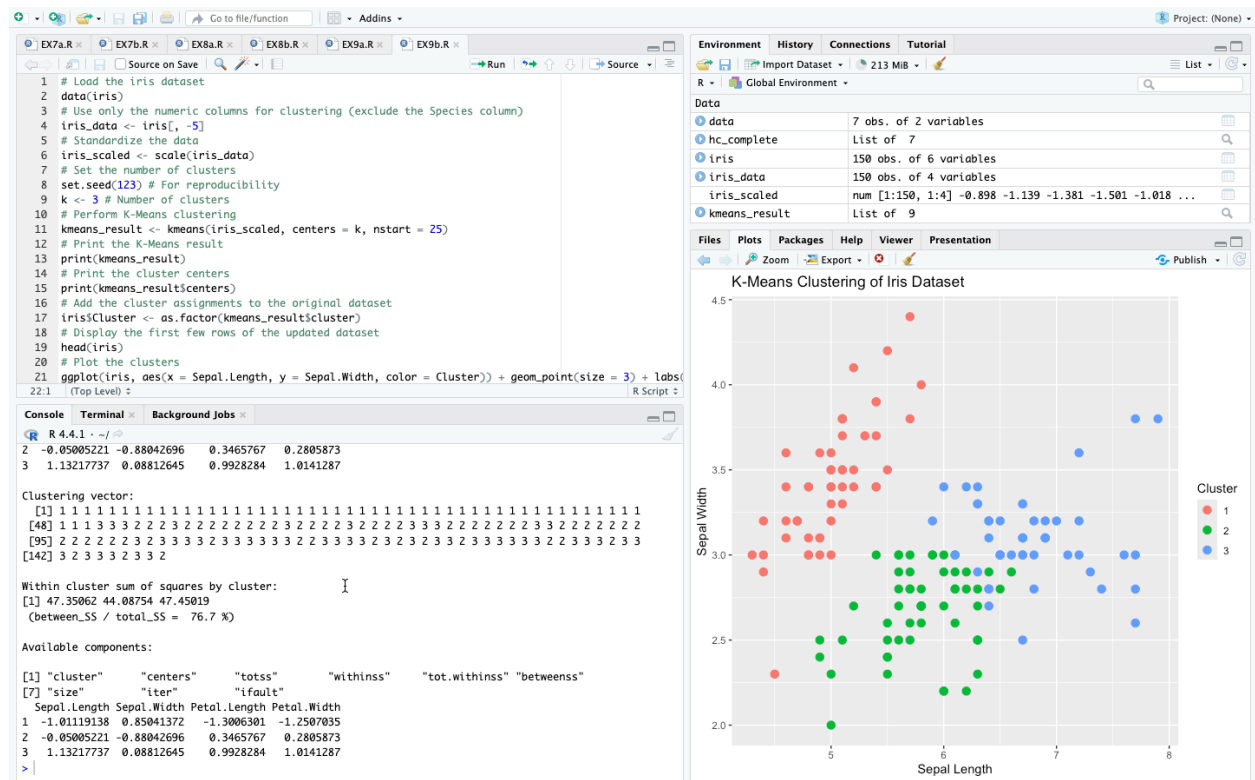


K-Means Clustering:



RESULT:

Thus, to implement clustering techniques – Hierarchical and K-Means using R has been successfully executed.

Ex No 10**Visualize Data using Any plotting Framework****AIM:**

To Visualize Data using Any plotting Framework using R programming.

PROCEDURE:

- Install Plotly using pip install plotly if it's not already installed.
- Import the necessary libraries: import plotly.express as px and import pandas as pd.
- Load your dataset into a DataFrame using pd.read_csv() or other data loading methods.
- Explore the dataset to understand its structure, variables, and potential visualizations.
- Choose the appropriate Plotly function (e.g., px.scatter, px.bar, px.line) based on the type of data and the desired plot.
- Define the x and y axes by specifying the columns from the DataFrame.
- Customize the plot by adding titles, labels, color coding, and other plot-specific attributes.
- Add interactive elements like hover data, tooltips, or facet plots for deeper insights.
- Render the plot using fig.show() to display it in a web browser or inline in a notebook.
- Save the plot to an HTML file or as a static image using fig.write_html() or fig.write_image().

CODE:**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
```

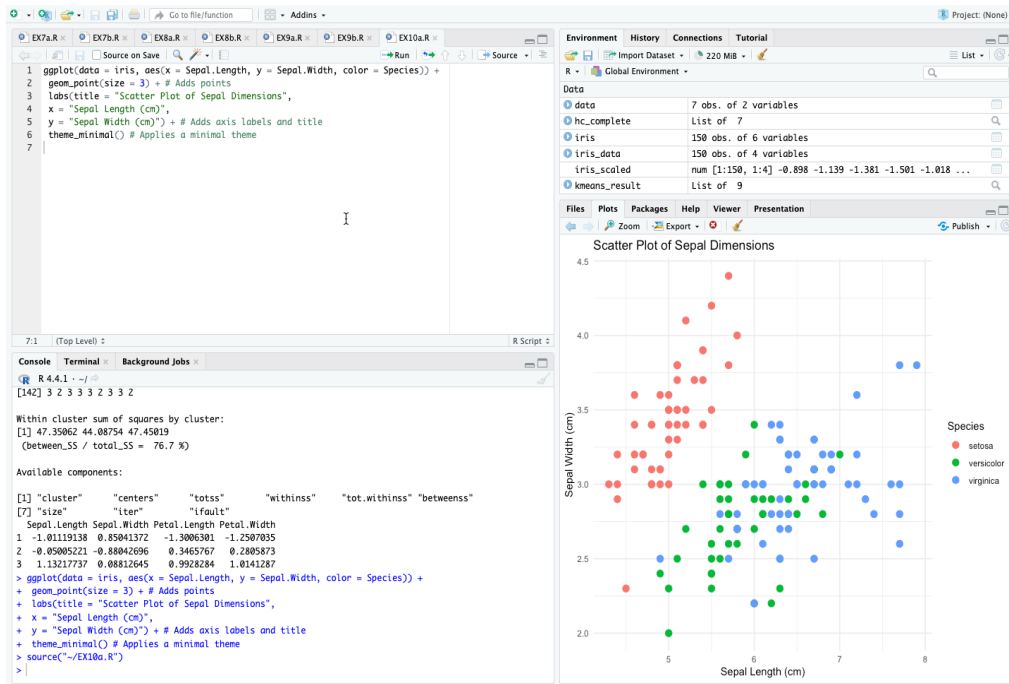
```
labs(title = "Histogram of Sepal Length",  
      x = "Sepal Length (cm)",  
      y = "Frequency") +  
theme_minimal()
```

Box Plot.R:

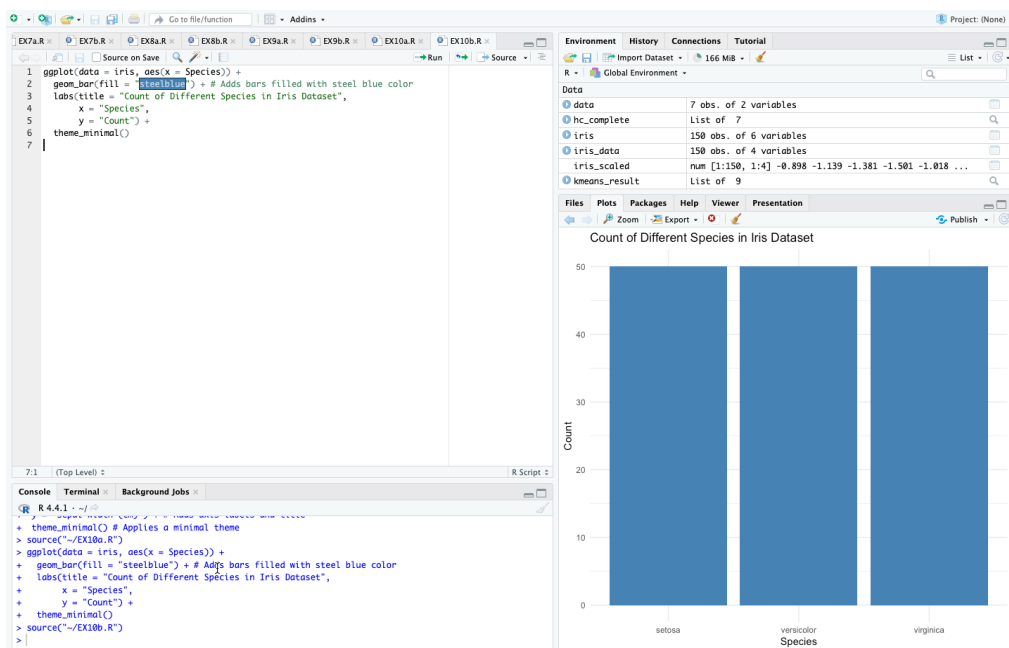
```
# Install ggplot2 (if not already installed)  
install.packages("ggplot2")  
library(ggplot2)  
# Box plot of Sepal Length for each Species  
ggplot(data = iris, aes(x = Species, y = Sepal.Length, fill = Species)) +  
  geom_boxplot() + # Adds box plot  
labs(title = "Box Plot of Sepal Length by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

OUTPUT:

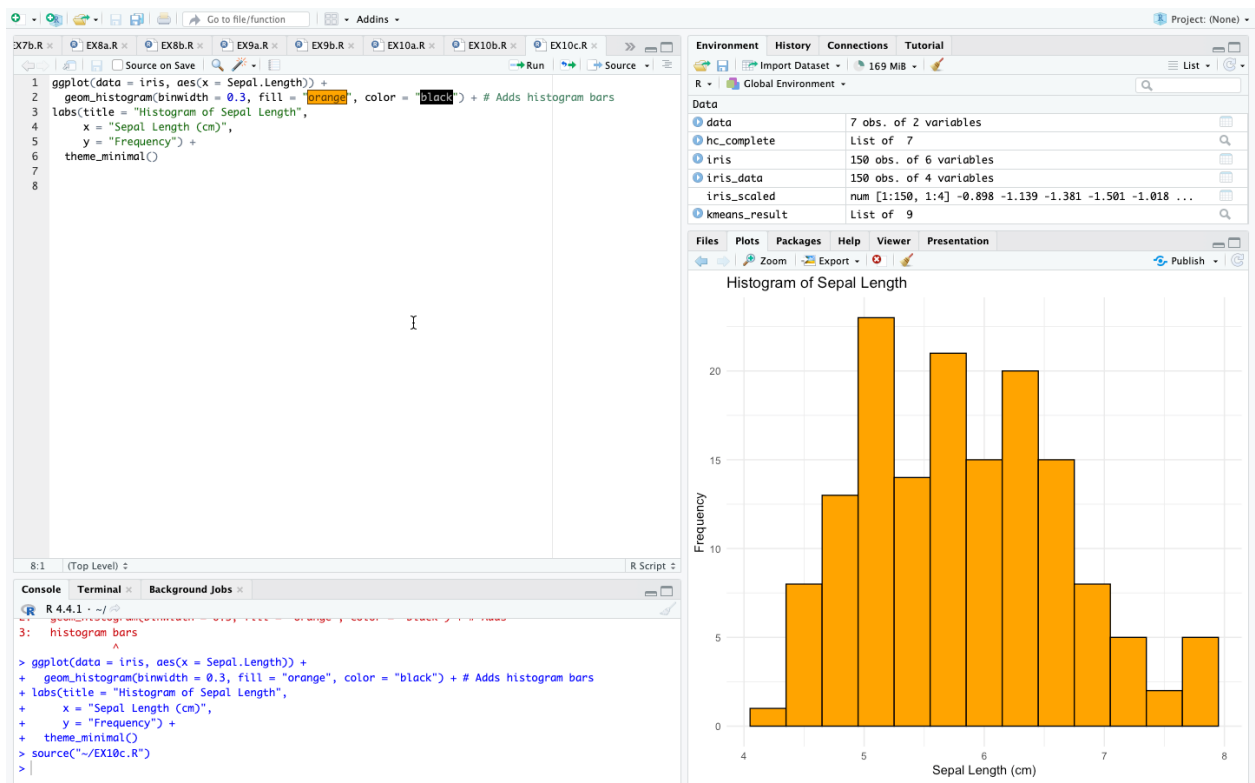
Scatter Plot:



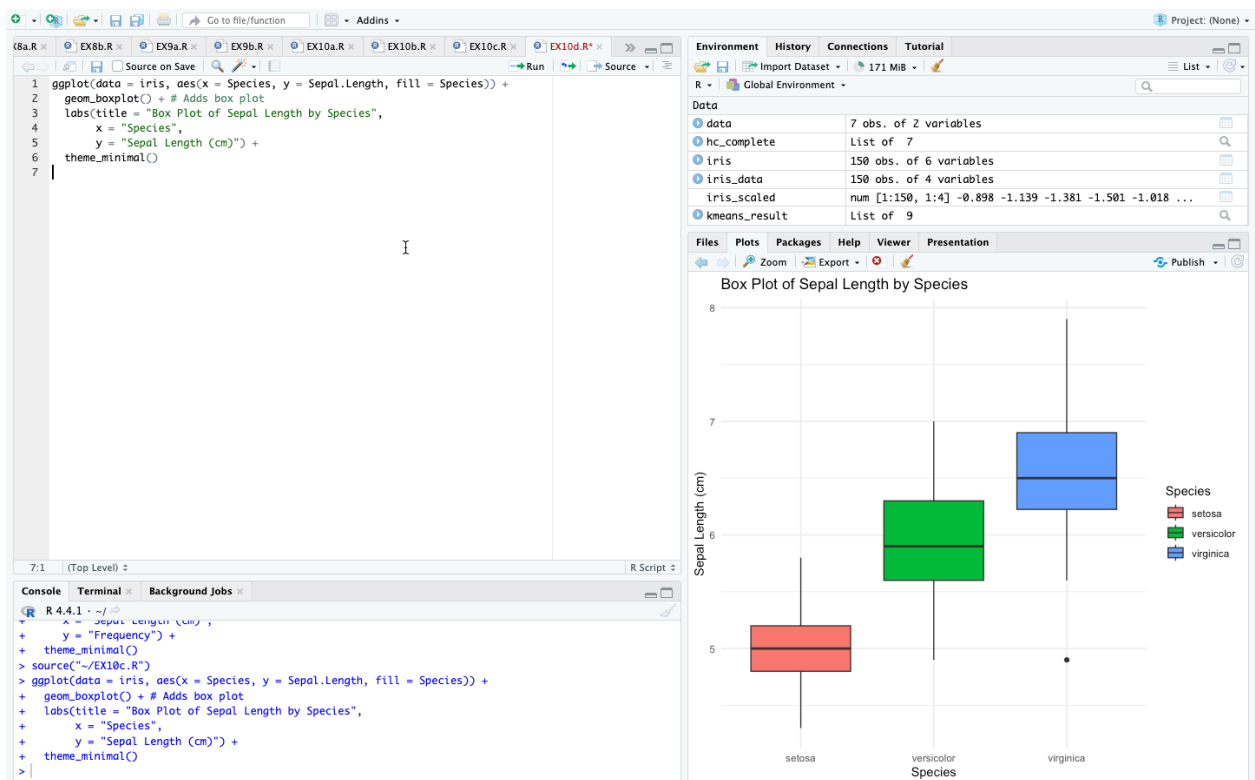
Bar Chart:



Histogram:



Box Plot:



RESULT:

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