ass2

```r
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --
```

```
## v ggplot2 3.3.5      v purrr   0.3.4
## v tibble  3.1.4      v dplyr   1.0.7
## v tidyr   1.1.3      v stringr 1.4.0
## v readr   2.0.1      v forcats 0.5.1
```

```
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```r
library(readr)
library(psych)
```

```
##
## Attaching package: 'psych'
```

```
## The following objects are masked from 'package:ggplot2':
##
##     %+%, alpha
```

```r
data=read_csv("~/Desktop/204 R/SNOWGEESE.csv")
```

```
## Rows: 42 Columns: 5
```

```
## -- Column specification ----------------------------------------------------
## Delimiter: ","
## chr (1): Diet
## dbl (4): Trial, WtChange, DigEff, ADFiber
```

```
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```r
data.mod=lm(WtChange~DigEff,data )

x=data$DigEff
y=data$WtChange
summary(data.mod)
```

```
## 
## Call:
## lm(formula = WtChange ~ DigEff, data = data)
## 
## Residuals:
##     Min      1Q  Median      3Q     Max
## -9.5733 -2.7288 -0.2575  3.1273  7.7436
## 
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) -3.17067    1.06784  -2.969  0.00503 **
## DigEff       0.14147    0.02889   4.897 1.64e-05 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 4.003 on 40 degrees of freedom
## Multiple R-squared:  0.3748, Adjusted R-squared:  0.3592
## F-statistic: 23.98 on 1 and 40 DF,  p-value: 1.642e-05
```

```
anova(data.mod)
```

```
## Analysis of Variance Table
## 
## Response: WtChange
##           Df Sum Sq Mean Sq F value     Pr(>F)
## DigEff     1 384.24  384.24  23.982 1.642e-05 ***
## Residuals 40 640.88   16.02
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
plot(x,y)
abline(a=data.mod$coefficients[1],b=data.mod$coefficients[2], col = "red",lwd = 3)
```
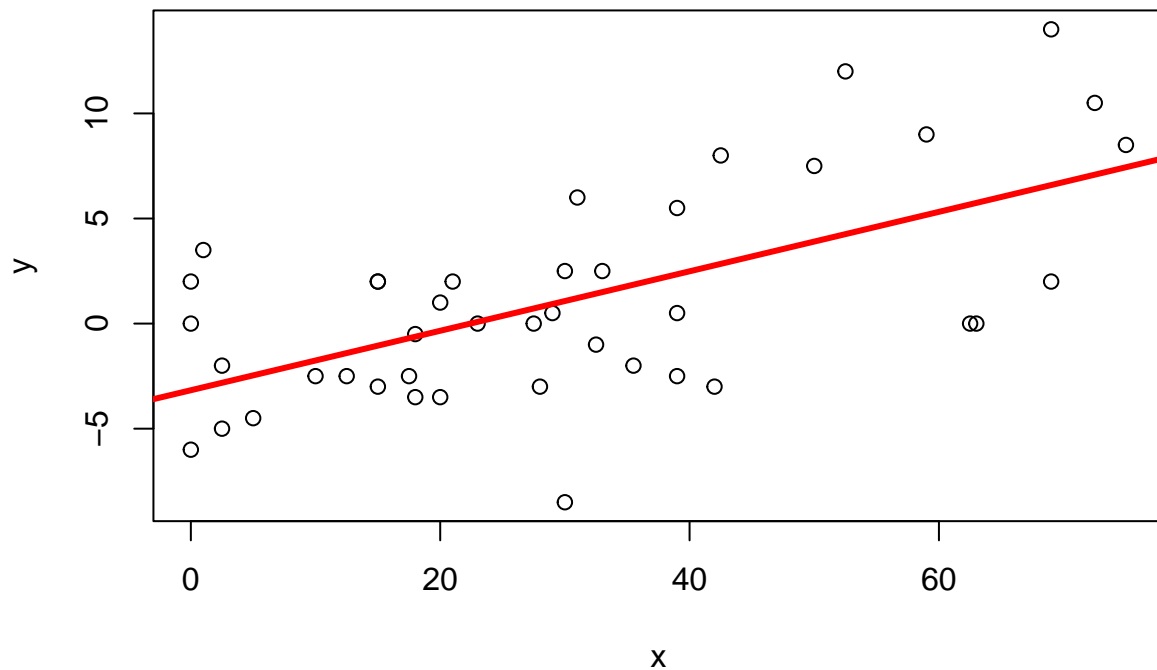
```
cor(y,x)
```

```
## [1] 0.6122317
```

```
predict(data.mod,new=data.frame(DigEff=0.5),se.fit= T,interval=c("confidence"),level=0.95)
```
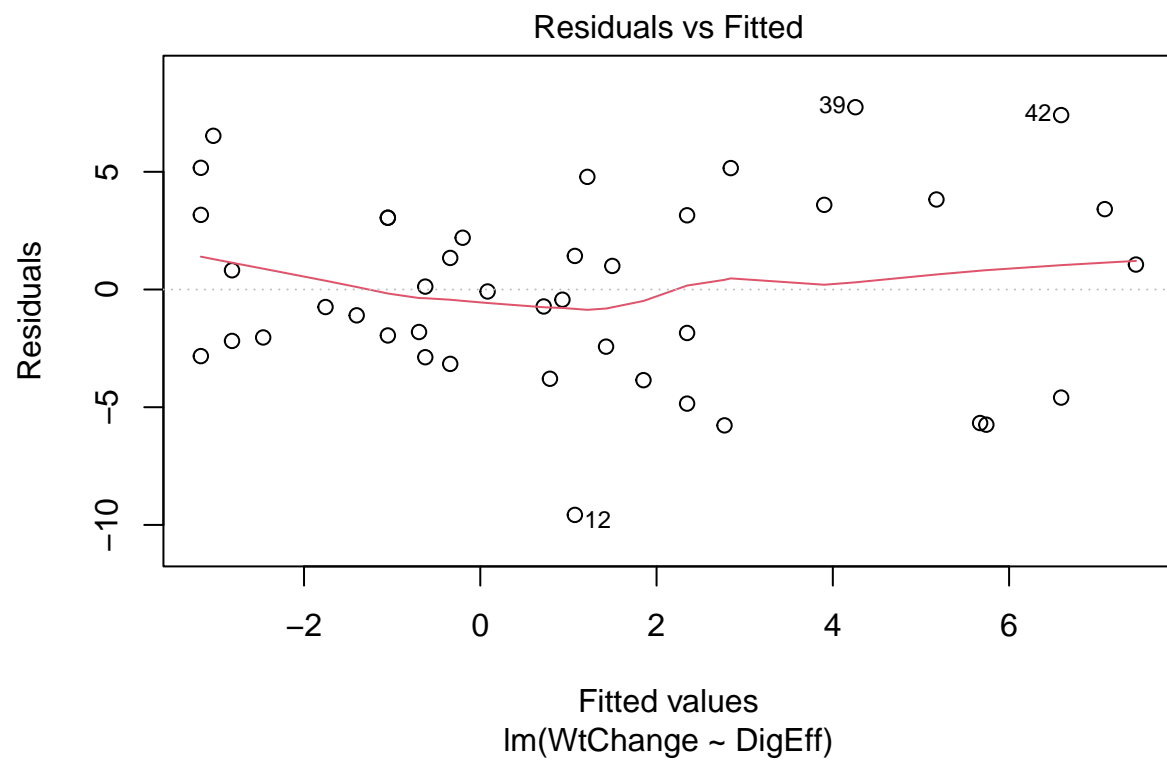
```
## $fit
##        fit       lwr        upr
## 1 -3.099933 -5.234369 -0.9654976
##
## $se.fit
## [1] 1.056089
##
## $df
## [1] 40
##
## $residual.scale
## [1] 4.002737
```
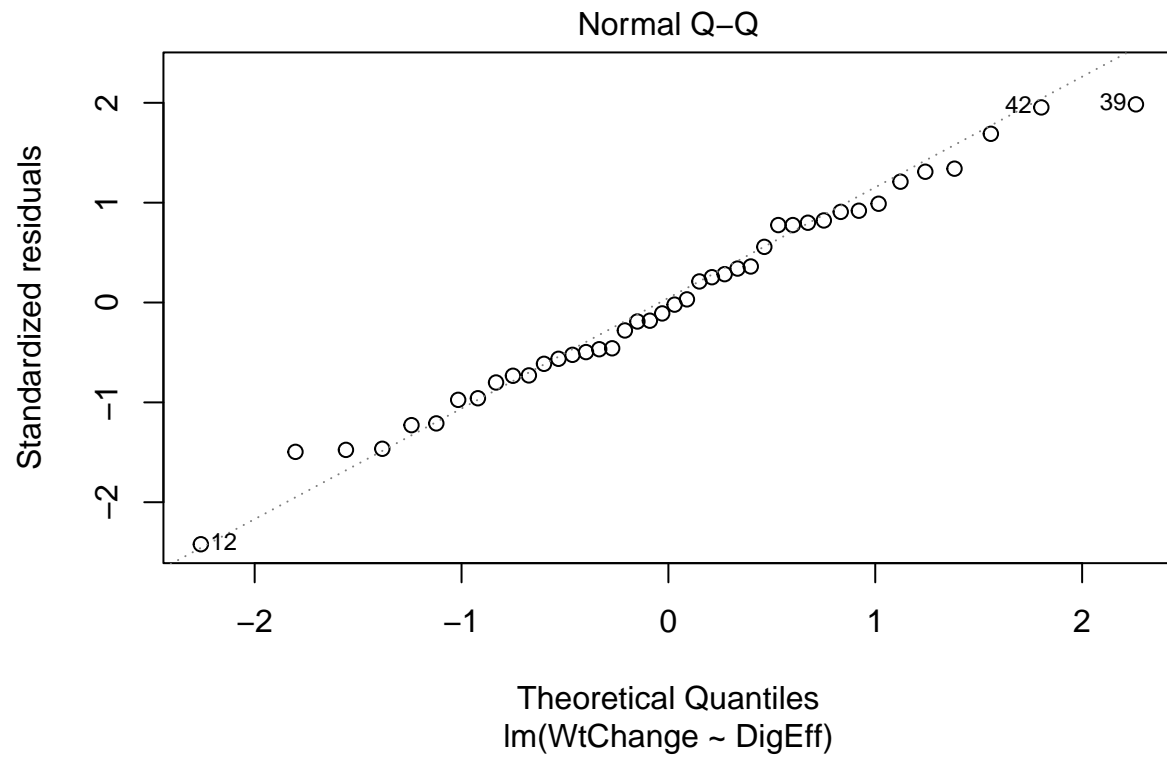
```
predict(data.mod,new=data.frame(DigEff=0.5),se.fit= T,interval=c("prediction"),level=0.95)
```
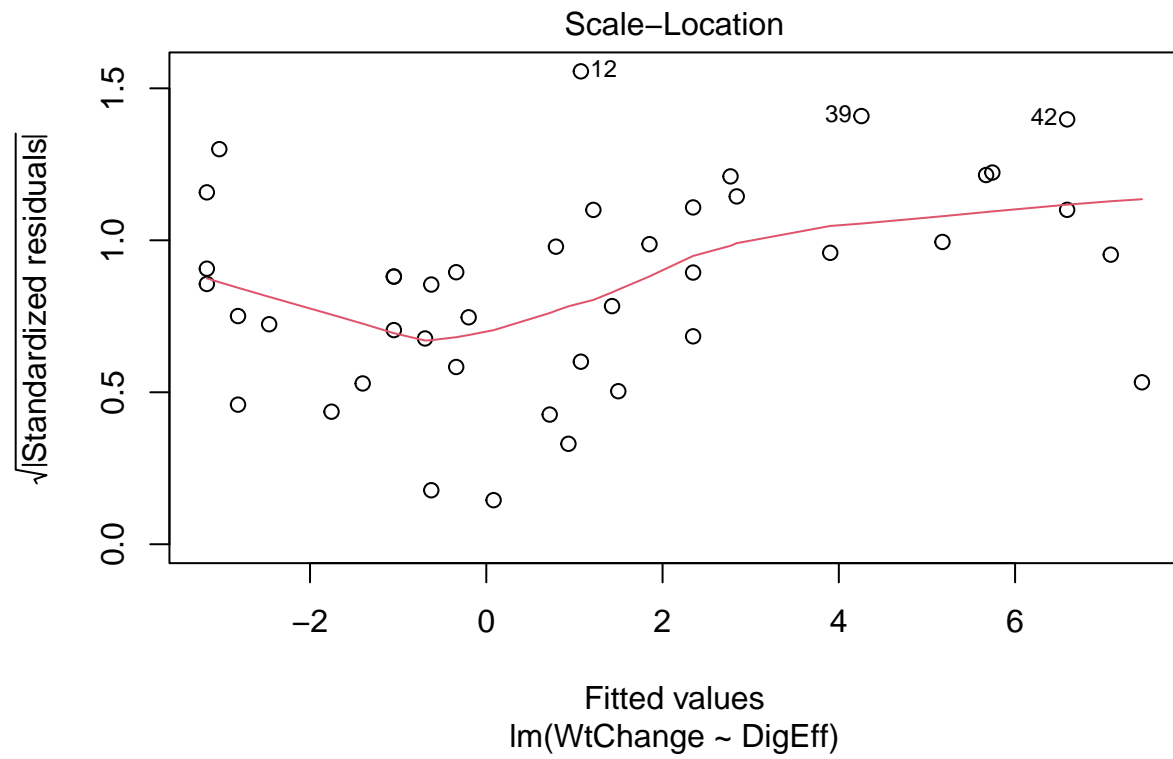
```
## $fit
##        fit       lwr      upr
## 1 -3.099933 -11.46661 5.266739
```
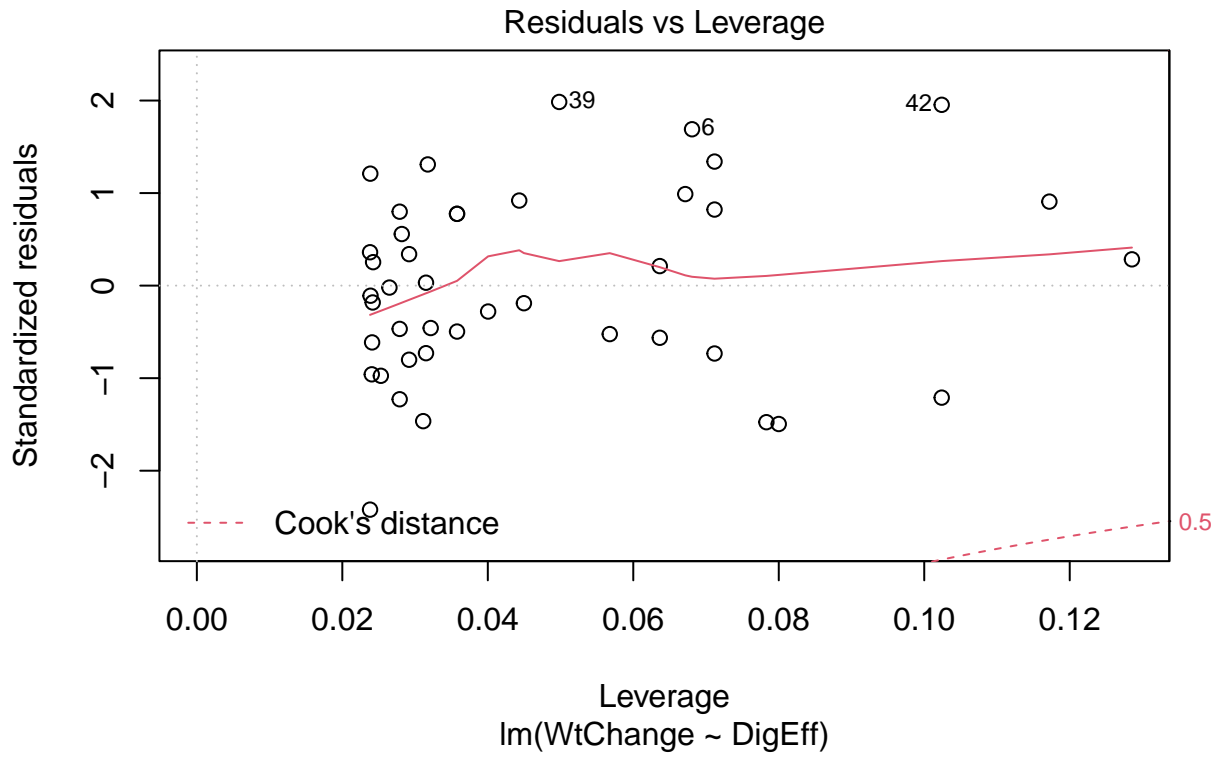
```
## 
## $se.fit
## [1] 1.056089
## 
## $df
## [1] 40
## 
## $residual.scale
## [1] 4.002737
```

```
plot(data.mod)
```

Residuals vs Fitted

Fitted values
lm(WtChange ~ DigEff)

Normal Q–Q

Standardized residuals

Theoretical Quantiles
lm(WtChange ~ DigEff)

Scale–Location

√|Standardized residuals|

Fitted values
lm(WtChange ~ DigEff)

## Residuals vs Leverage

lm(WtChange ~ DigEff)

```
acc=data%>%filter(Diet=="Plants")
acc.mod=lm(WtChange~DigEff,acc )
xx=acc$DigEff
yy=acc$WtChange
summary(acc.mod)
```

```
##
## Call:
## lm(formula = WtChange ~ DigEff, data = acc)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -8.6392 -2.6814  0.0144  2.3608  5.7946
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) -2.21019    1.09193  -2.024   0.0516 .
## DigEff       0.07831    0.04321   1.812   0.0797 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.391 on 31 degrees of freedom
## Multiple R-squared:  0.09579,    Adjusted R-squared:  0.06662
## F-statistic: 3.284 on 1 and 31 DF,  p-value: 0.07966
```

```
anova(acc.mod)
```

```
## Analysis of Variance Table
##
## Response: WtChange
##           Df Sum Sq Mean Sq F value  Pr(>F)
## DigEff     1  37.76  37.757  3.2839 0.07966 .
## Residuals 31 356.42  11.498
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
plot(xx,yy)
abline(a=acc.mod$coefficients[1],b=acc.mod$coefficients[2], col = "red",lwd = 3)
```
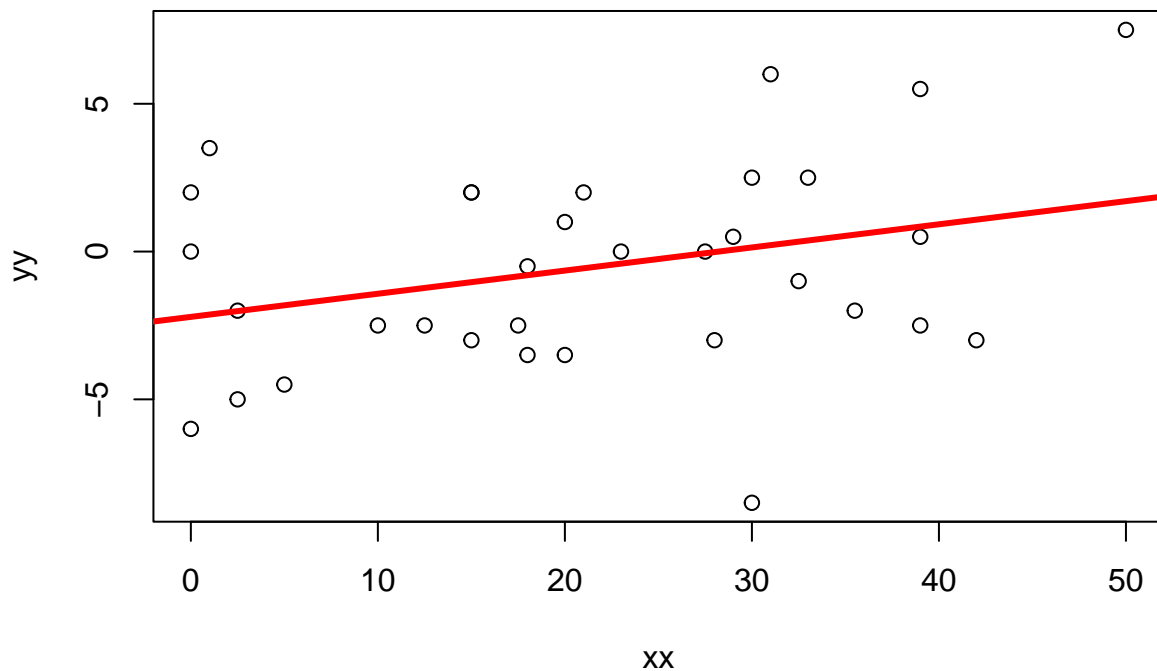


```
cor(yy,xx)
```

```
## [1] 0.3094942
```

```
predict(acc.mod,new=data.frame(DigEff=0.5),se.fit= T,interval=c("confidence"),level=0.95)
```

```
## $fit
##         fit       lwr        upr
## 1 -2.171035 -4.361102 0.01903322
```
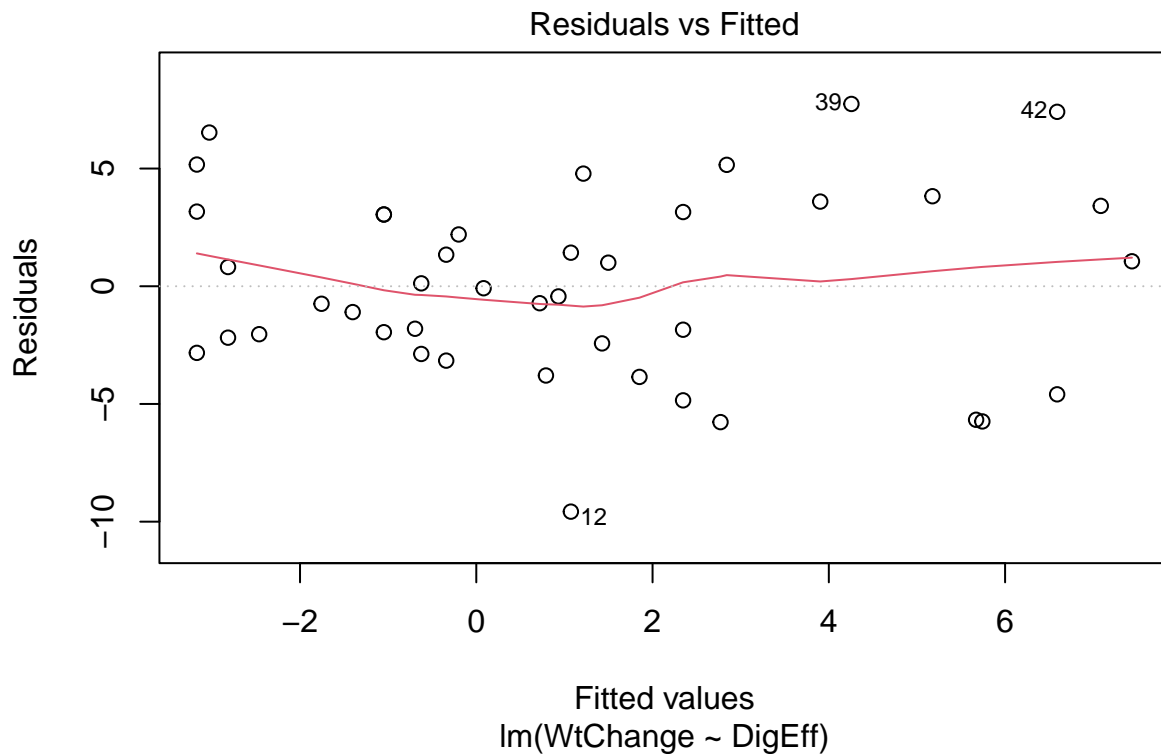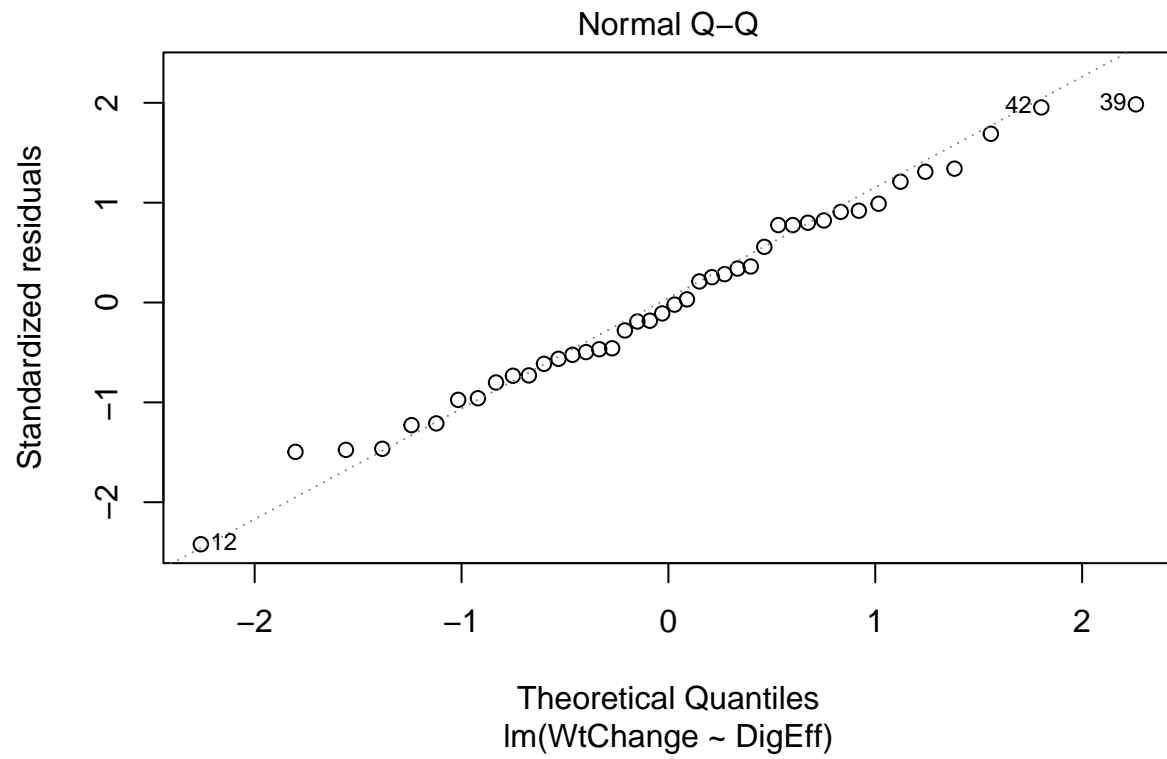
```
##
## $se.fit
## [1] 1.073819
##
## $df
## [1] 31
##
## $residual.scale
## [1] 3.390806
```
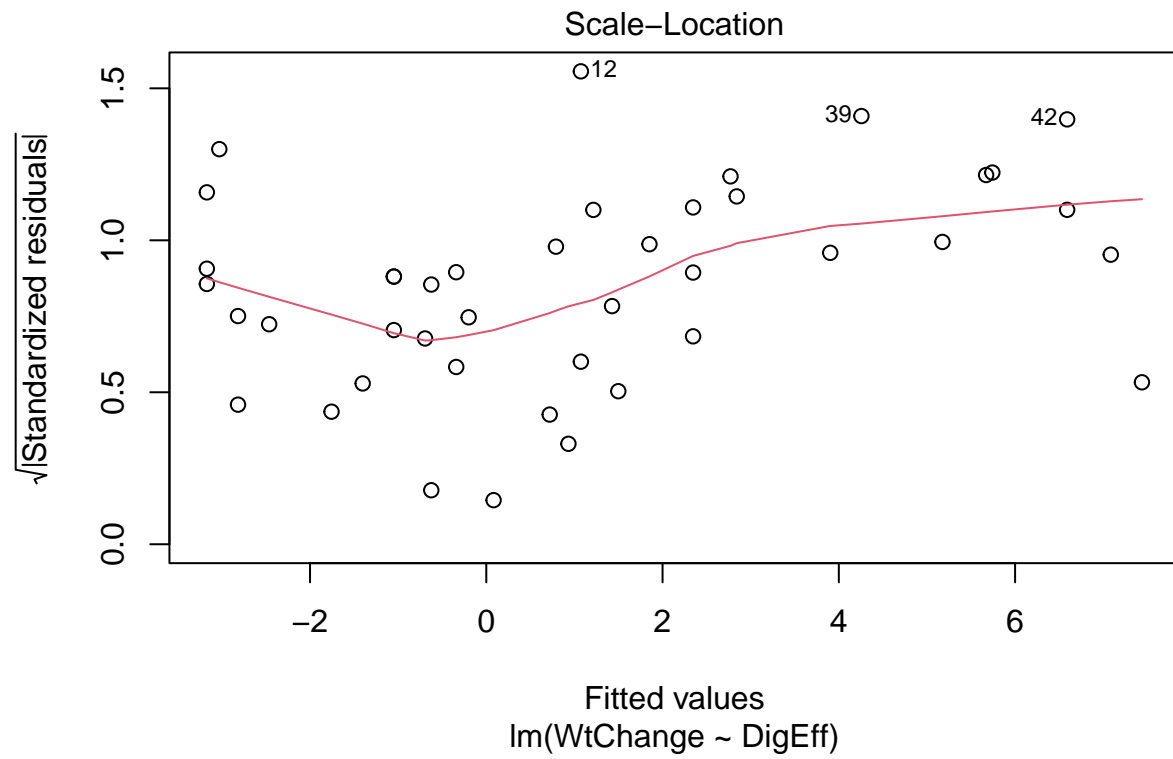
```
predict(acc.mod,new=data.frame(DigEff=0.5),se.fit= T,interval=c("prediction"),level=0.95)
```
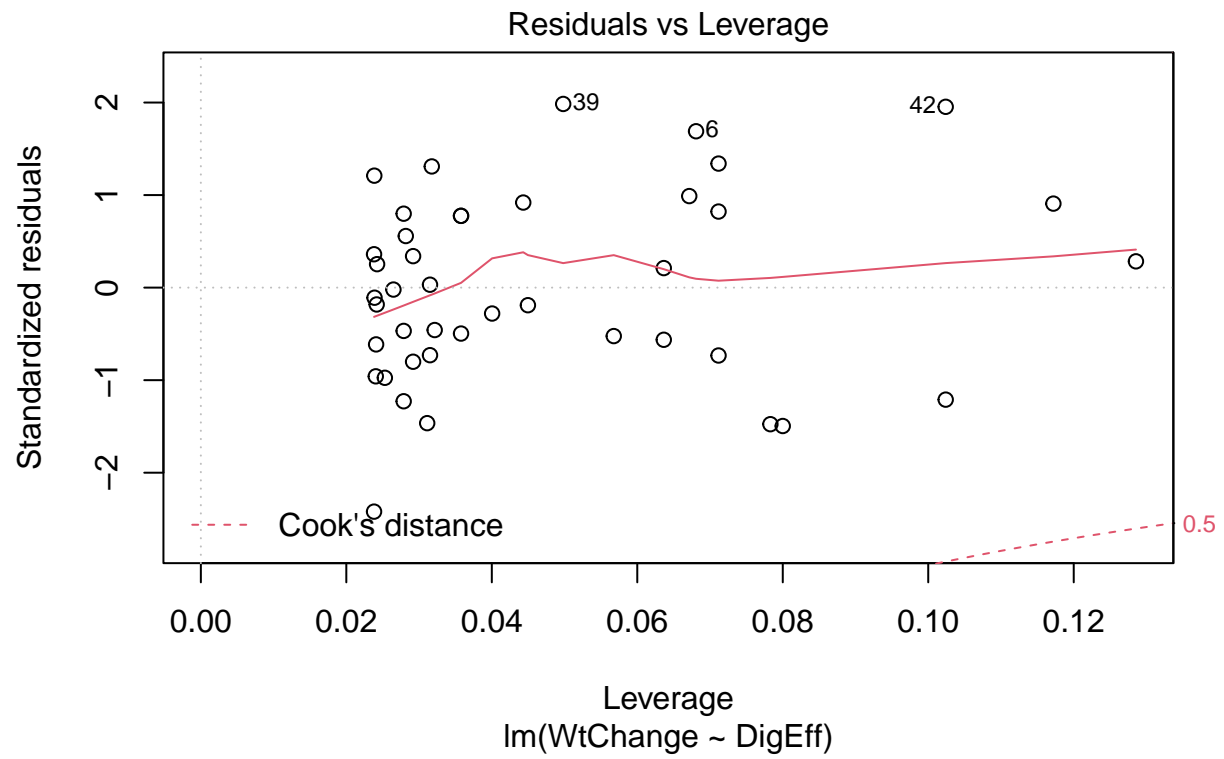
```
## $fit
##         fit       lwr      upr
## 1 -2.171035 -9.425125 5.083056
##
## $se.fit
## [1] 1.073819
##
## $df
## [1] 31
##
## $residual.scale
## [1] 3.390806
```

```
plot(data.mod)
```

Normal Q–Q

Theoretical Quantiles
lm(WtChange ~ DigEff)

Scale−Location

√|Standardized residuals|

Fitted values
lm(WtChange ~ DigEff)

Residuals vs Leverage

lm(WtChange ~ DigEff)