Predicting with regression

Multiple linear regression is a generalization of linear regression by considering more than one independent variable, and a specific case of general linear models formed by restricting the number of dependent variables to one.

Fit model, view summary and generate prediction

```
Call:
lm(formula = social$Visits ~ social$NewVisits + social$BounceRate,
    data = social)

Residuals:
    Min      1Q  Median      3Q     Max
-54.120  -3.888  -0.937   5.297  35.134

Coefficients:
                  Estimate Std. Error t value Pr(>|t|)
(Intercept)        4.44192    0.50456   8.804   <2e-16 ***
social$NewVisits   0.44568    0.03310  13.463   <2e-16 ***
social$BounceRate  0.70380    0.03517  20.013   <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 11.84 on 913 degrees of freedom
Multiple R-squared:   0.76, Adjusted R-squared:  0.7595
F-statistic:  1446 on 2 and 913 DF,  p-value: < 2.2e-16
```

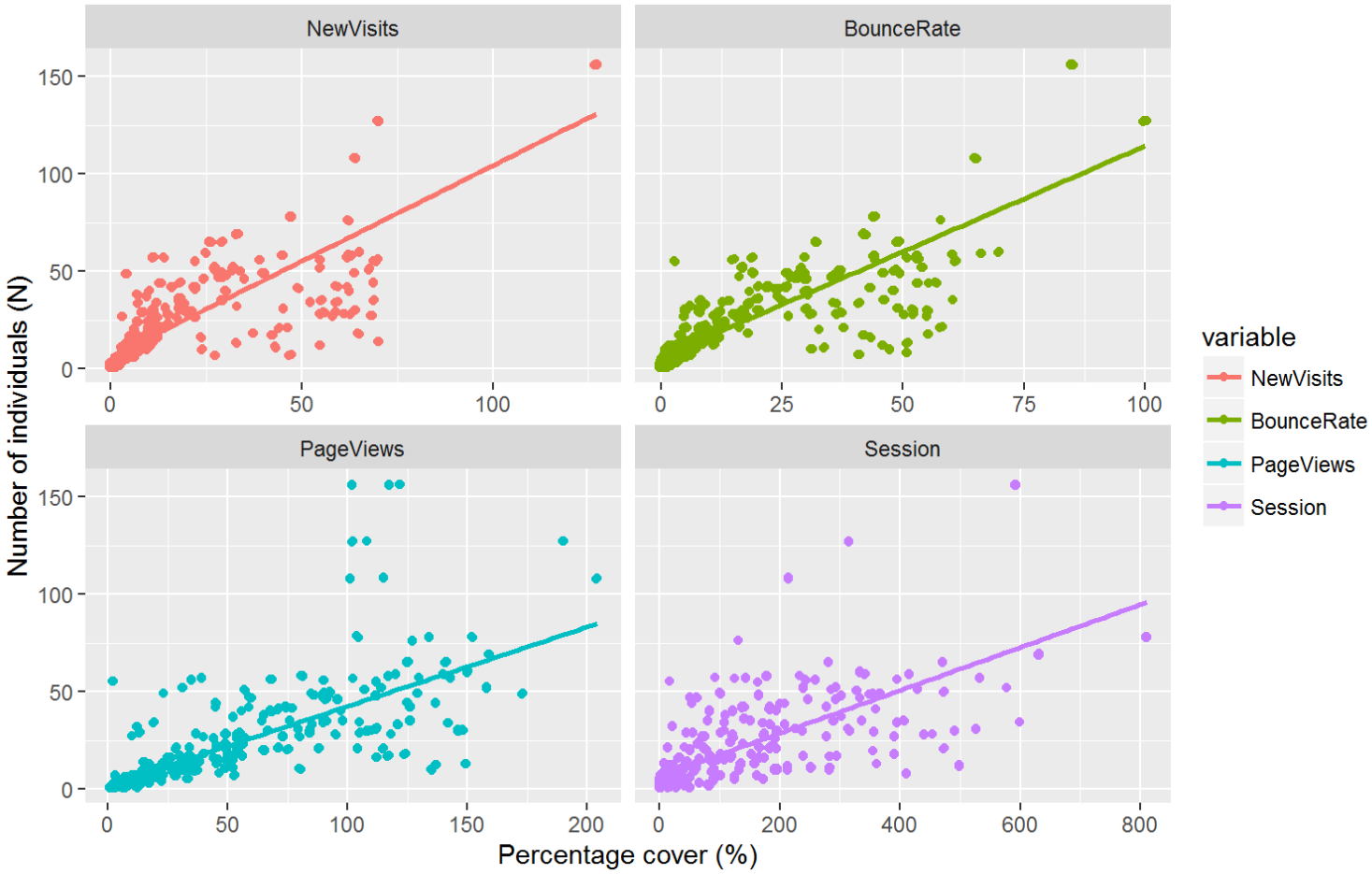
```
      (Intercept)  social$NewVisits social$BounceRate
        4.4419241         0.4456767         0.7037971
```

```
[1] 0.7600195
```

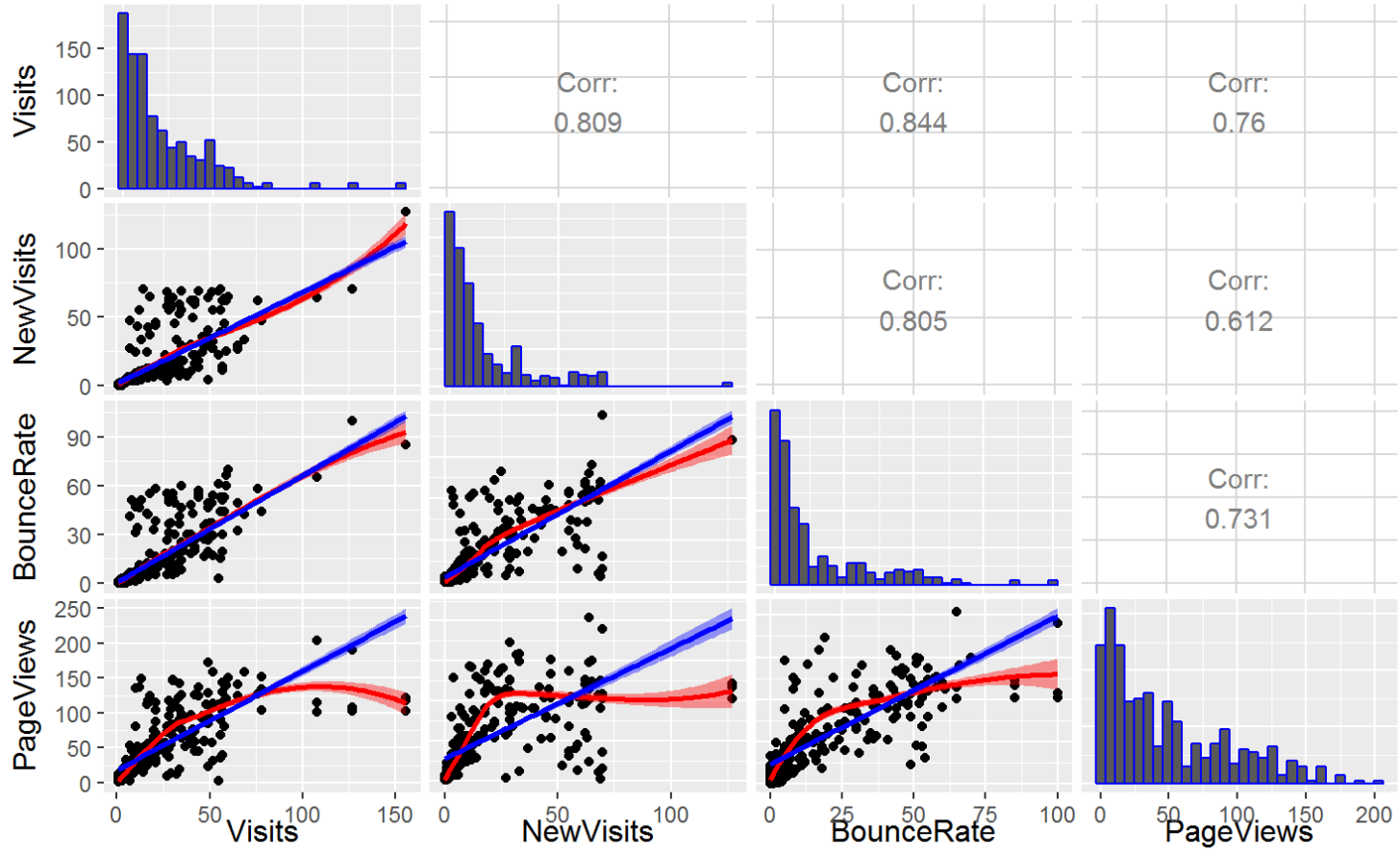
```
                     2.5 %     97.5 %
(Intercept)       3.4516991 5.4321492
social$NewVisits  0.3807100 0.5106433
social$BounceRate 0.6347796 0.7728146
```

```
       1        2        3        4        5        6
19.572639 13.004481  7.444669 22.458391 21.942151 12.042564
```

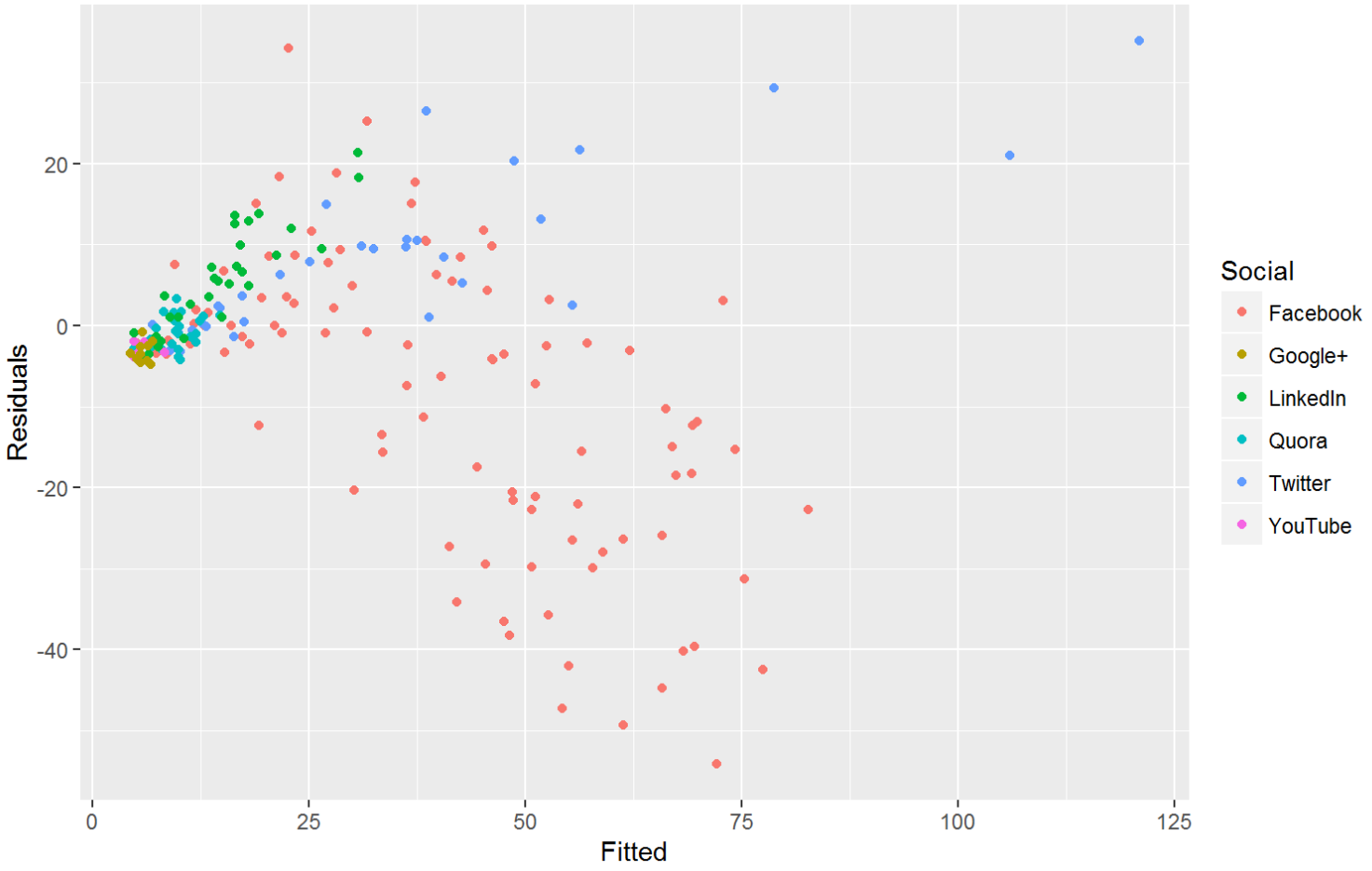
Plot correaltion on each variable



Diagnostic plots for Linear Models (LM)



Plot fitted vs residuals color by social



Plot multivariable regression