Advanced Data Programming with R

Homework 1

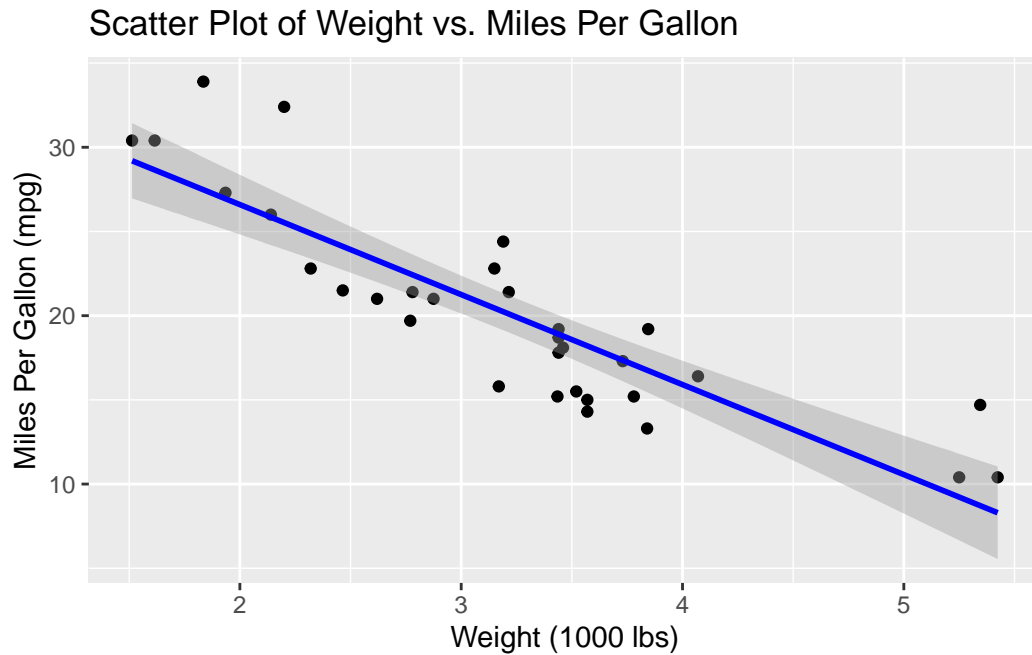Rhema Simon (23200209)

Introduction

The **'mtcars'** dataset is a classic dataset often used for regression analysis and exploratory data analysis in R. It contains data about various car models from the 1970s, including information on miles per gallon (mpg), weight (wt), horsepower (hp), and other features.

Descriptive Statistics

Let's look at some descriptive statistics for `mpg` and `wt`:

```
      mpg               wt
 Min.   :10.40   Min.    :1.513
 1st Qu.:15.43   1st Qu.:2.581
 Median :19.20   Median :3.325
 Mean   :20.09   Mean    :3.217
 3rd Qu.:22.80   3rd Qu.:3.610
 Max.   :33.90   Max.    :5.424
```

```
`geom_smooth()` using formula = 'y ~ x'
```

Scatter Plot of Weight vs. Miles Per Gallon

The plot above shows the *relationship between the weight of the cars (in 1000 lbs) and their miles per gallon (mpg).* We can see that there is a **negative correlation** between weight and mpg, meaning that heavier cars tend to have lower mpg.