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) <u>SCATTER PLOT</u>

```
# 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:
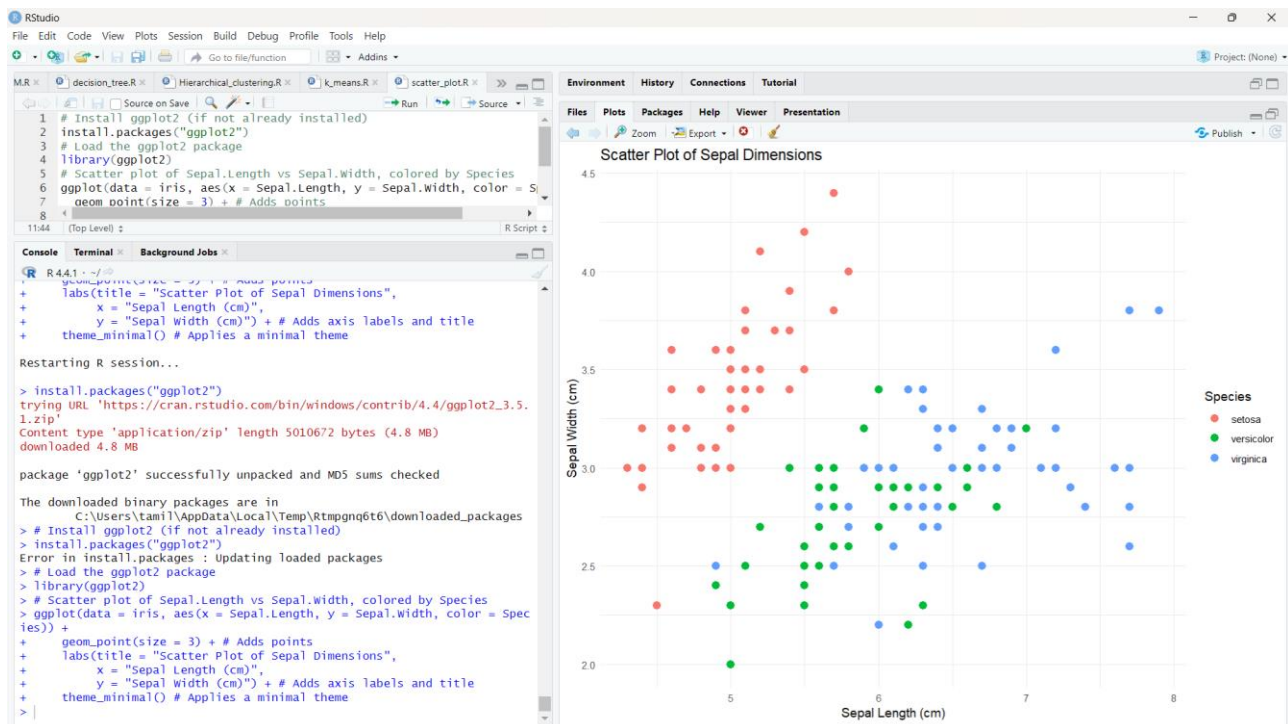
2) <u>BAR CHART</u>

```
# 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()
```
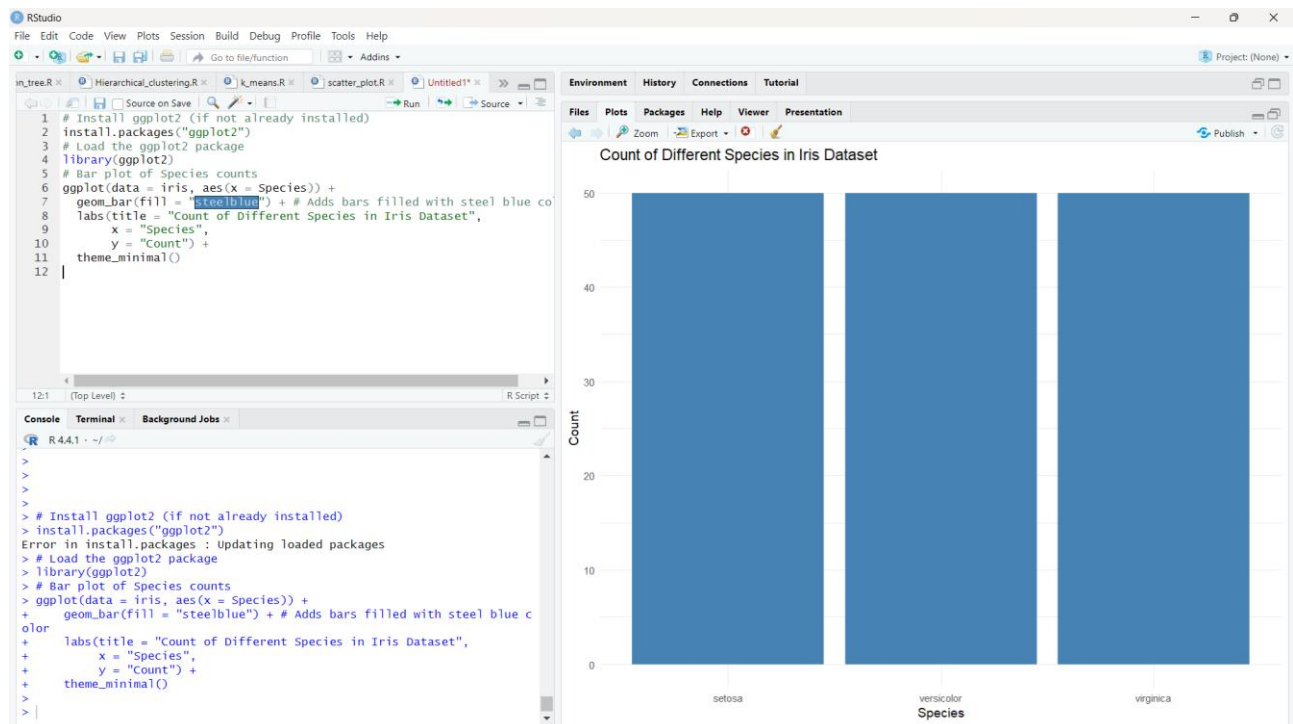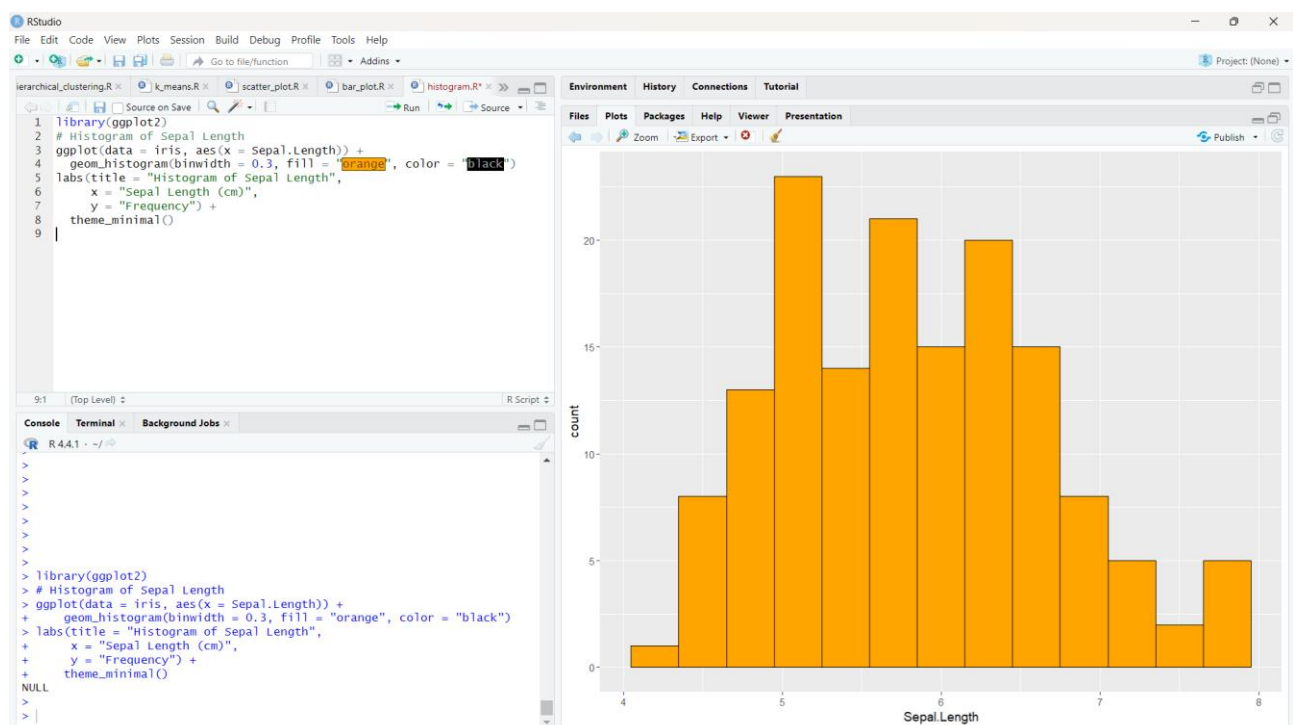
OUTPUT:

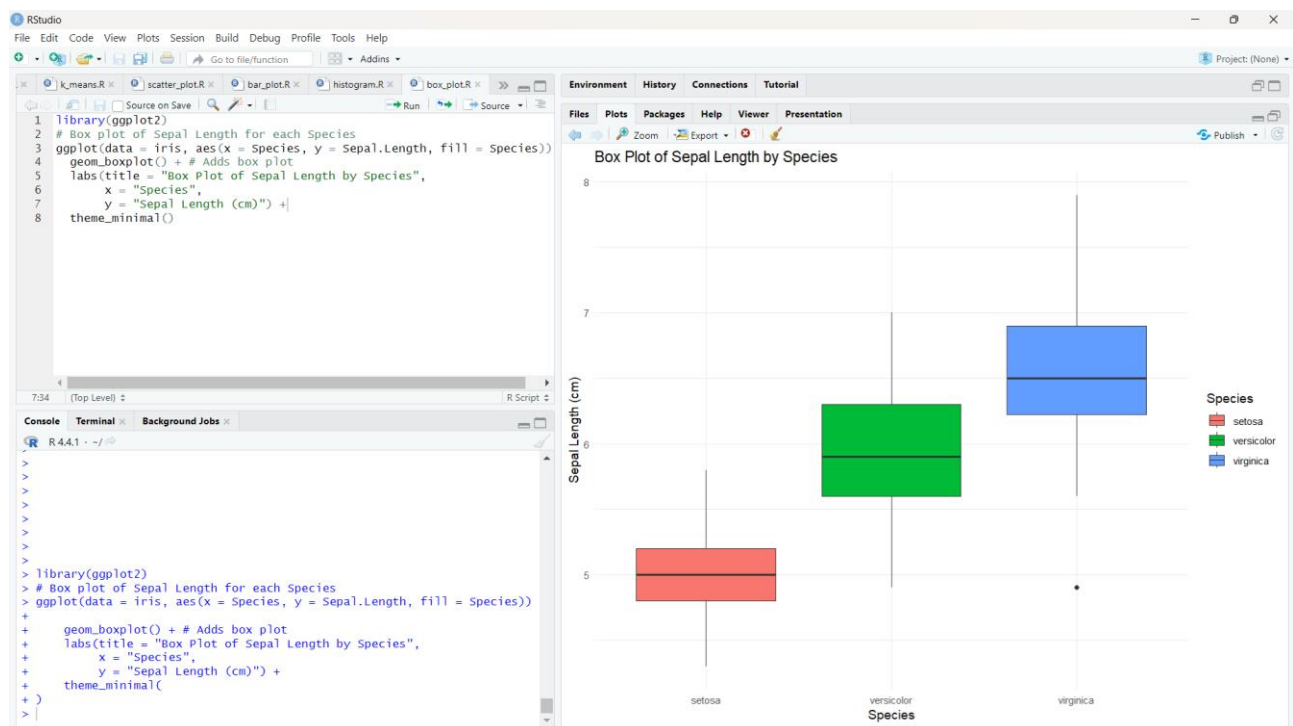## 3) HISTOGRAM

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.