R Notebook

Code ▾

This is an R Markdown (http://rmarkdown.rstudio.com) Notebook. When you execute code within the notebook, the results appear beneath the code.

Try executing this chunk by clicking the *Run* button within the chunk or by placing your cursor inside it and pressing *Ctrl+Shift+Enter*.

Hide

```
#problem 1
library(openxlsx)
xlsxFile <- system.file("extdata","data-table-B8.xlsx", package = "openxlsx")
df <- read.xlsx(xlsxFile = "data-table-B8.xlsx", sheet = 1, skipEmptyRows = FALSE)
lm <- lm(formula=y~x1+x2, data=df )
print(summary(lm))
```

```
Call:
lm(formula = y ~ x1 + x2, data = df)

Residuals:
    Min      1Q  Median      3Q     Max
-9.7716 -4.1656  0.0802  3.8323  8.3349

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) 1.109e+01  1.669e+00   6.642 1.48e-07 ***
x1          3.501e+02  3.968e+01   8.823 3.38e-10 ***
x2          1.089e-01  9.983e-03  10.912 1.74e-12 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 4.782 on 33 degrees of freedom
Multiple R-squared:  0.8415,    Adjusted R-squared:  0.8319
F-statistic:  87.6 on 2 and 33 DF,  p-value: 6.316e-14
```
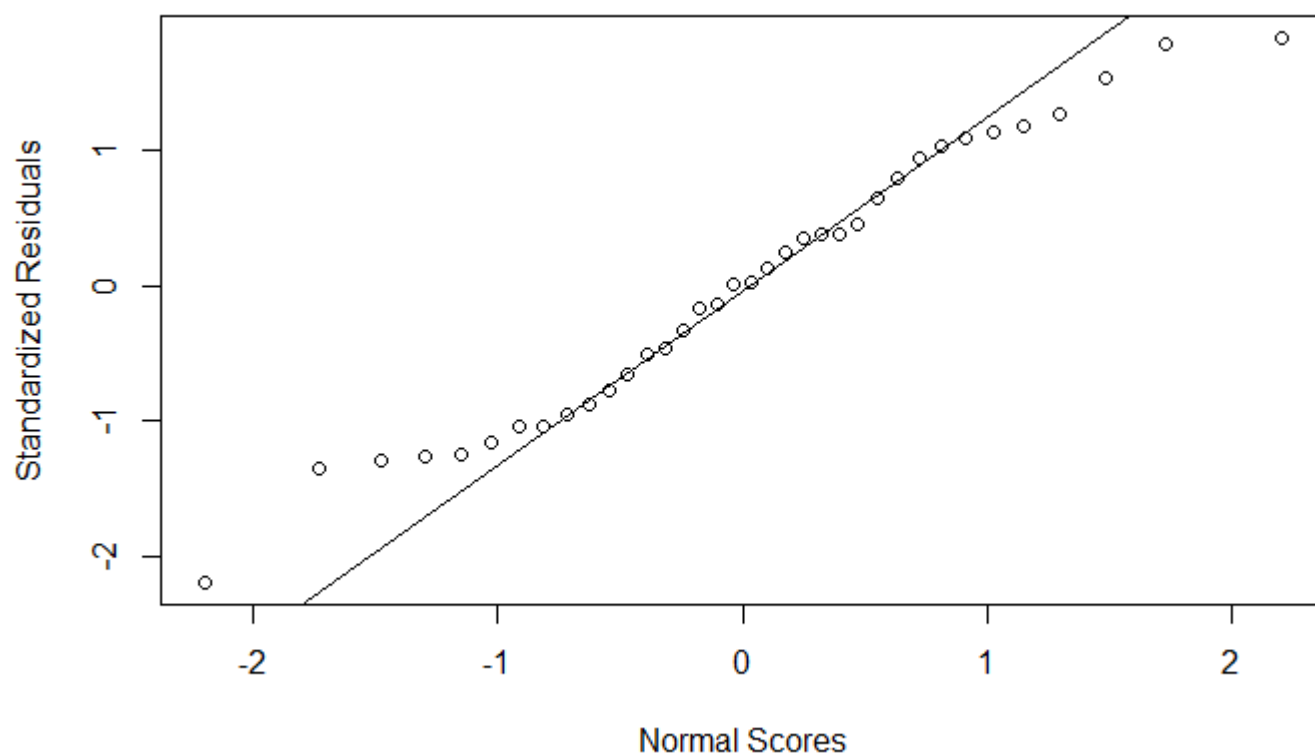
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```
lm.stdress <- rstandard(lm)
qqnorm(lm.stdress, ylab="Standardized Residuals",  xlab="Normal Scores", main="Clathrates")
qqline(lm.stdress)
```
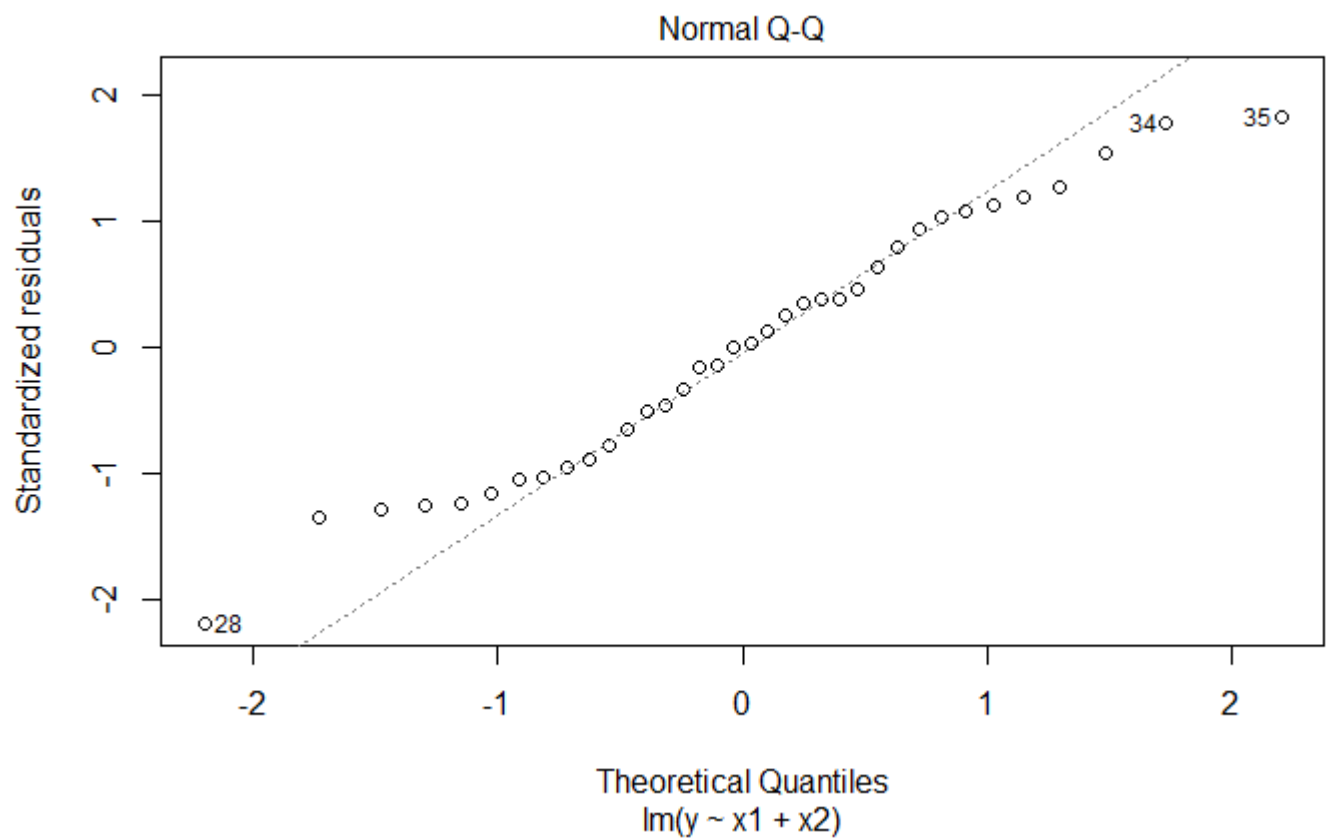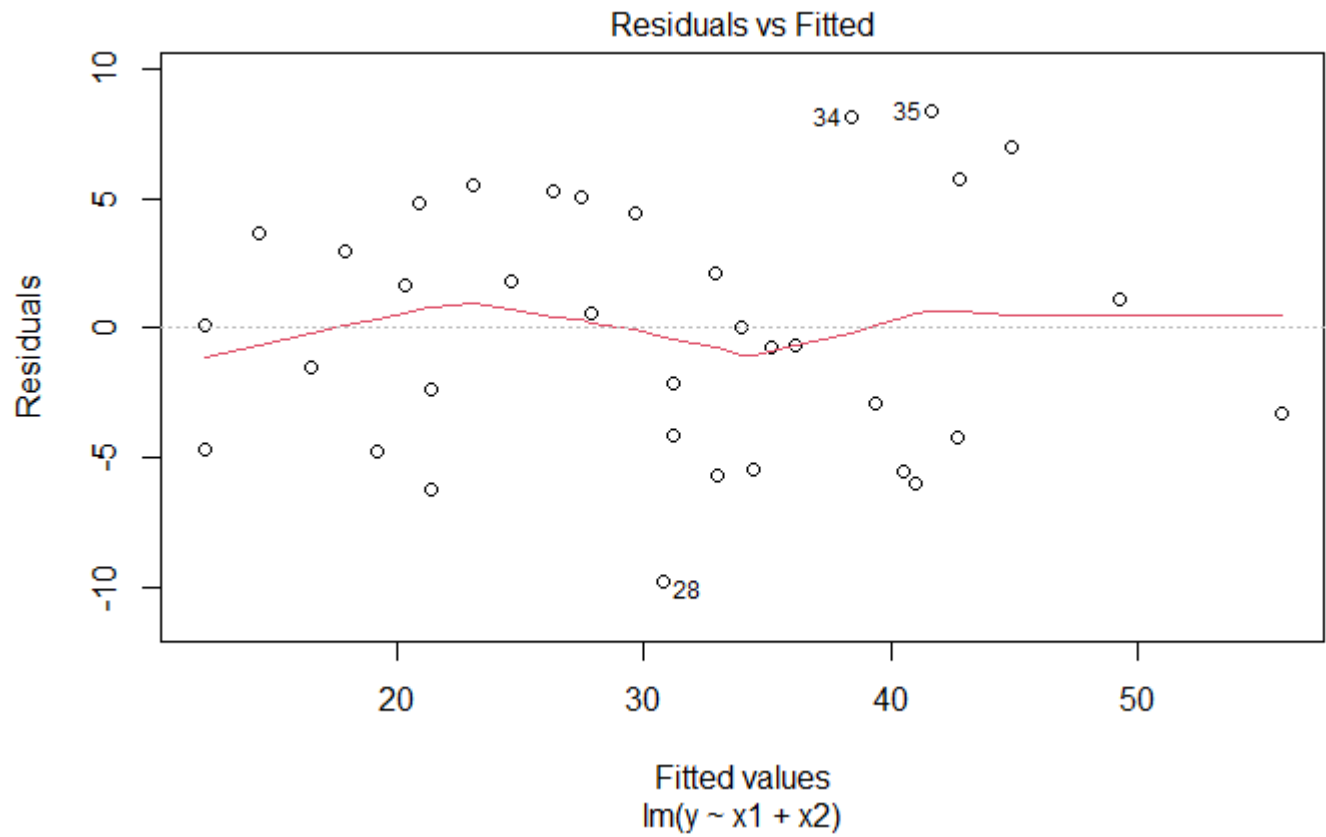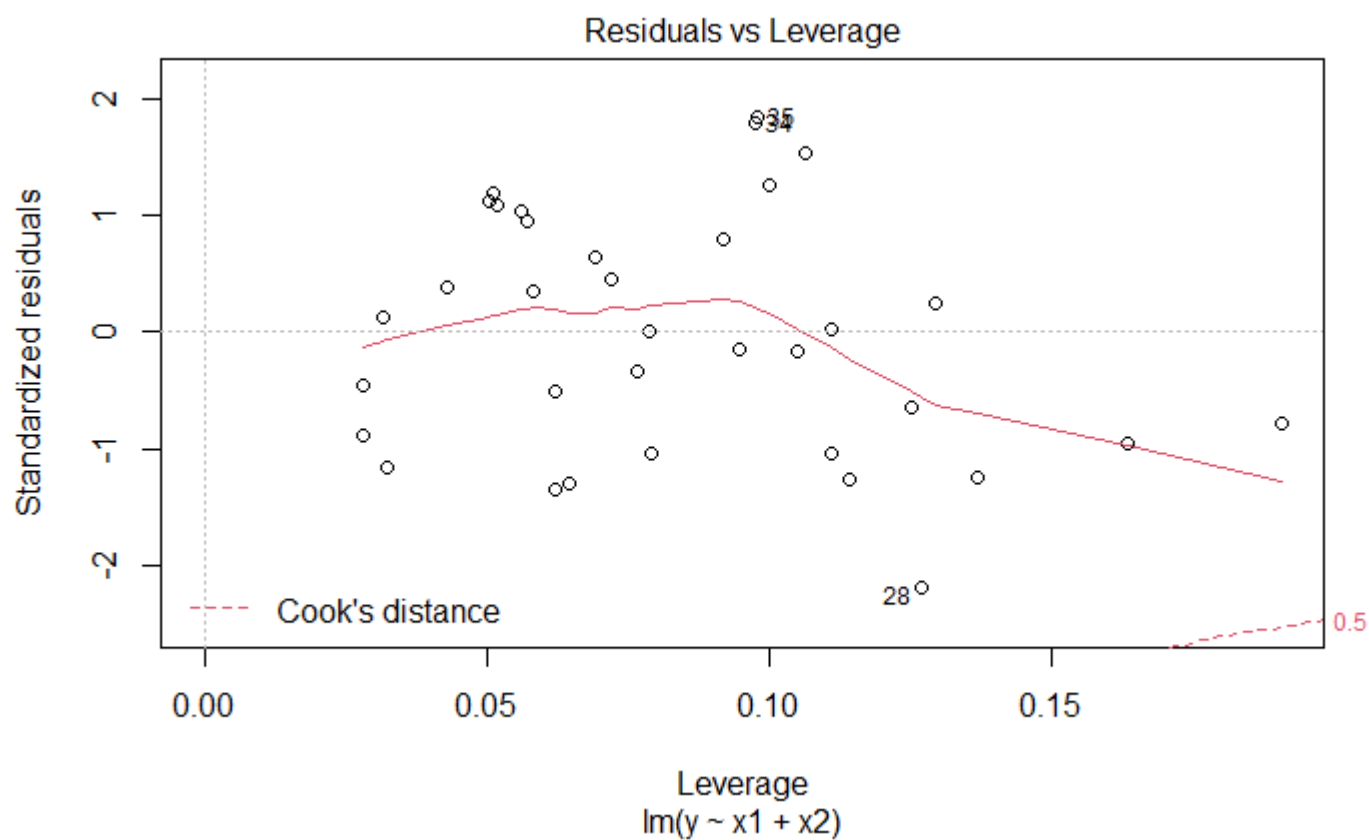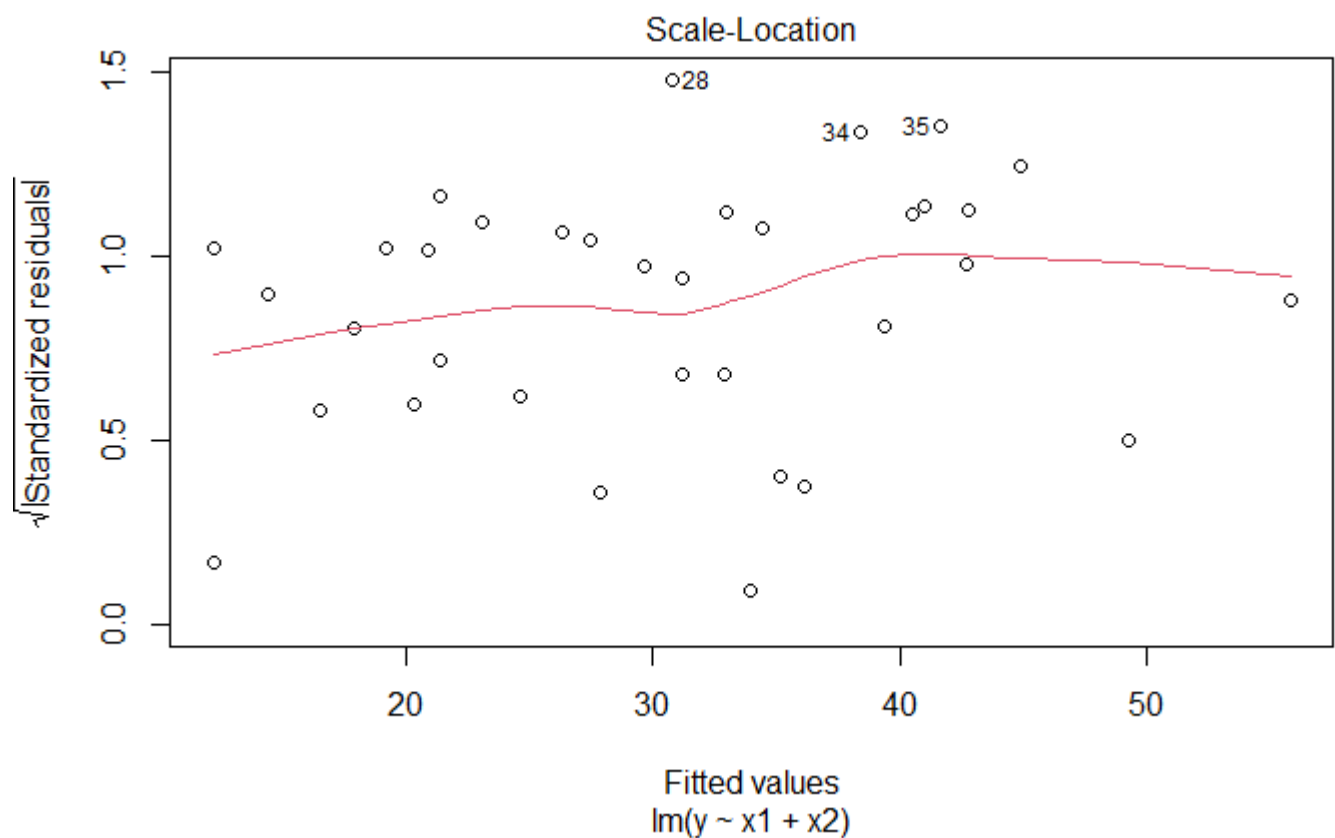
Clathrates

```
print("b) The graph shows that the distrobution is heavy tailed with above the line in lower per
centile and below the line in higer percentile.")
```

```
[1] "b) The graph shows that the distrobution is heavy tailed with above the line in lower perce
ntile and below the line in higer percentile."
```

```
plot(lm)
```

Residuals vs Fitted

Residuals

Fitted values
lm(y ~ x1 + x2)

Normal Q-Q

Standardized residuals

Theoretical Quantiles
lm(y ~ x1 + x2)

Scale-Location

Fitted values
lm(y ~ x1 + x2)

Residuals vs Leverage

Leverage
lm(y ~ x1 + x2)

Hide

```
print("c) The graph is an idea graph with the distribution of points centered arund the line how
ever point 34,35 and 28 seem to be outliers")
```

[1] "c) The graph is an idea graph with the distribution of points centered arund the line however point 34,35 and 28 seem to be outliers"

Hide

```
df
```

	x1 <dbl>	x2 <dbl>	y <dbl>
1	0.00	10	7.5
2	0.00	50	15.0
3	0.00	85	22.0
4	0.00	110	28.6
5	0.00	140	31.6
6	0.00	170	34.0
7	0.00	200	35.0
8	0.00	230	35.5
9	0.00	260	36.5
10	0.00	290	38.5

1-10 of 36 rows   Previous   **1**   2   3   4   Next

Hide

```
library(openxlsx)
xlsxFile <- system.file("extdata","data-table-B10.xlsx", package = "openxlsx")
df <- read.xlsx(xlsxFile = "data-table-B10.xlsx", sheet = 1, skipEmptyRows = FALSE)
lm <- lm(formula=y~x1+x2, data=df )
print(summary(lm))
```

```
Call:
lm(formula = y ~ x1 + x2, data = df)

Residuals:
     Min       1Q   Median       3Q      Max
-0.22179 -0.18102 -0.08439  0.09111  0.99908

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  0.679439   0.143532   4.734 3.20e-05 ***
x1           1.407331   0.196925   7.147 1.81e-08 ***
x2          -0.015629   0.001428 -10.948 3.67e-13 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.2593 on 37 degrees of freedom
Multiple R-squared:  0.822, Adjusted R-squared:  0.8124
F-statistic: 85.46 on 2 and 37 DF,  p-value: 1.351e-14
```
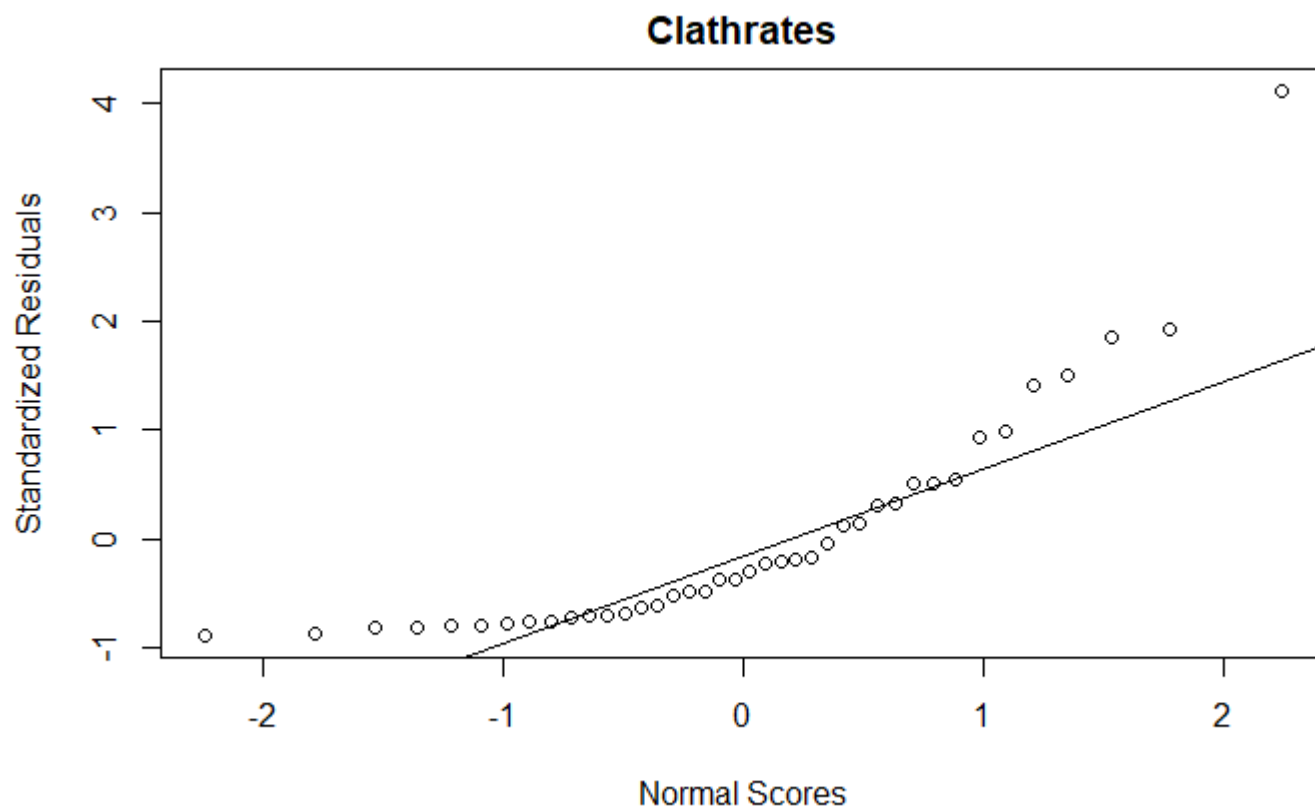
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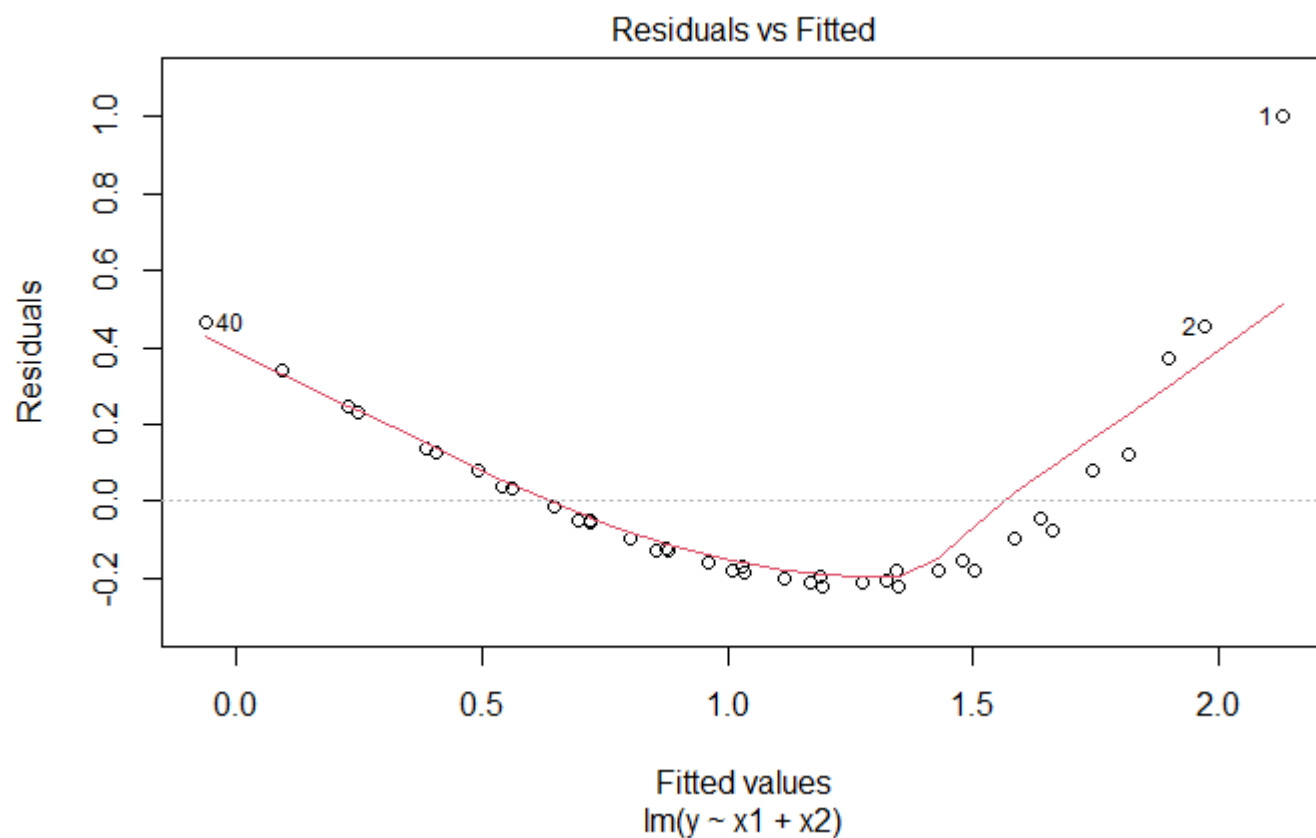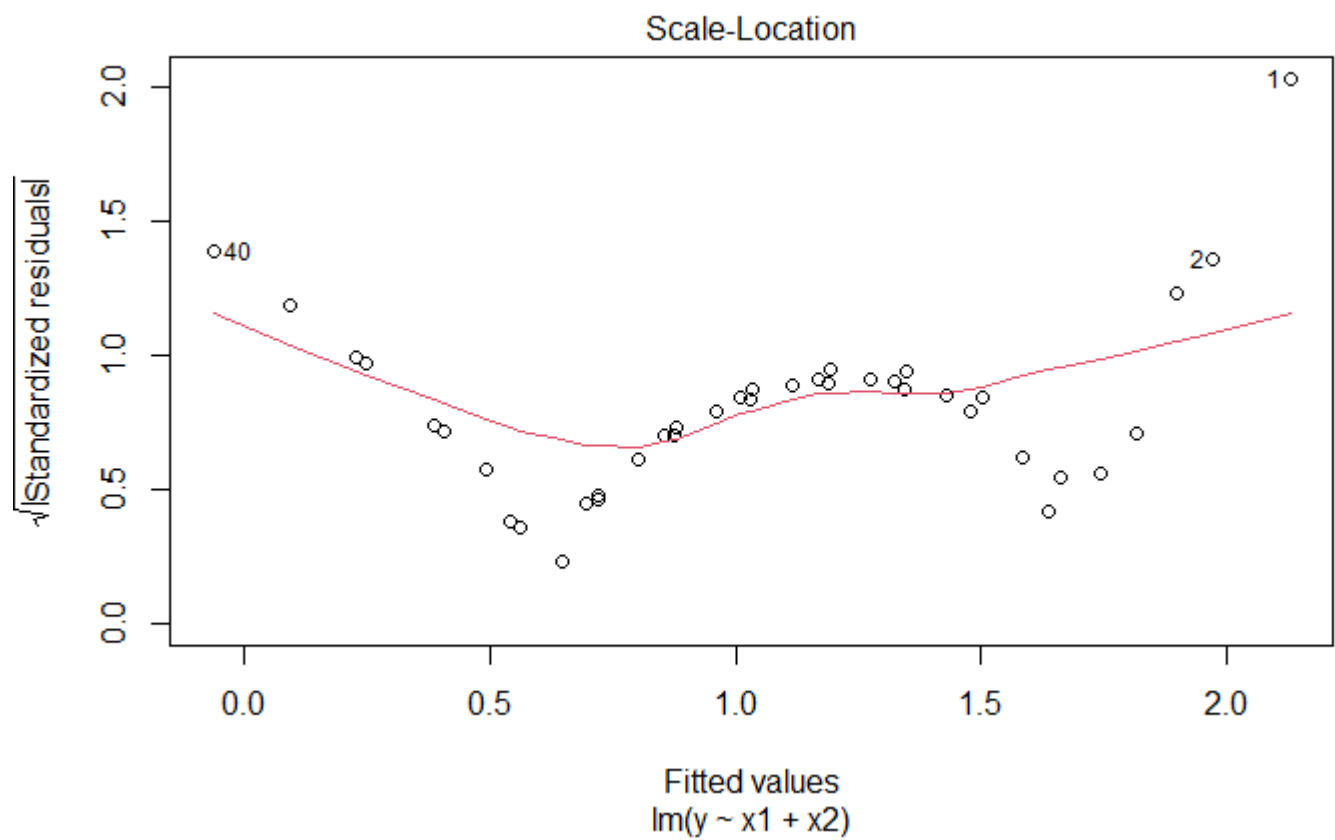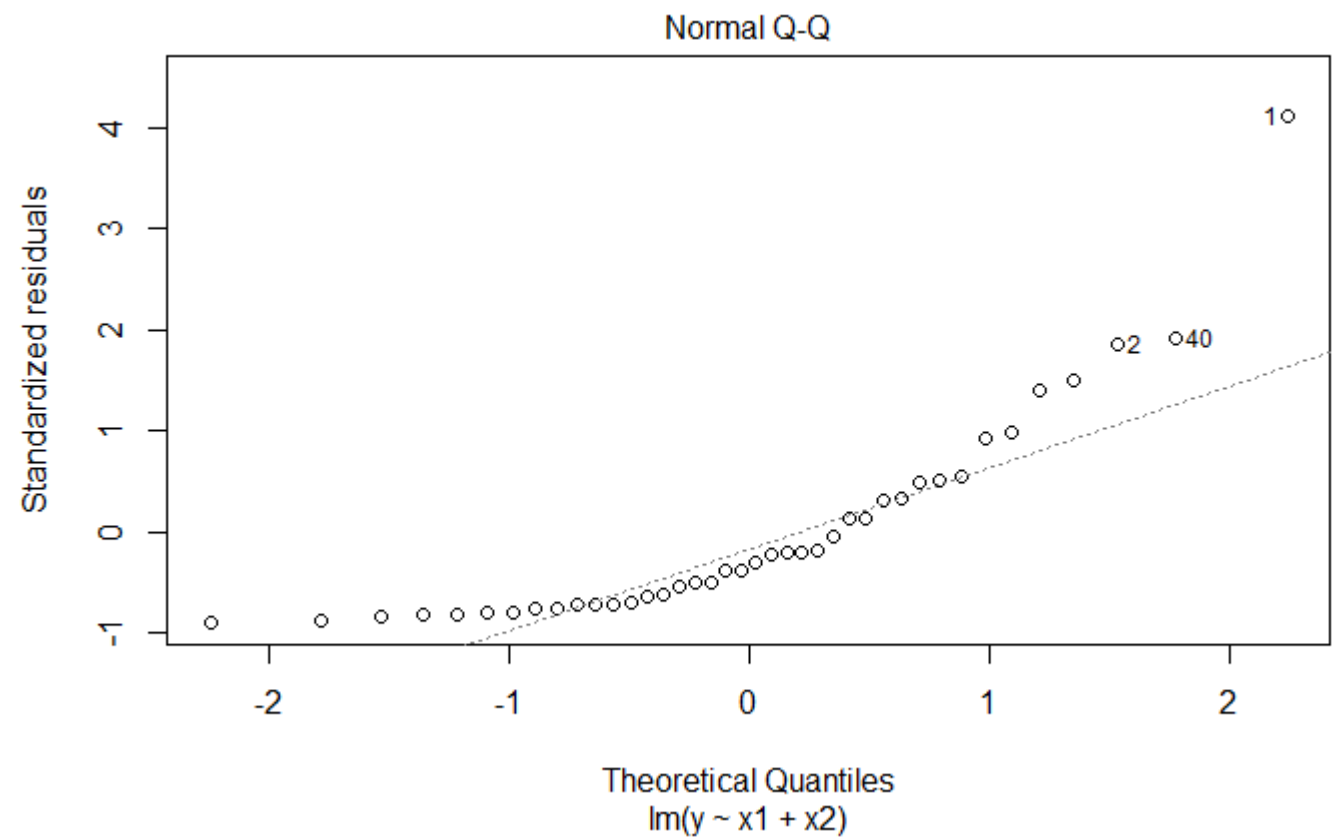

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print("b) The graph shows that the distrobution is heavy tailed with above the line in lower per
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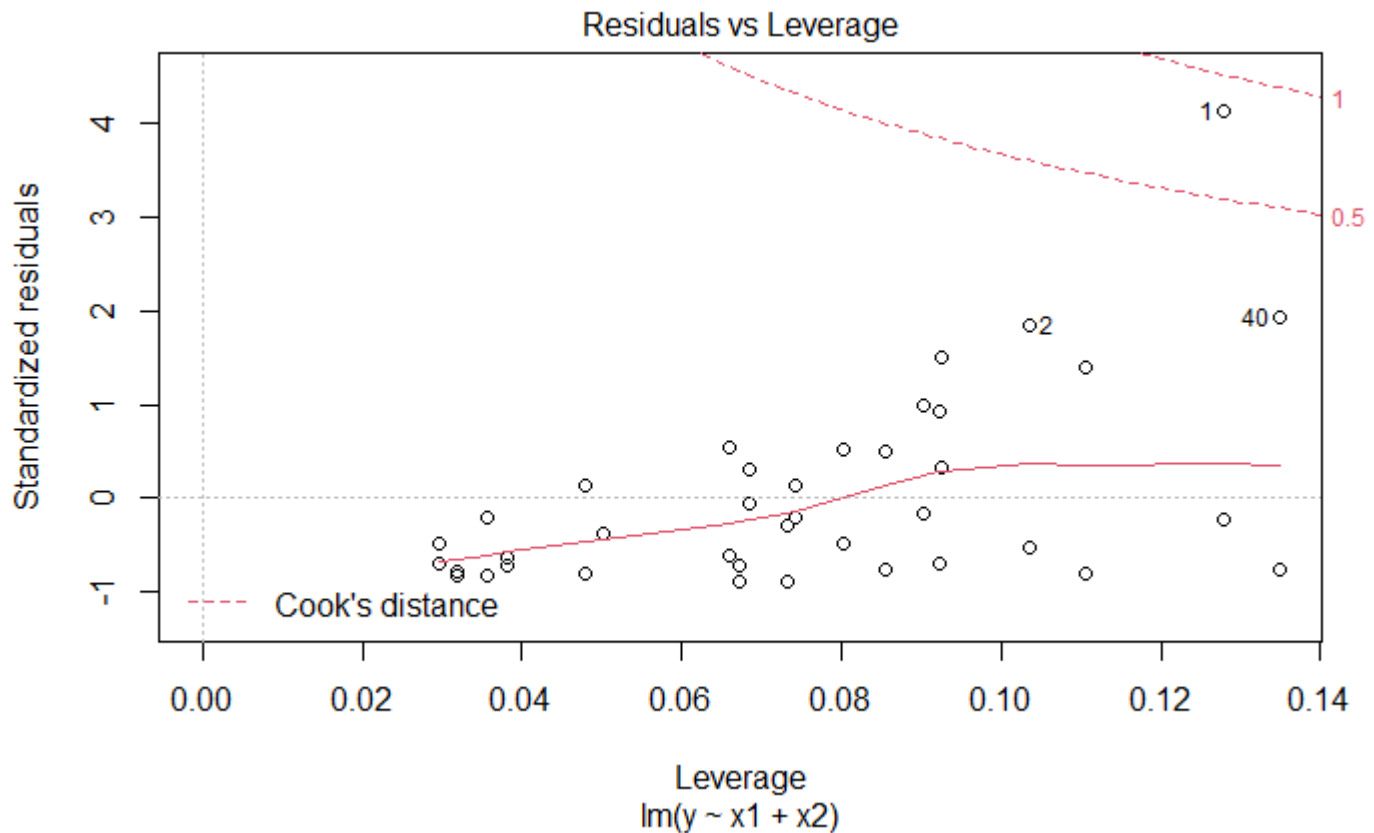
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plot(lm)
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Residuals vs Fitted

lm(y ~ x1 + x2)

Normal Q-Q

lm(y ~ x1 + x2)

Scale-Location

lm(y ~ x1 + x2)

Residuals vs Leverage

Standardized residuals vs Leverage
lm(y ~ x1 + x2)

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Add a new chunk by clicking the *Insert Chunk* button on the toolbar or by pressing *Ctrl+Alt+I*.

When you save the notebook, an HTML file containing the code and output will be saved alongside it (click the *Preview* button or press *Ctrl+Shift+K* to preview the HTML file).

The preview shows you a rendered HTML copy of the contents of the editor. Consequently, unlike *Knit*, *Preview* does not run any R code chunks. Instead, the output of the chunk when it was last run in the editor is displayed.