R Base Graphics
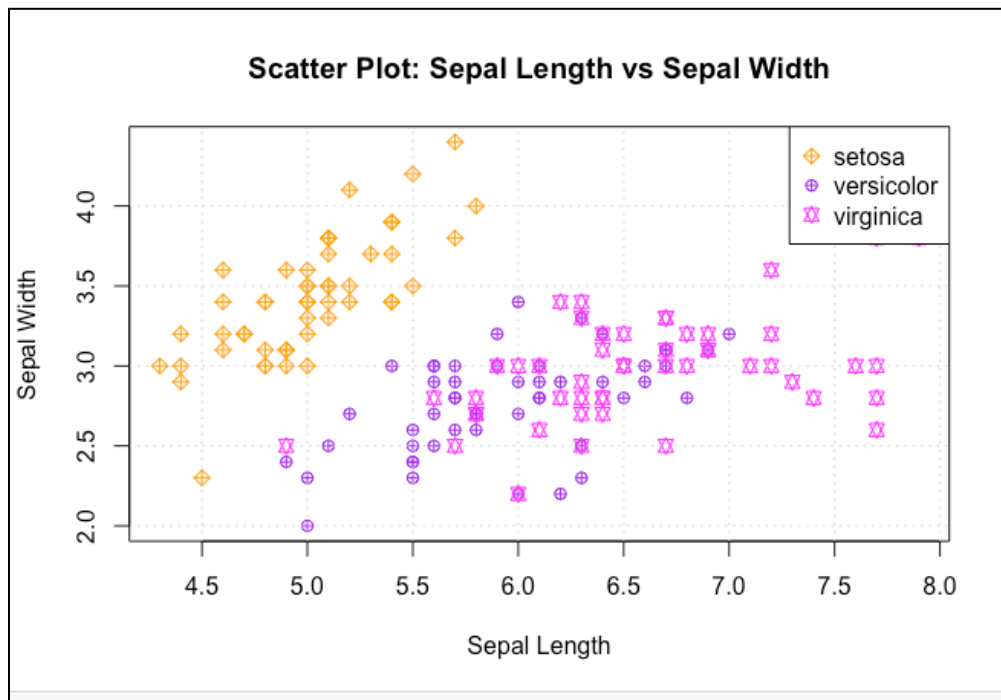
HANDS-ON OUTPUT 1 (HOO1): Create a single scatter plot using different markers and colors for each iris species. Save the image and upload it as an output for today's activity.

```
# Create a scatter plot
plot(iris$Sepal.Length, iris$Sepal.Width,
        xlab = "Sepal Length",
        ylab = "Sepal Width",
        main = "Scatter Plot: Sepal Length vs Sepal Width",
        col=c("orange","purple","magenta")[as.integer(iris$Species)], pch = c(9, 10, 11)[as.integer(iris$Species)])

# Add grid lines
grid()
# Add a legend
legend(x="topright",
        legend=c("setosa","versicolor","virginica"),
        col=c("orange","purple","magenta"), pch=c(9, 10, 11))
```

HOO2: Create horizontal bar plots for the remaining continuous variables in the iris dataset. Use the command ?barplot to see which argument to include in the command.


Petal Length Bar Plot

Sepal Length Bar Plot

Sepal width Bar Plot
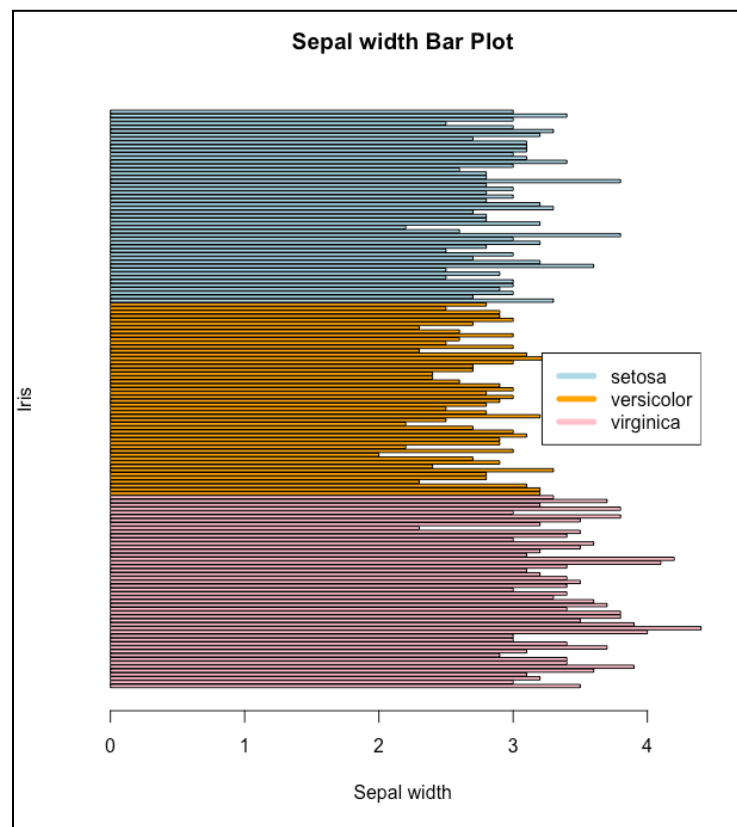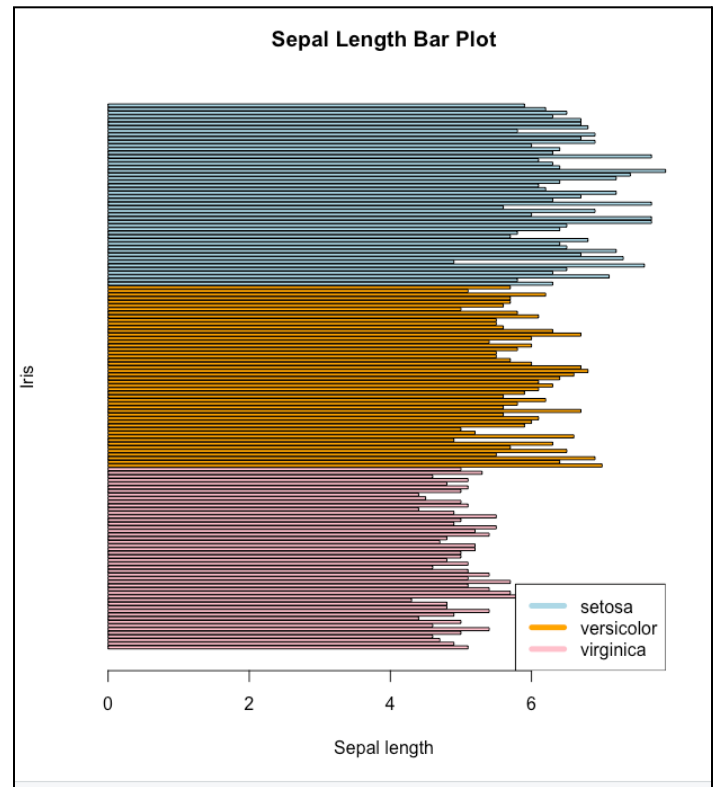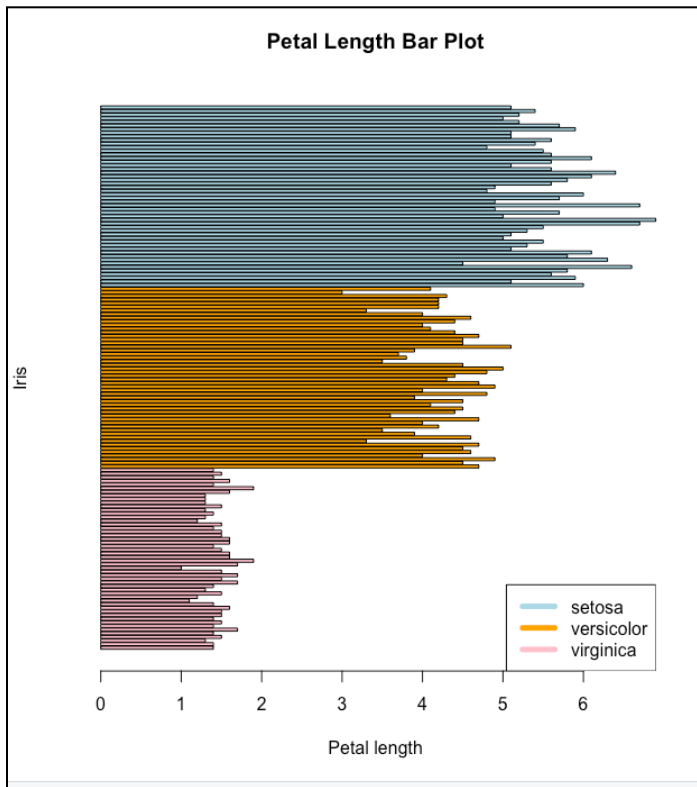
HOO3: Create histograms using the sepal length for the versicolor species using the following breaks: 5, 10, 20, 30.

Histogram of Sepal Length of Versicolor
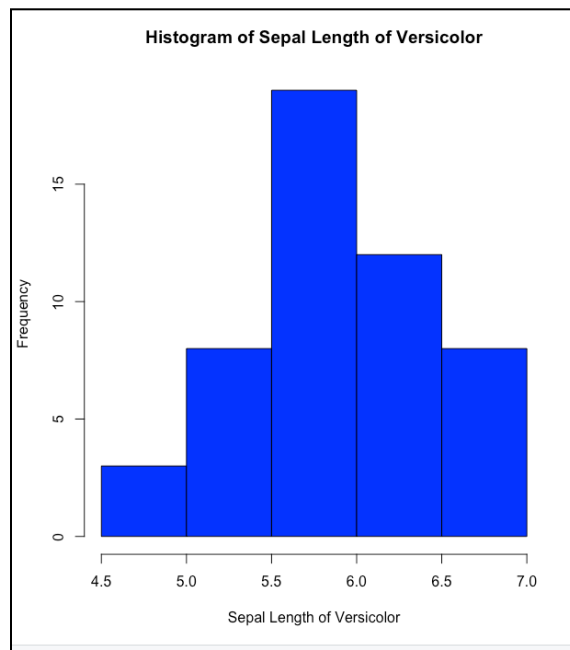
Code: > hist(iris$Sepal.Length[iris$Species == "versicolor"], col="blue", xlab = "Sepal Length of Versicolor", ylab = "Frequency", main = "Histogram of Sepal Length of Versicolor", breaks = 5)
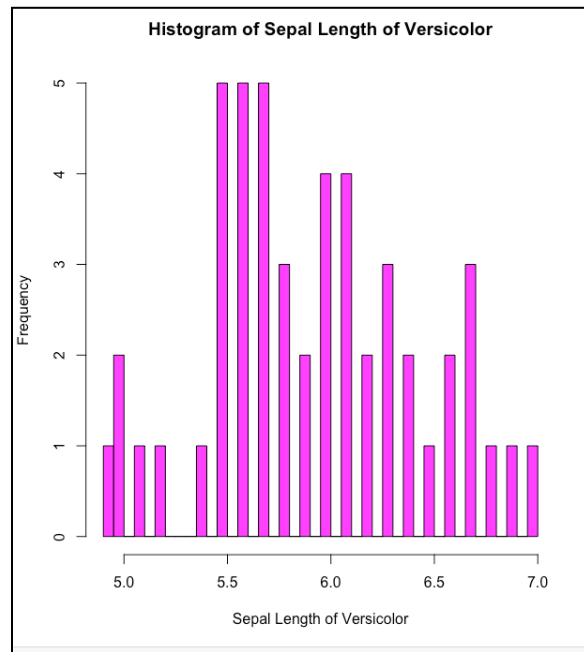

Histogram of Sepal Length of Versicolor
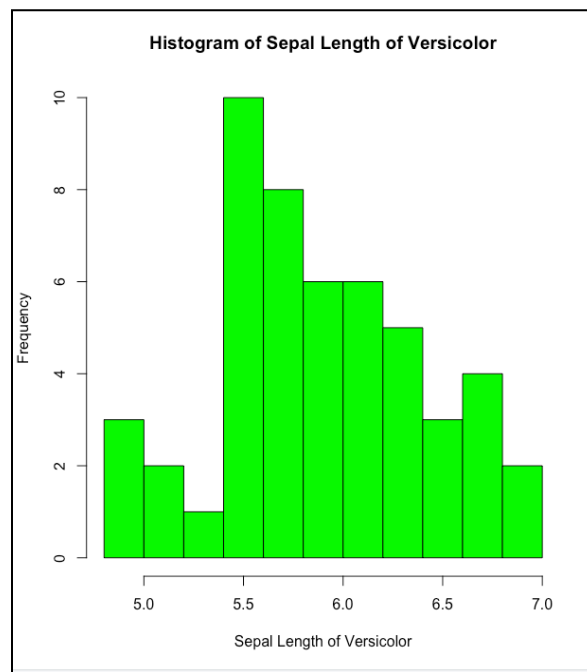
Code: hist(iris$Sepal.Length[iris$Species == "versicolor"], col="green", xlab = "Sepal Length of Versicolor", ylab = "Frequency", main = "Histogram of Sepal Length of Versicolor", breaks = 10)
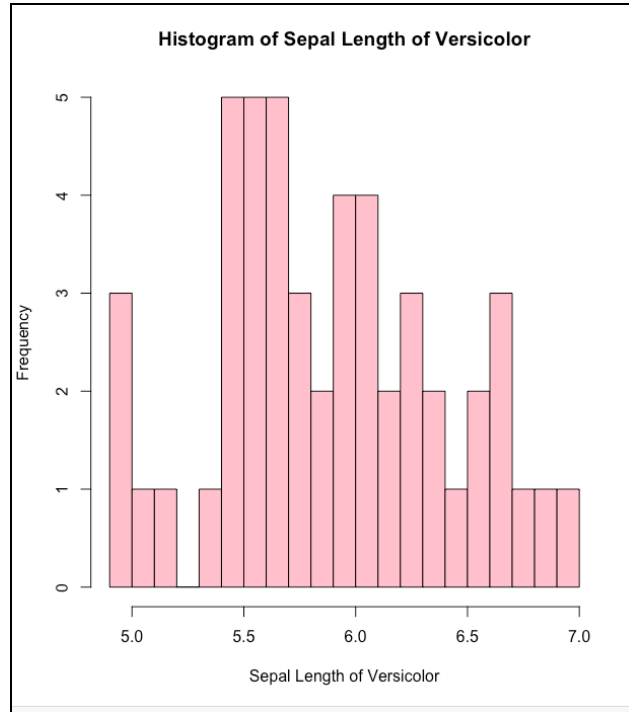
Histogram of Sepal Length of Versicolor

Histogram of Sepal Length of Versicolor

Exercises

Use the *mpg* dataset for the following exercises. You need to load the ggplot2 package first. Exert effort to customize and improve the aesthetic quality of your plots. Take a screenshot of your console showing the code, and the chart output. <mark>ggplots are just for comparisons</mark>

1. Create a scatter plot where the x axis is "cty" and the y axis is "hwy". Color the data points by class category.
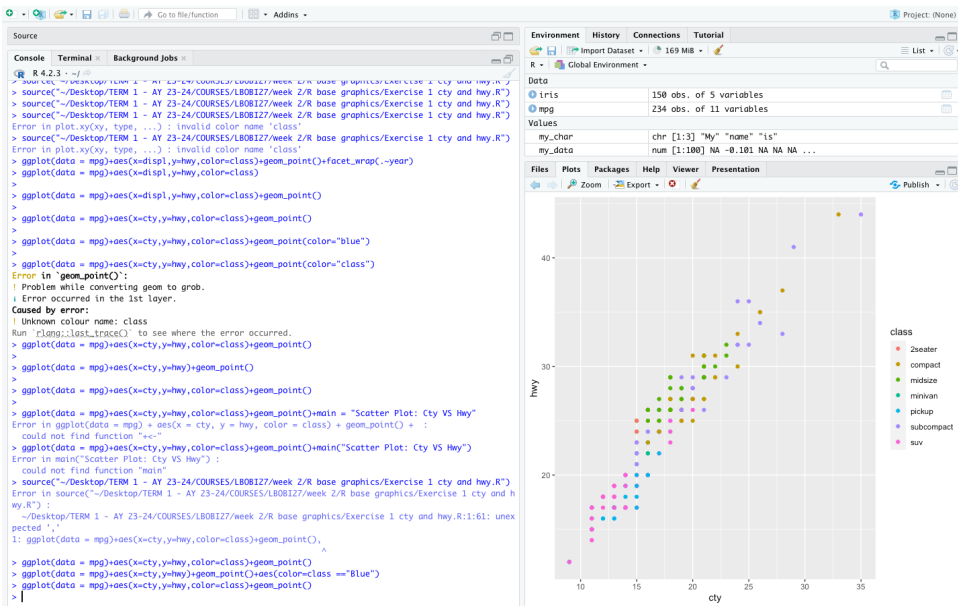

(ggplot2 plotting)
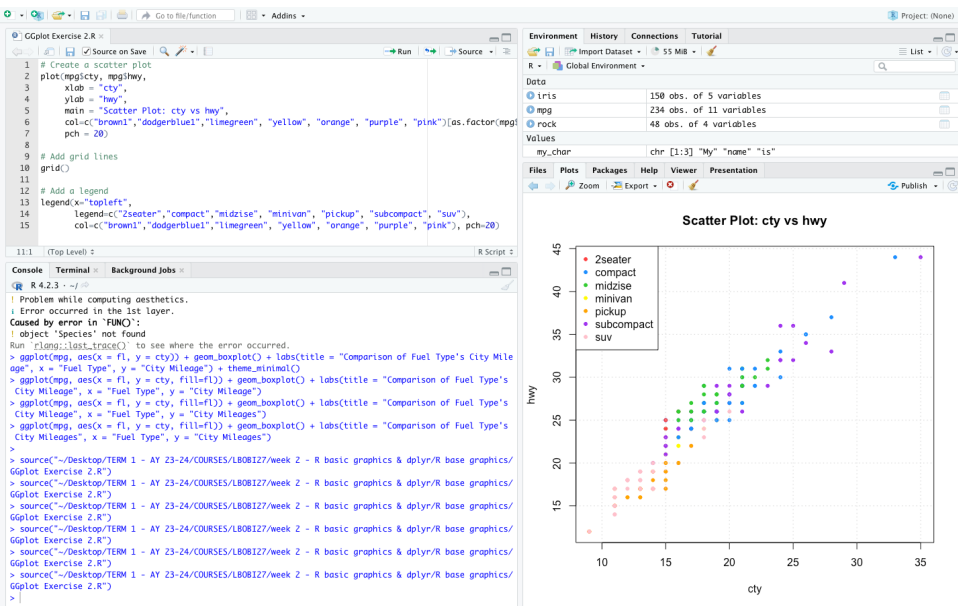
(R basic graphing)

2. Create the appropriate plot to determine which fuel type yields the best city driving mileage. Make sure that all axes are properly labeled. Why did you select your chosen plot?

Boxplot allows a clear visualization and comparison as to what Fuel Type provides the best city driving mileage, since one variable is numeric and the other is categorical. This plot will provide us with a clear distinction between the different fuel types with regard to the city mileages each fuel type can reach. From this plot, it is fuel "type d" that can provide the best city driving mileage.

(ggplot2)

(R basics)
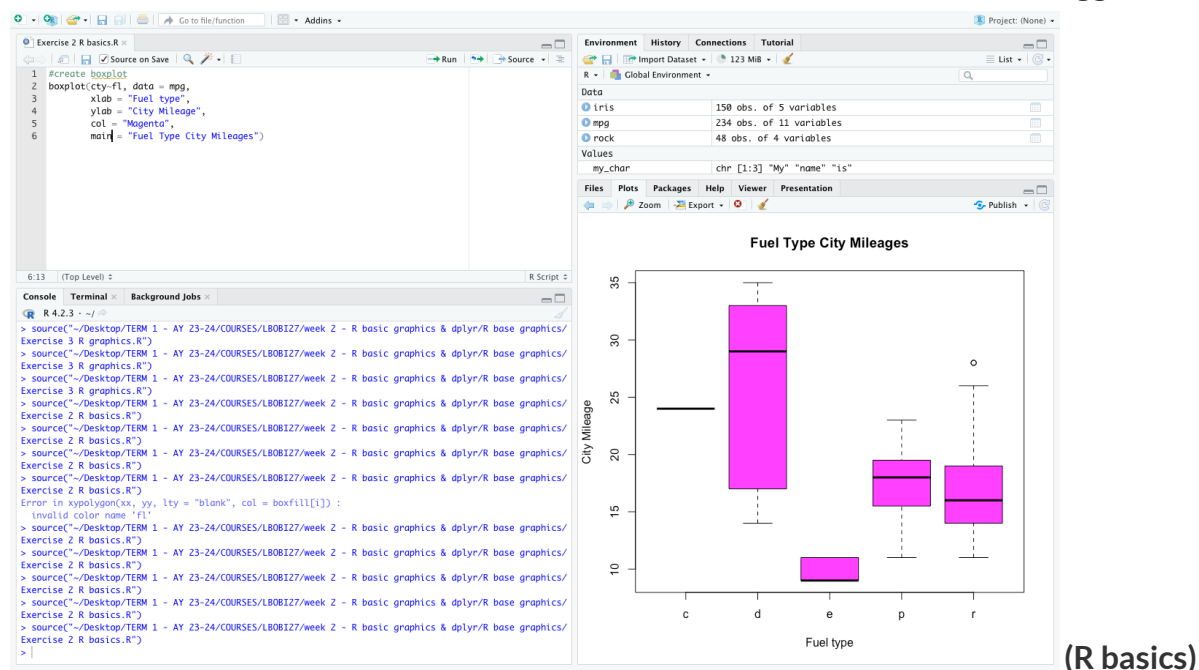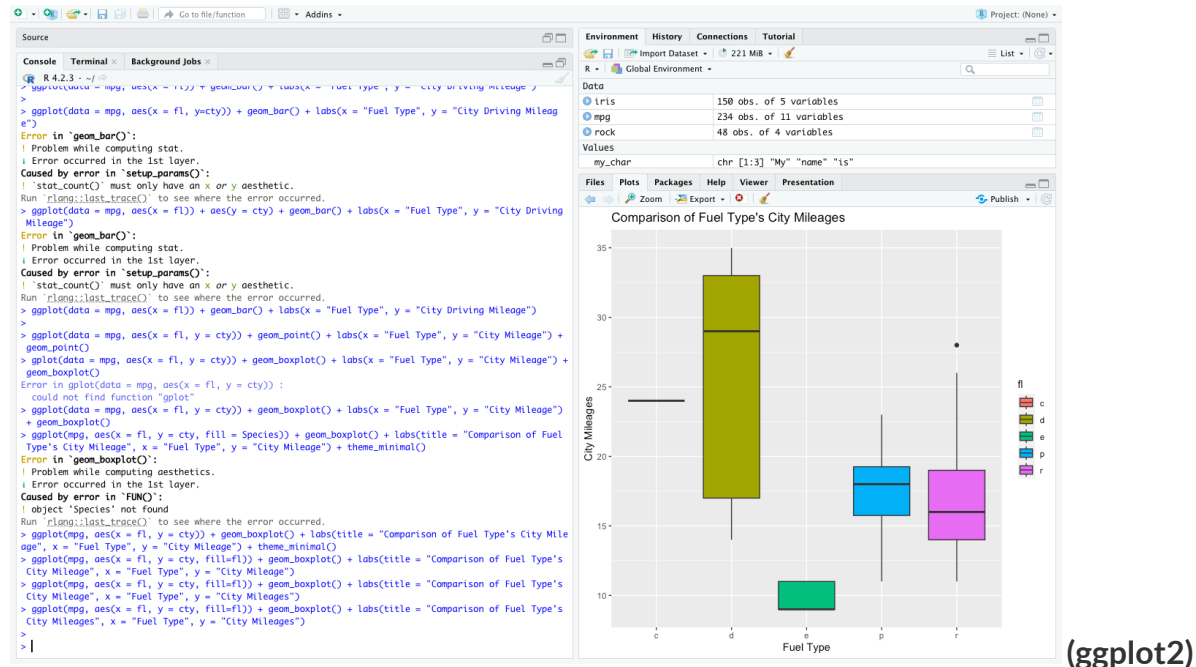
3. Create a vertical bar plot that shows the vehicle displacement (displ) and is colored based on the number of gears.

(ggplot2)

(R basic)