

VISUALIZE DATA USING ANY PLOTTING FRAMEWORK

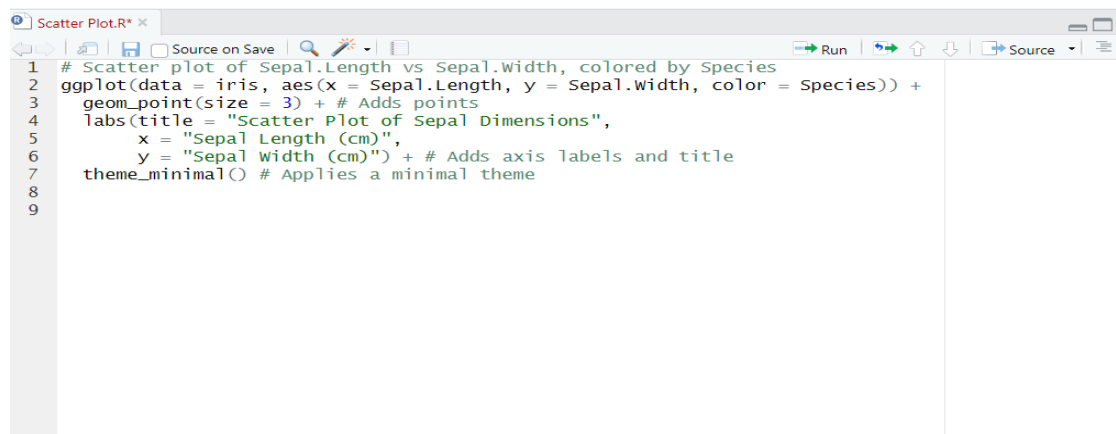
AIM:

To implement a visualize Data using any plotting framework using R Studio.

1) SCATTER PLOT

```
# 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:

A screenshot of the R Studio interface. The top pane shows a script editor with the following R code:

```
1 # Scatter plot of Sepal.Length vs Sepal.Width, colored by Species
2 ggplot(data = iris, aes(x = Sepal.Length, y = Sepal.Width, color = Species)) +
3   geom_point(size = 3) + # Adds points
4   labs(title = "Scatter Plot of Sepal Dimensions",
5         x = "Sepal Length (cm)",
6         y = "Sepal Width (cm)") + # Adds axis labels and title
7   theme_minimal() # Applies a minimal theme
8
9
```

The bottom pane is currently empty, showing the output area.



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:

```
1 # Bar plot of Species counts
2 ggplot(data = iris, aes(x = Species)) +
3   geom_bar(fill = "steelblue") + # Adds bars filled with steel blue color
4   labs(title = "Count of Different Species in Iris Dataset",
5         x = "Species",
6         y = "Count") +
7   theme_minimal()
8 |
```



3) HISTOGRAM

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
```

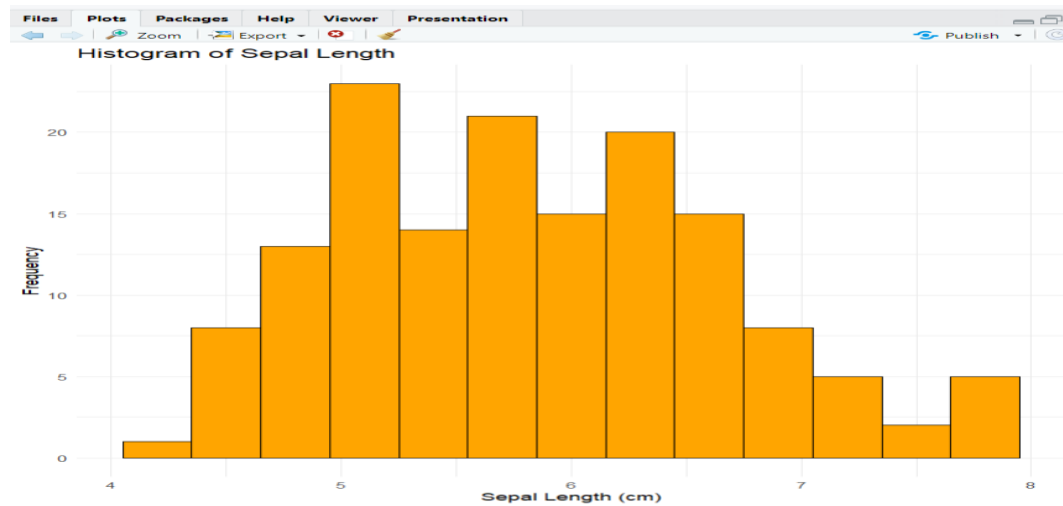
```
  labs(title = "Histogram of Sepal  
Length", x = "Sepal Length (cm)",  
y = "Frequency") +  
  theme_minimal()
```

OUTPUT:

A screenshot of the R Studio interface. The top pane shows the R script with the following code:

```
1 # Histogram of Sepal Length
2 ggplot(data = iris, aes(x = Sepal.Length)) +
3   geom_histogram(binwidth = 0.3, fill = "orange", color = "black") +
4   # Adds histogram bars
5   labs(title = "Histogram of Sepal Length",
6         x = "Sepal Length (cm)",
7         y = "Frequency") +
8   theme_minimal()
9 |
```

The bottom pane shows a preview of the histogram, which is currently blank.



4)BOX PLOT

Install ggplot2 (if not already installed)

```
install.packages("ggplot2")
```

Load the ggplot2 package

```
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:

The image shows the R Studio interface with the following R code in the script editor:

```
1 # Box plot of Sepal Length for each Species
2 ggplot(data = iris, aes(x = Species, y = Sepal.Length, fill = Species)) +
3   geom_boxplot() + # Adds box plot
4   labs(title = "Box Plot of Sepal Length by Species",
5         x = "Species",
6         y = "Sepal Length (cm)") +
7   theme_minimal()
8
```

The interface also shows several tabs at the top: "Scatter Plot.R", "Bar Chart.R", "Histogram.R", and "Box Plot.R*". The status bar at the bottom indicates "8:1 (Top Level)" and "R Script".

**RESULT:**

Thus, the visualize Data using any plotting framework using R Studio have been successfully executed.