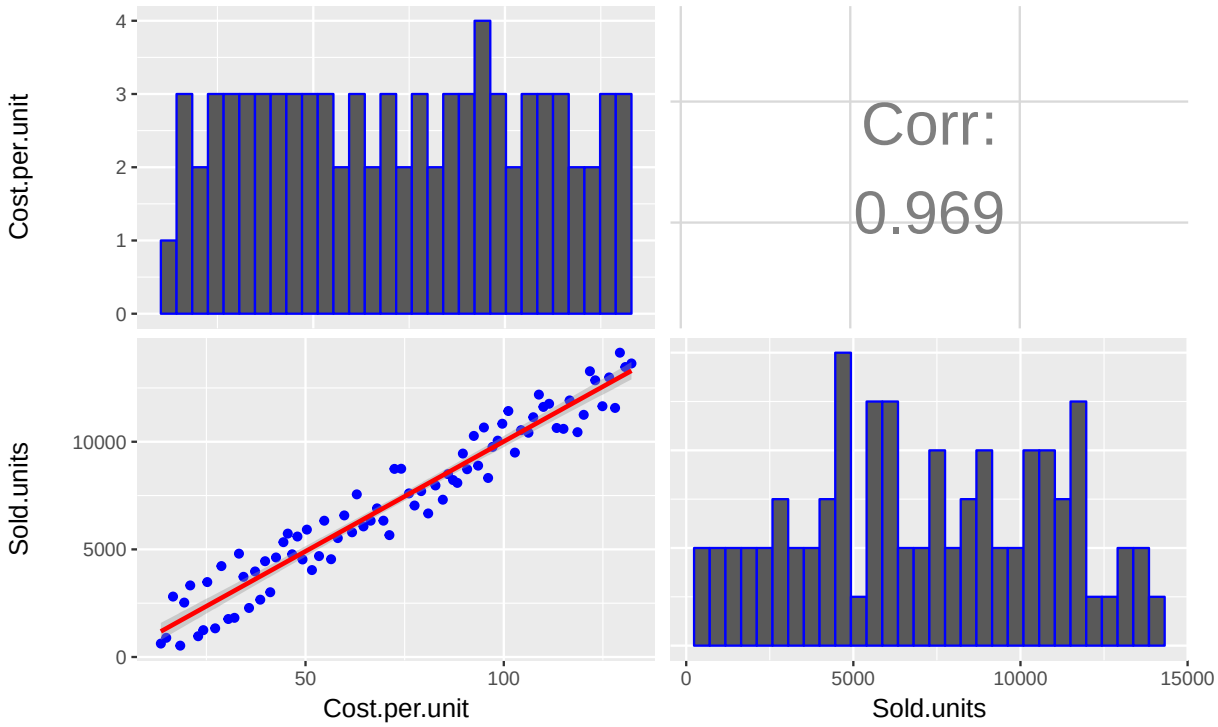
Simple linear regression

Simple linear regression is the least squares estimator of a linear regression model with a single explanatory variable. In other words, simple linear regression fits a straight line through the set of n points in such a way that makes the sum of squared residuals of the model (that is, vertical distances between the points of the data set and the fitted line) as small as possible.

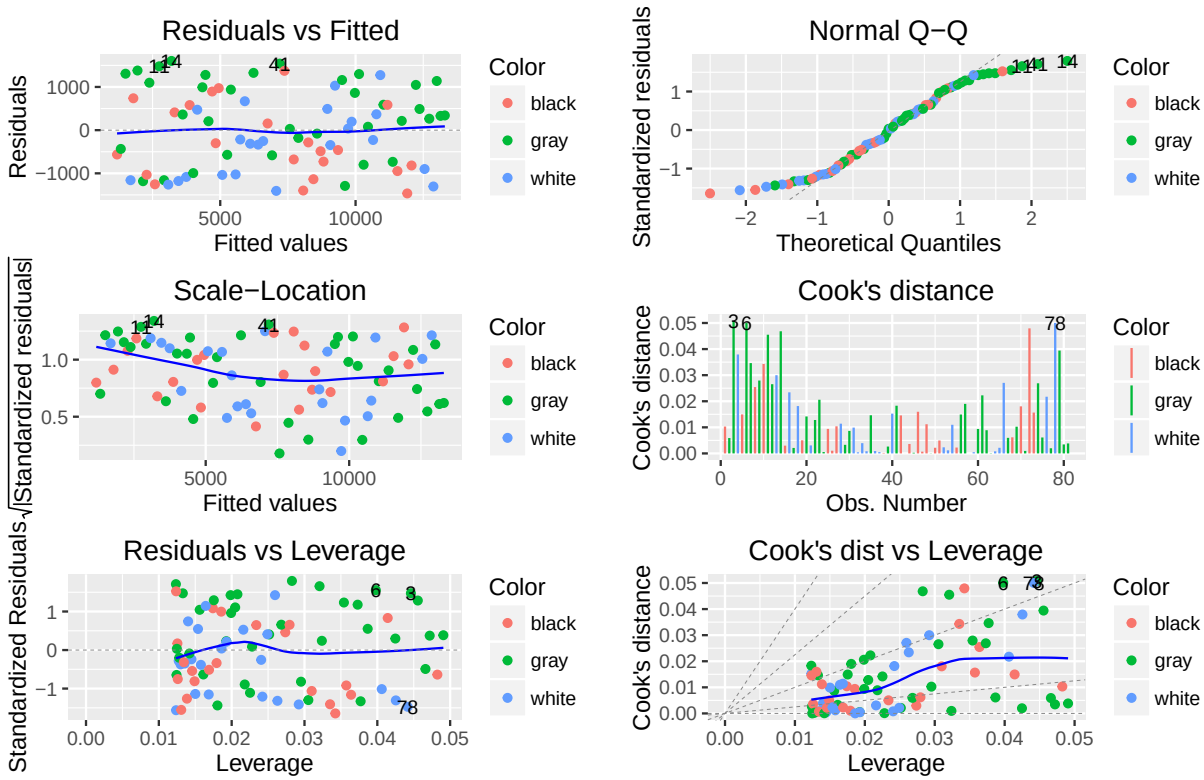
Fit model, view summary and generate prediction

```
Call:
lm(formula = Sold.units ~ Cost.per.unit, data = forecast)

Residuals:
     Min       1Q   Median       3Q      Max
-1465.00  -800.81    28.61   738.08  1602.96

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)   -191.645    233.914  -0.819    0.415
Cost.per.unit  102.037      2.911  35.053   <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 906.5 on 79 degrees of freedom
Multiple R-squared:  0.9396,    Adjusted R-squared:  0.9388
F-statistic:  1229 on 1 and 79 DF,  p-value: < 2.2e-16

  (Intercept) Cost.per.unit
    -191.6451      102.0375

[1] 0.9395897

                   2.5 %   97.5 %
(Intercept)   -657.23850 273.9483
Cost.per.unit   96.24339 107.8315

       1        2        3        4        5        6
1187.901 1326.672 1501.156 1686.865 1789.922 1943.999
```

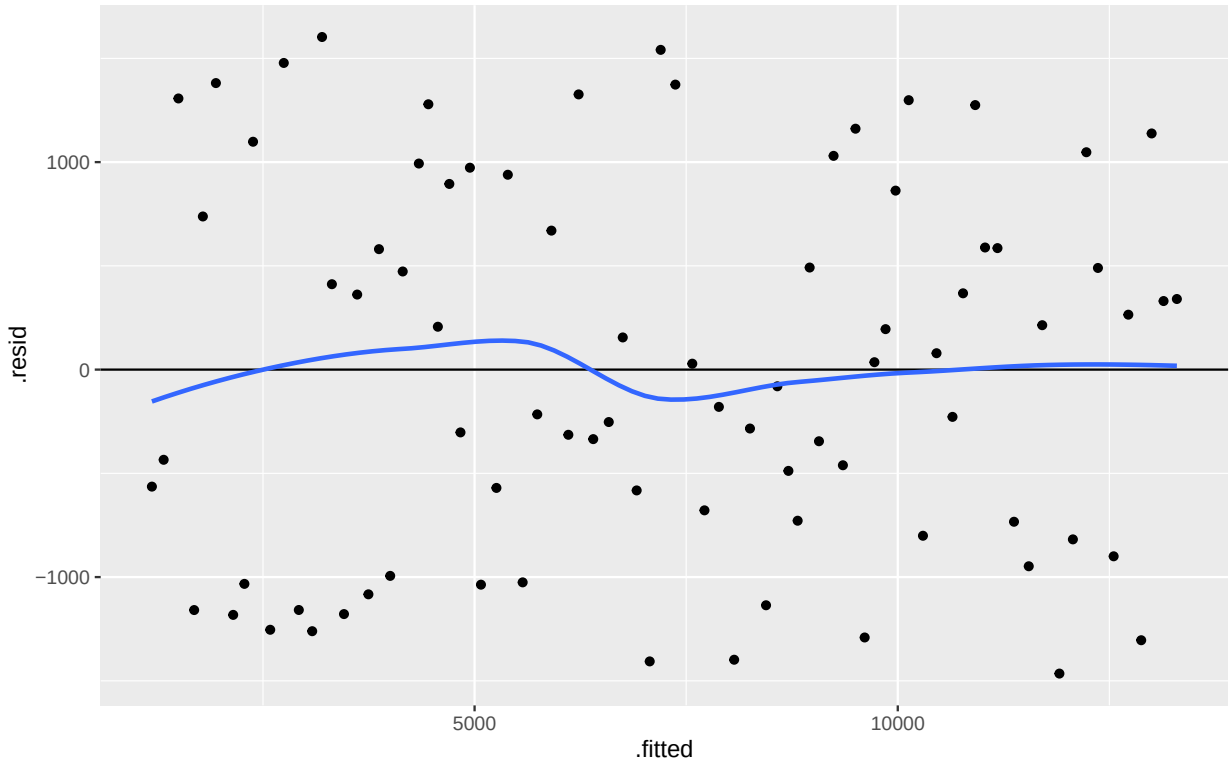
View correlation between variables



Diagnostic plots for Linear Models (LM)



Plot fitted vs residuals



Plot predicion linear regression model