Ex No 10

VisualizeDatausingAnyplottingFramework

AIM:

ToVisualizeDatausingAnyplottingFrameworkusingRprogramming.

PROCEDURE:

- InstallPlotlyusingpipinstallplotlyifit'snotalreadyinstalled.
- Importthenecessarylibraries:importplotly.expressaspxandimportpandasaspd.
- 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.
- ChoosetheappropriatePlotlyfunction(e.g.,px.scatter,px.bar,px.line)basedonthetype of data and the desired plot.
- Define the x and y axes by specifying the columns from the DataFrame.
- Customizetheplotbyaddingtitles,labels,colorcoding,andotherplot-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.
- SavetheplottoanHTMLfileorasastaticimageusingfig.write_html()or fig.write_image().

CODE:
Scatter Plot.R:

```
#Installggplot2(ifnotalreadyinstalled)
install.packages("ggplot2")
#Loadtheggplot2package library(ggplot2)
# Scatter plot of Sepal.Length vs Sepal.Width, colored by
Speciesggplot(data=iris,aes(x=Sepal.Length,y=Sepal.Width,color=Species))
+ geom_point(size = 3) + # Adds points
  labs(title="ScatterPlotofSepalDimensions", x =
      "Sepal Length (cm)",
      y="SepalWidth(cm)")+#Addsaxislabelsandtitle theme_minimal() #
  Applies a minimal theme
```

Bar Chart.R:

```
#Installggplot2(ifnotalreadyinstalled)
install.packages("ggplot2")
#Loadtheggplot2package library(ggplot2)
# Bar plot of Species counts
ggplot(data=iris,aes(x=Species))+
  geom_bar(fill="steelblue")+#Addsbarsfilledwithsteelbluecolor labs(title
  = "Count of Different Species in Iris Dataset",
       x = "Species",
      y = "Count") +
   theme_minimal()
```

Histogram.R:

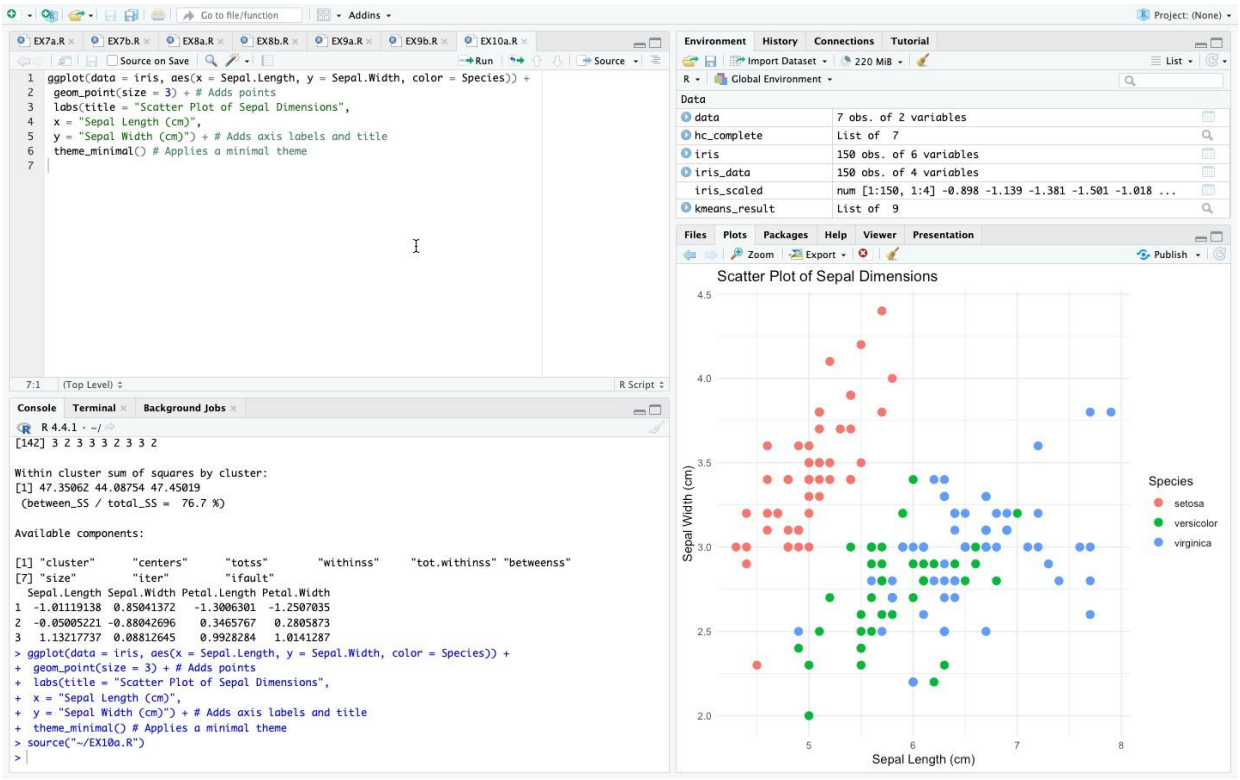
```
#Installggplot2(ifnotalreadyinstalled)
install.packages("ggplot2")
#Loadtheggplot2package library(ggplot2)
# Histogram of Sepal Length
ggplot(data = iris, aes(x = Sepal.Length)) +
  geom_histogram(binwidth=0.3,fill="orange",color="black")+#Addshistogrambars labs(title =
  "Histogram of Sepal Length",
      x="SepalLength(cm)", y
      = "Frequency") +
  theme_minimal()
```

Box Plot.R:

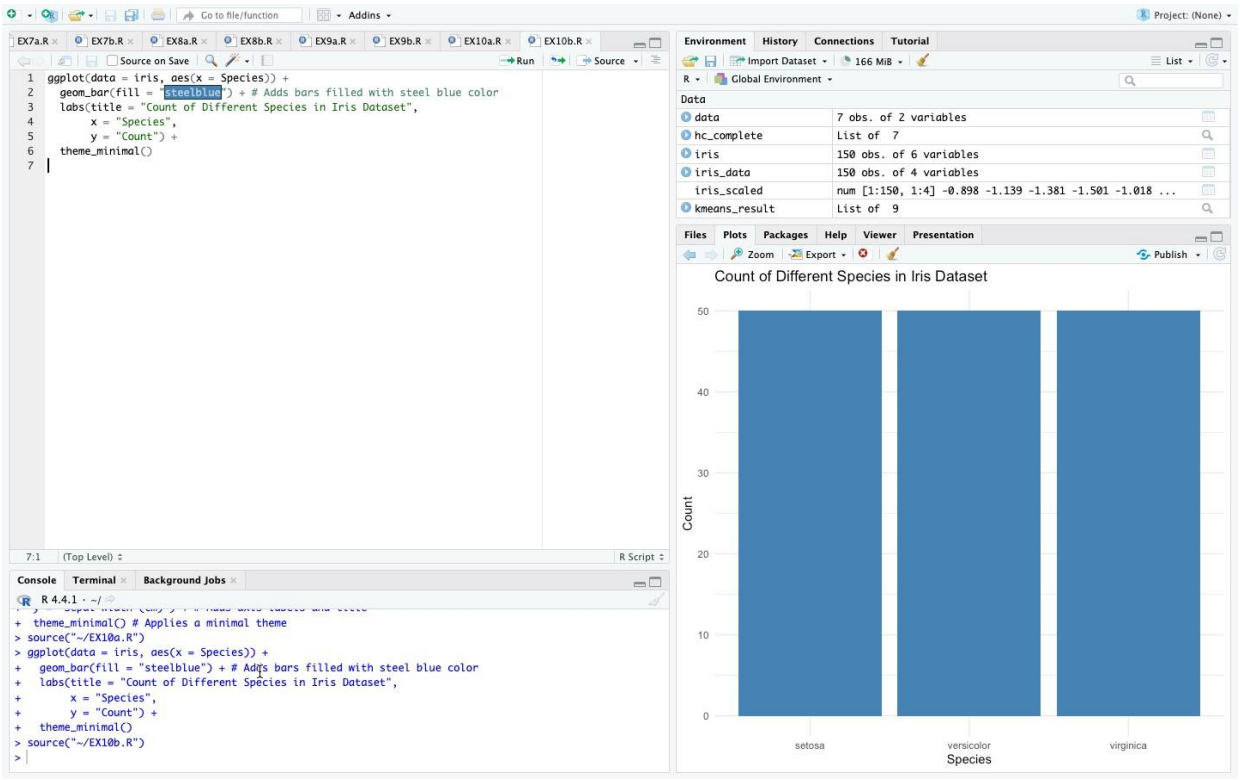
```
#Installggplot2(ifnotalreadyinstalled)
install.packages("ggplot2")
library(ggplot2)
# Box plot of Sepal Length for each Species
ggplot(data=iris,aes(x=Species,y=Sepal.Length,fill=Species))+
  geom_boxplot() + # Adds box plot
  labs(title="BoxPlotofSepalLengthbySpecies", x =
      "Species",
      y="SepalLength(cm)")+
  theme_minimal()
```

OUTPUT:

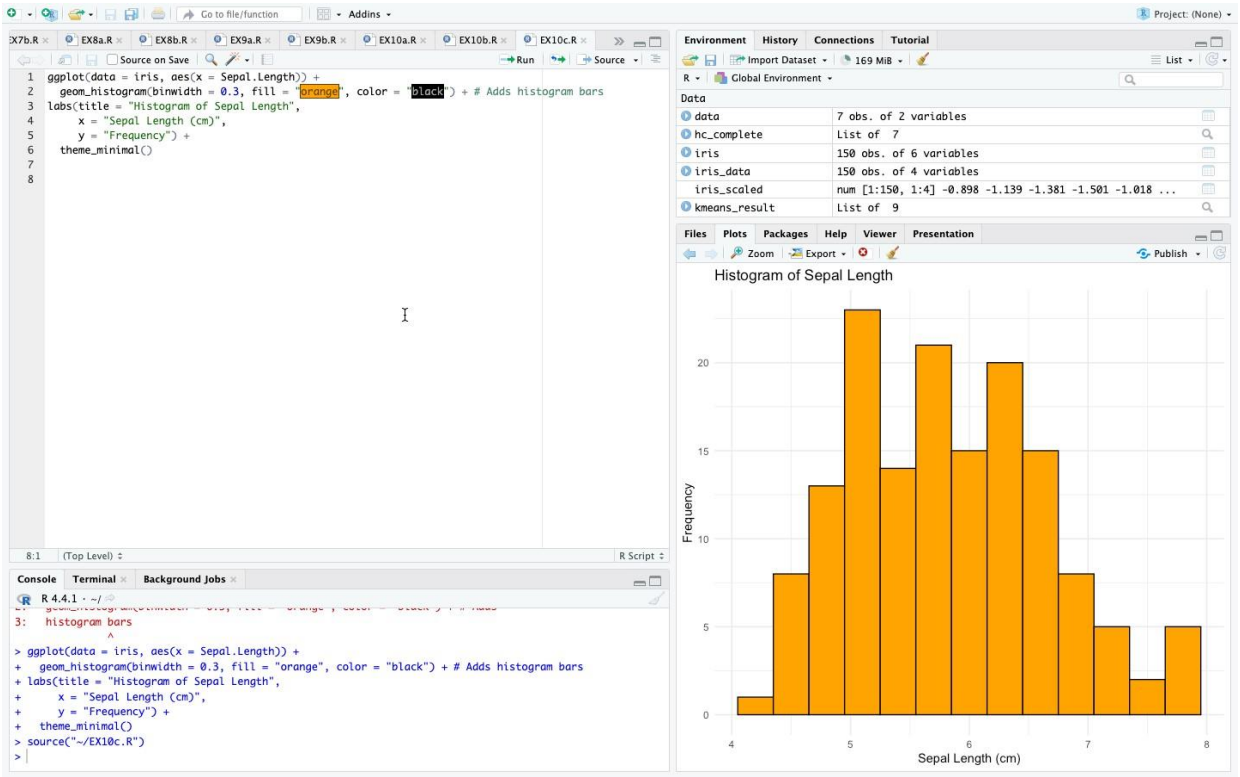
Scatter Plot:



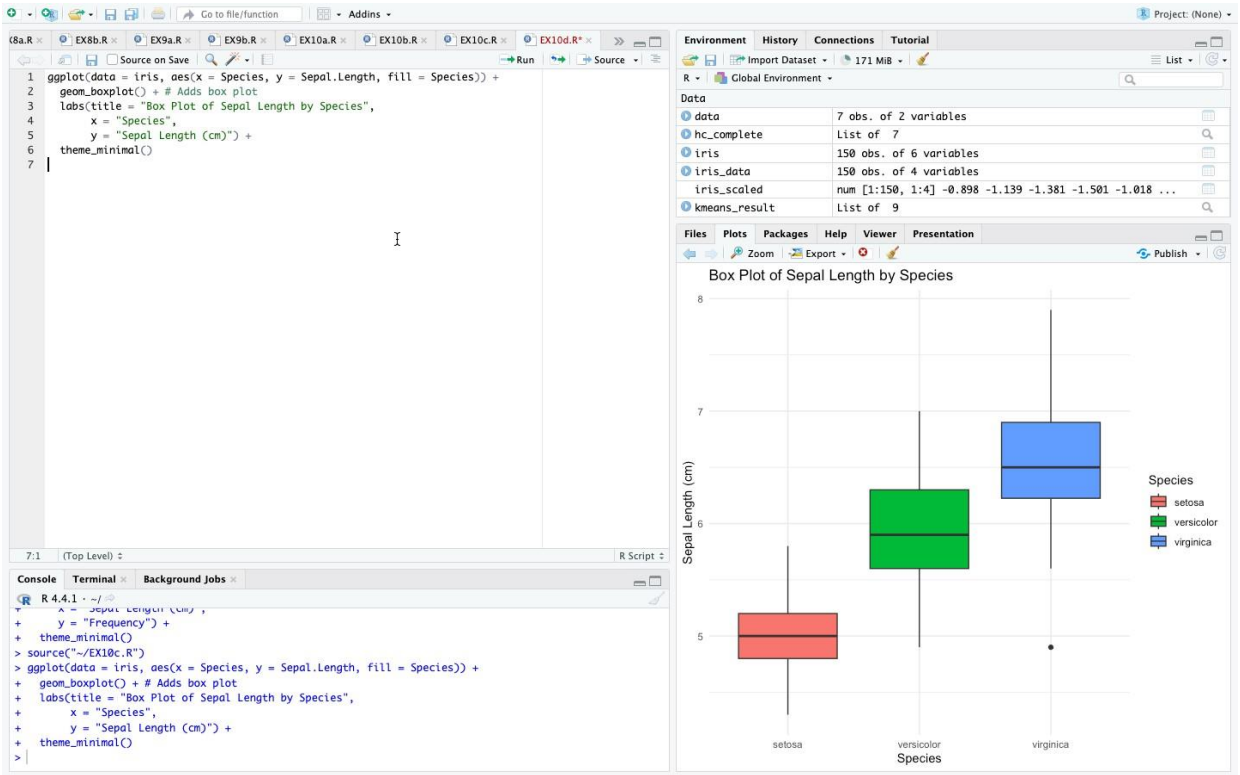
Bar Chart:



Histogram:


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()
> 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()
> source("~/EX10c.R")
Histogram of Sepal Length
Frequency
Sepal Length (cm)

Box Plot:


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()
> source("~/EX10c.R")
> 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()
Box Plot of Sepal Length by Species
Sepal Length (cm)
Species
setosa
versicolor
virginica

RESULT:

Thus,VisualizingDatausinganyplottingframeworkusingRprogramminghasbeen successfully executed.