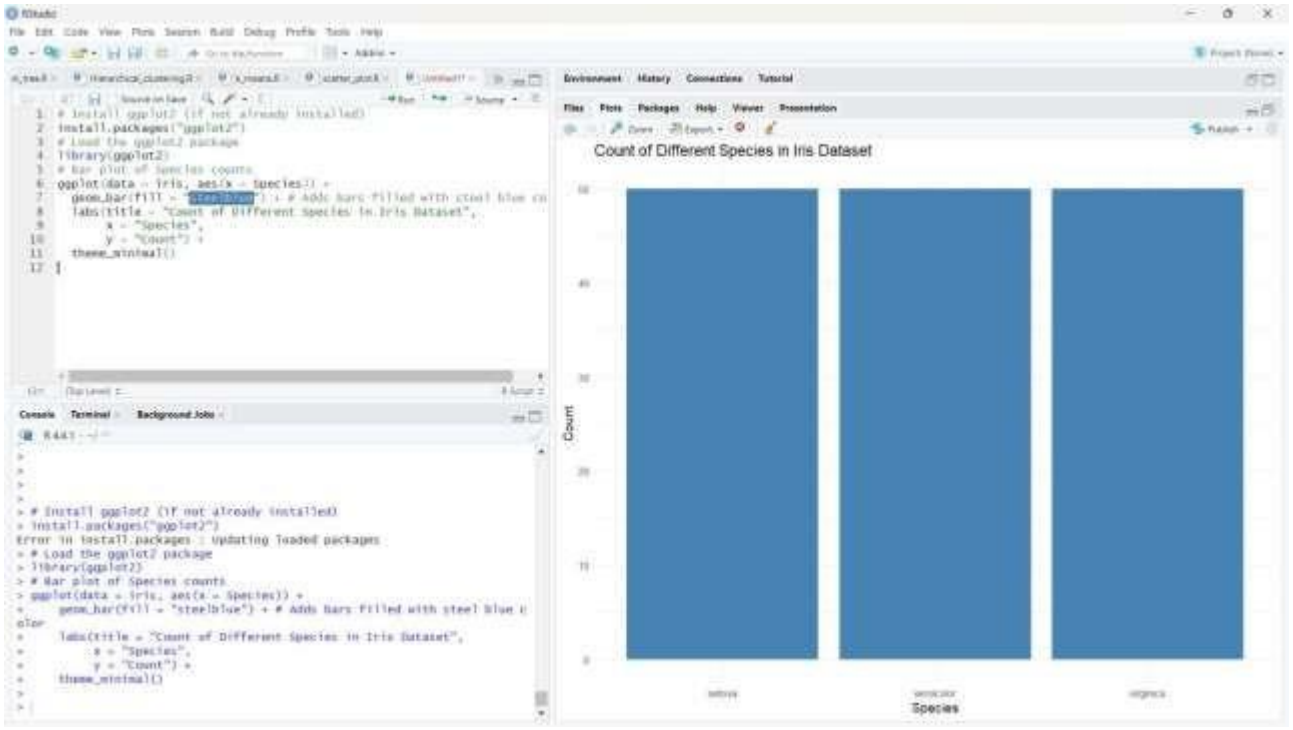
2) BAR CHART

```
# 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()
```

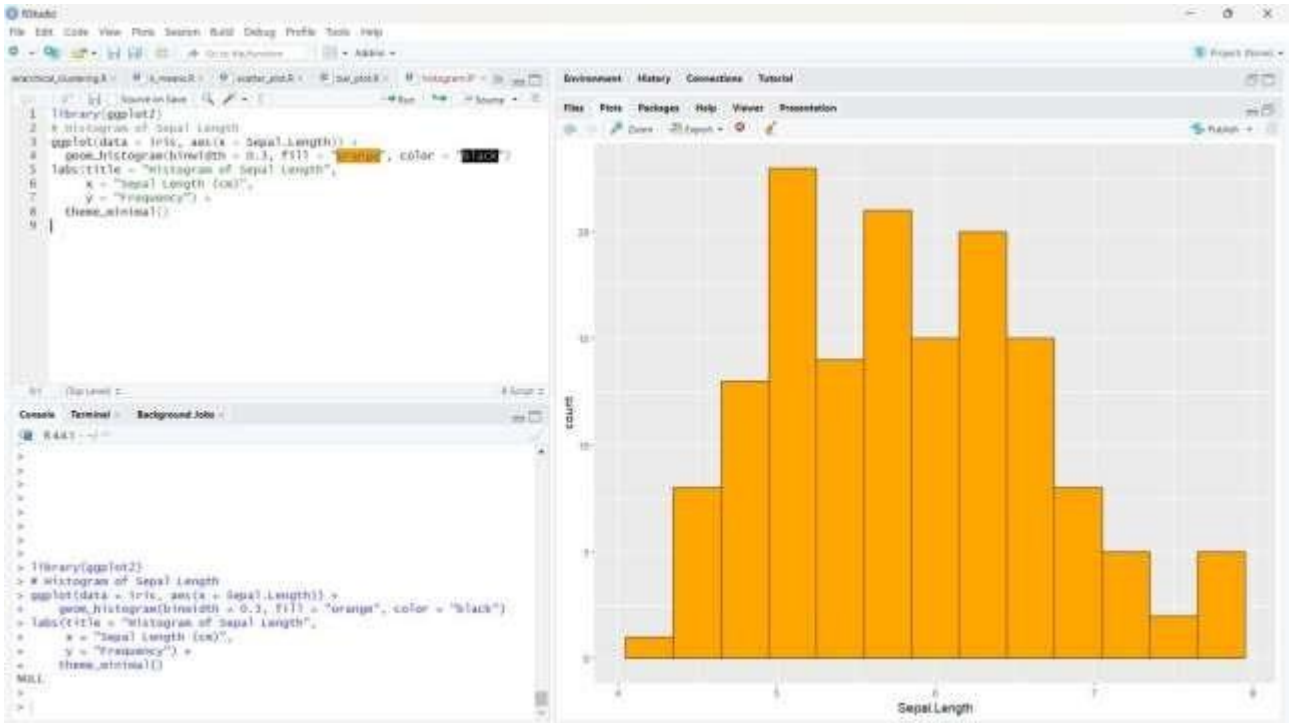
OUTPUT:



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()
```

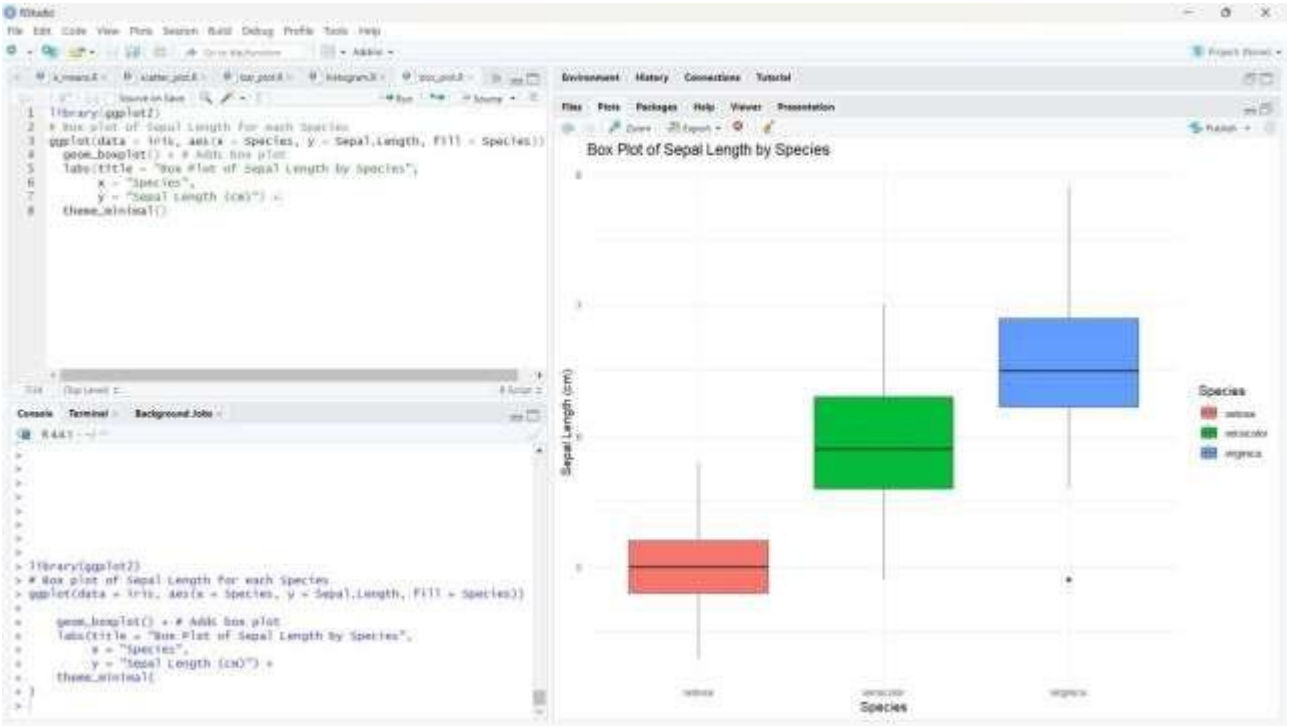
OUTPUT:



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 executed and verified successfully.