Regression Report

Name
November 12, 2014

1. Summary Statistics

This report was created using the cars data set. The dependent variable in my analysis is mpg and independent variable in my analysis is mpg.

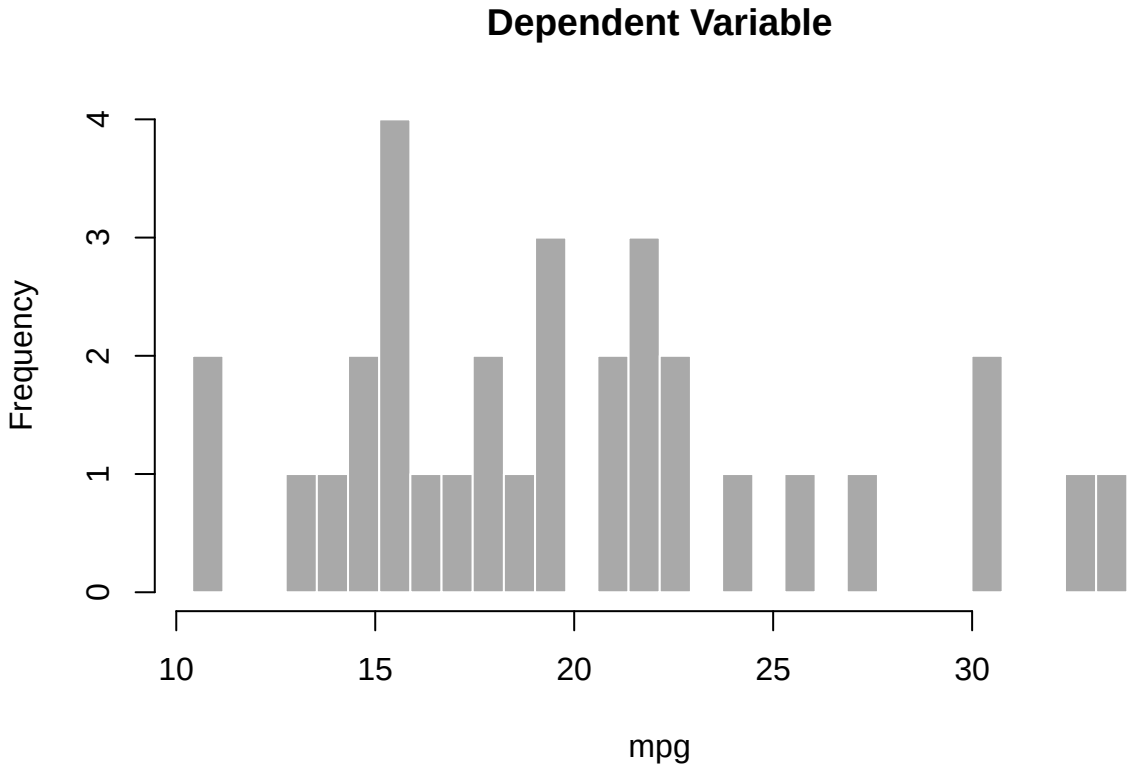
The summary statistics of mpg and mpg appear below.

```
##       mpg             mpg       
##  Min.   :10.4   Min.   :10.4  
##  1st Qu.:15.4   1st Qu.:15.4  
##  Median :19.2   Median :19.2  
##  Mean   :20.1   Mean   :20.1  
##  3rd Qu.:22.8   3rd Qu.:22.8  
##  Max.   :33.9   Max.   :33.9
```

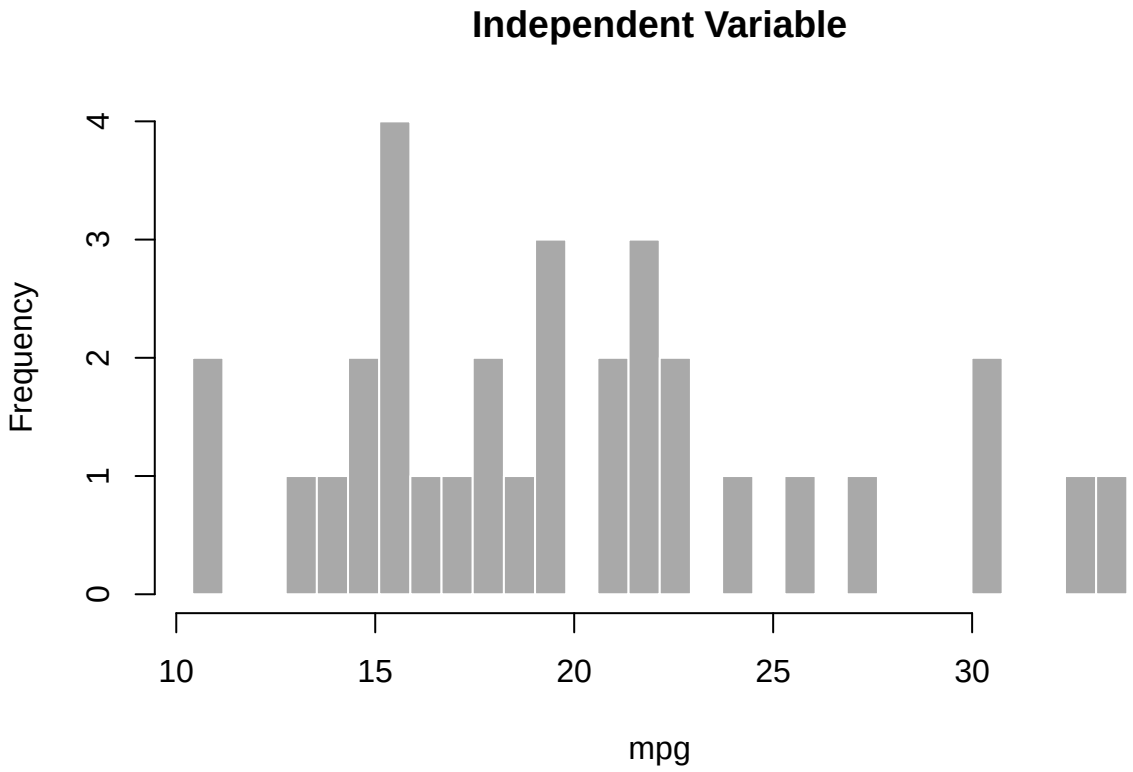
Enter text...

2. Histograms

The histograms of mpg and mpg appear below.



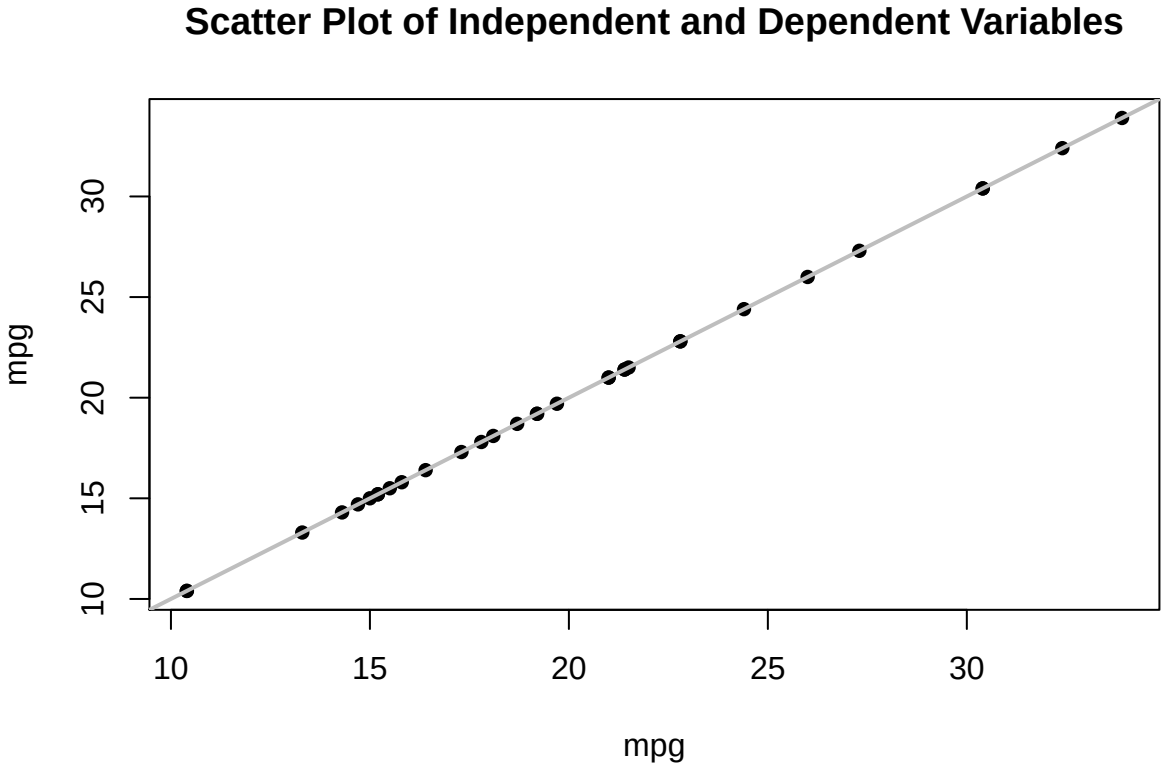
Enter text...



Enter text...

3. Scatter Plot

A scatter plot of mpg and mpg appears below.



Enter text...

4. Correlations

A correlation matrix of all of the variables in cars appears below.

```
##        cyl  disp    hp  drat    wt  qsec    vs    am  gear  carb
## cyl   1.00  0.90  0.83 -0.70  0.78 -0.59 -0.81 -0.52 -0.49  0.53
## disp  0.90  1.00  0.79 -0.71  0.89 -0.43 -0.71 -0.59 -0.56  0.39
## hp    0.83  0.79  1.00 -0.45  0.66 -0.71 -0.72 -0.24 -0.13  0.75
## drat -0.70 -0.71 -0.45  1.00 -0.71  0.09  0.44  0.71  0.70 -0.09
## wt    0.78  0.89  0.66 -0.71  1.00 -0.17 -0.55 -0.69 -0.58  0.43
## qsec -0.59 -0.43 -0.71  0.09 -0.17  1.00  0.74 -0.23 -0.21 -0.66
## vs   -0.81 -0.71 -0.72  0.44 -0.55  0.74  1.00  0.17  0.21 -0.57
## am   -0.52 -0.59 -0.24  0.71 -0.69 -0.23  0.17  1.00  0.79  0.06
## gear -0.49 -0.56 -0.13  0.70 -0.58 -0.21  0.21  0.79  1.00  0.27
## carb  0.53  0.39  0.75 -0.09  0.43 -0.66 -0.57  0.06  0.27  1.00
```

Enter text...

5. Regression Model

A bivariate regression model predicting mpg with mpg appears below.

```
options(digits = 4)

m1 <- lm(regFormula(), data = mlb11)
## Warning: the response appeared on the right-hand side and was dropped
## Warning: problem with term 1 in model.matrix: no columns are assigned
b <- coef(m1)
summary(m1)
##
## Call:
## lm(formula = regFormula(), data = mlb11)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -9.691 -4.666 -0.891  2.709 13.809
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)    20.09       1.07    18.9   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.03 on 31 degrees of freedom
```

The fitting result is $mpg = 20.0906 + NAmpg$.

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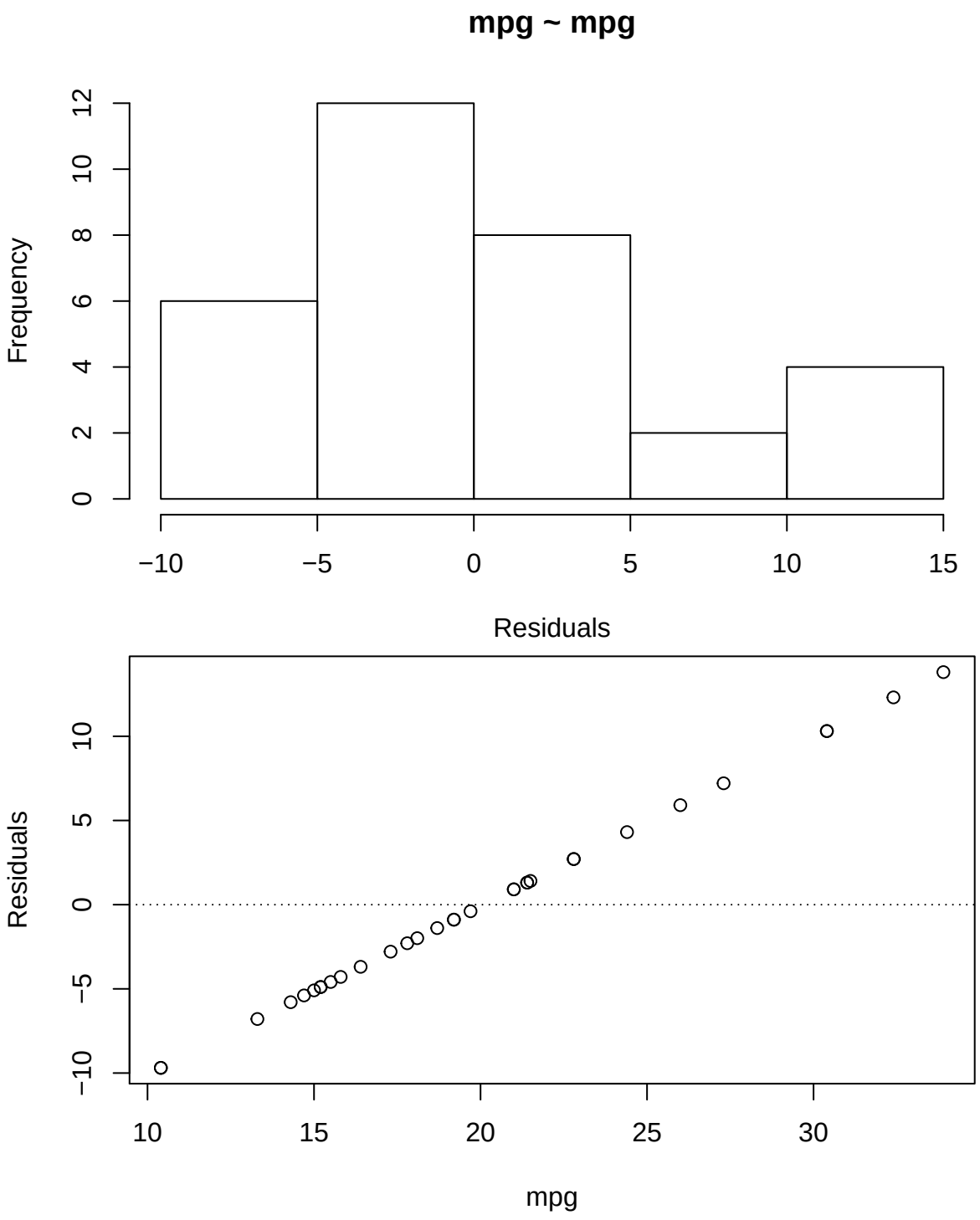
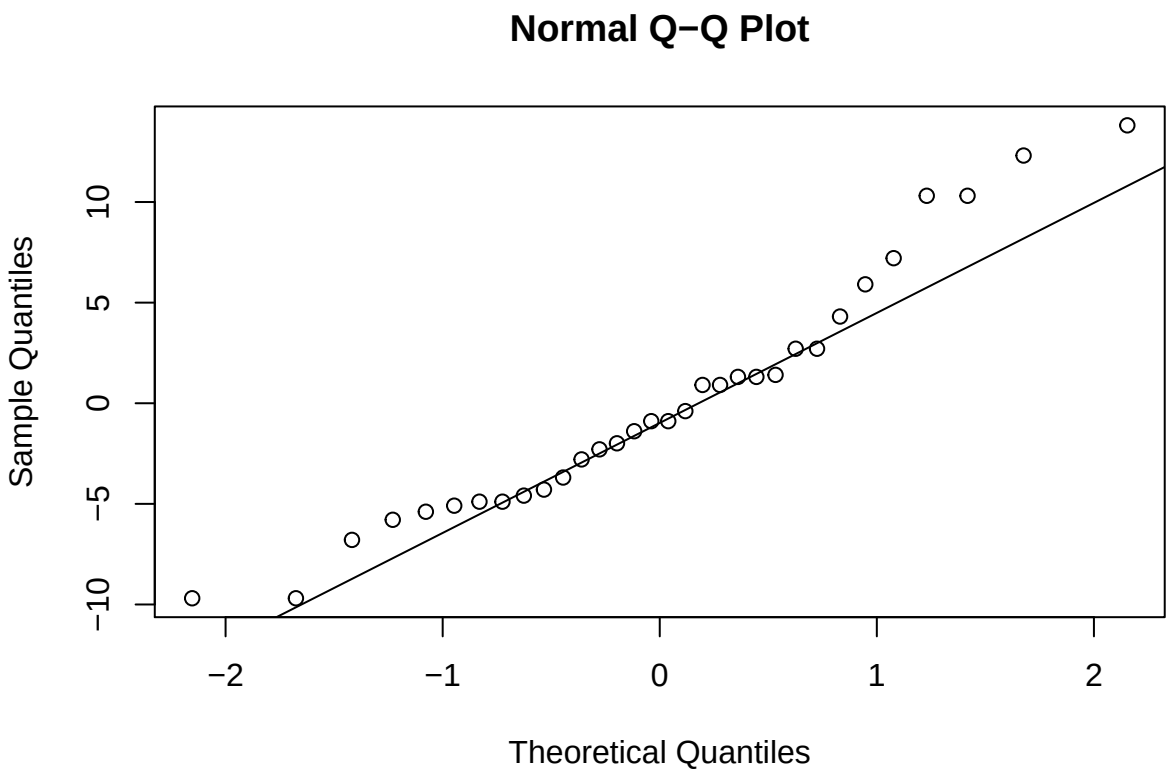
6. Residuals


mpg ~ mpg
Frequency
0
2
4
6
8
10
12
−10
−5
0
5
10
15
Residuals
Residuals
−10
−5
0
5
10
10
15
20
25
30
mpg


Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−10
−5
0
5
10
−2
−1
0
1
2

Enter text...