
title: "Flipped Assignment 04" author: "Md Ariful Haque Miah" date: "3/1/2022" output: pdf_document

```
# index as x
x<-c(16.7,17.1,18.2,18.1,17.2,18.2,16.0,17.2,18.0,17.2,16.9,17.1,18.2,17.3,17.5,16.6)
# days as y
y<-c(91,105,106,108,88,91,58,82,81,65,61,48,61,43,33,36)
length(x)
```

```
## [1] 16
```

```
# Answer to the ques no. a
plot(x,y,main="ScatterPlot of x and y")
```

```
# Answer to the ques no. b
model<-lm(y~x)
model
```

```
##
## Call:
## lm(formula = y ~ x)
##
## Coefficients:
## (Intercept)          x
##      -193.0         15.3
```

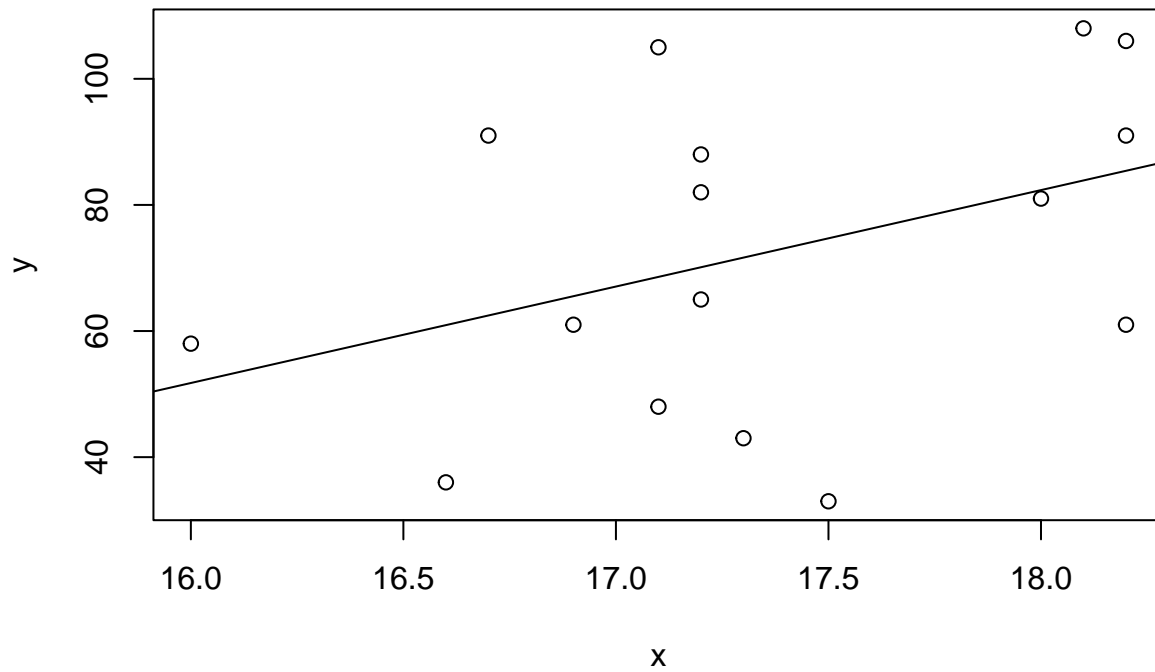
```
summary(model)
```

```
##
## Call:
## lm(formula = y ~ x)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -41.70 -21.54   2.12  18.56  36.42
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) -192.984    163.503  -1.180   0.258
## x             15.296     9.421   1.624   0.127
##
## Residual standard error: 23.79 on 14 degrees of freedom
## Multiple R-squared:  0.1585, Adjusted R-squared:  0.09835
## F-statistic: 2.636 on 1 and 14 DF,  p-value: 0.1267
```

```
# Slope beta1 = 15.3 and the intercept beta0 = -193
# Model equation y_hat= -193 + 15.3 * x
```

```
# Answer to the ques no. c
abline(model)
```

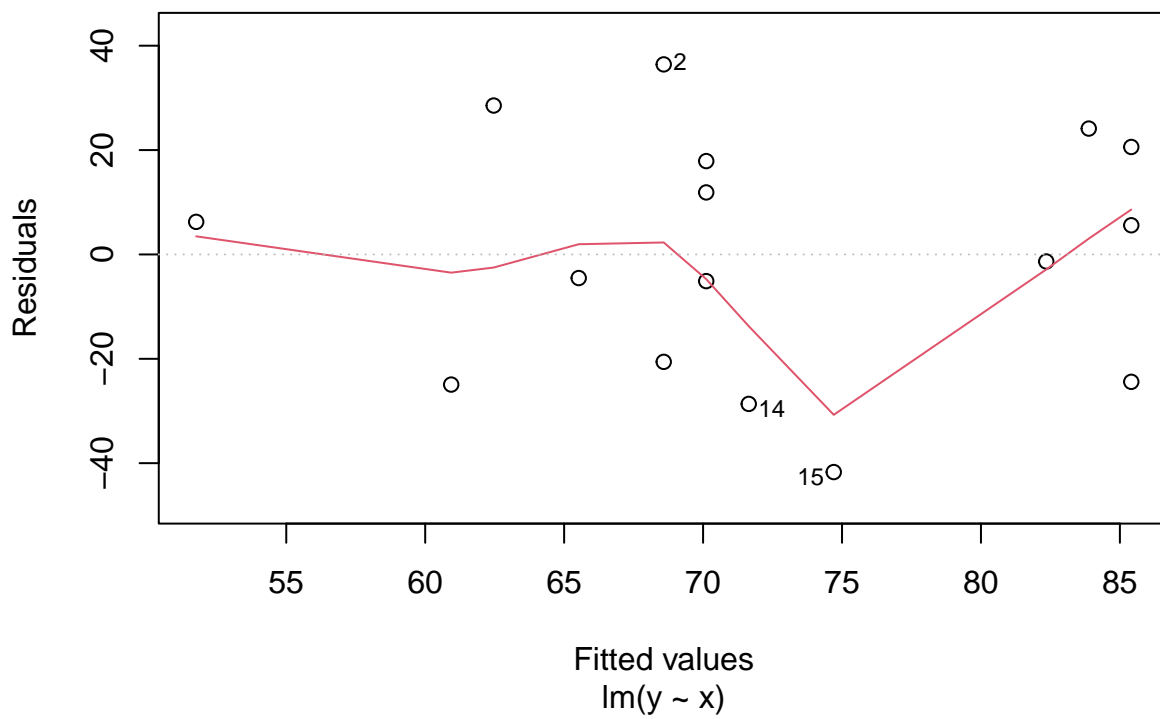
ScatterPlot of x and y

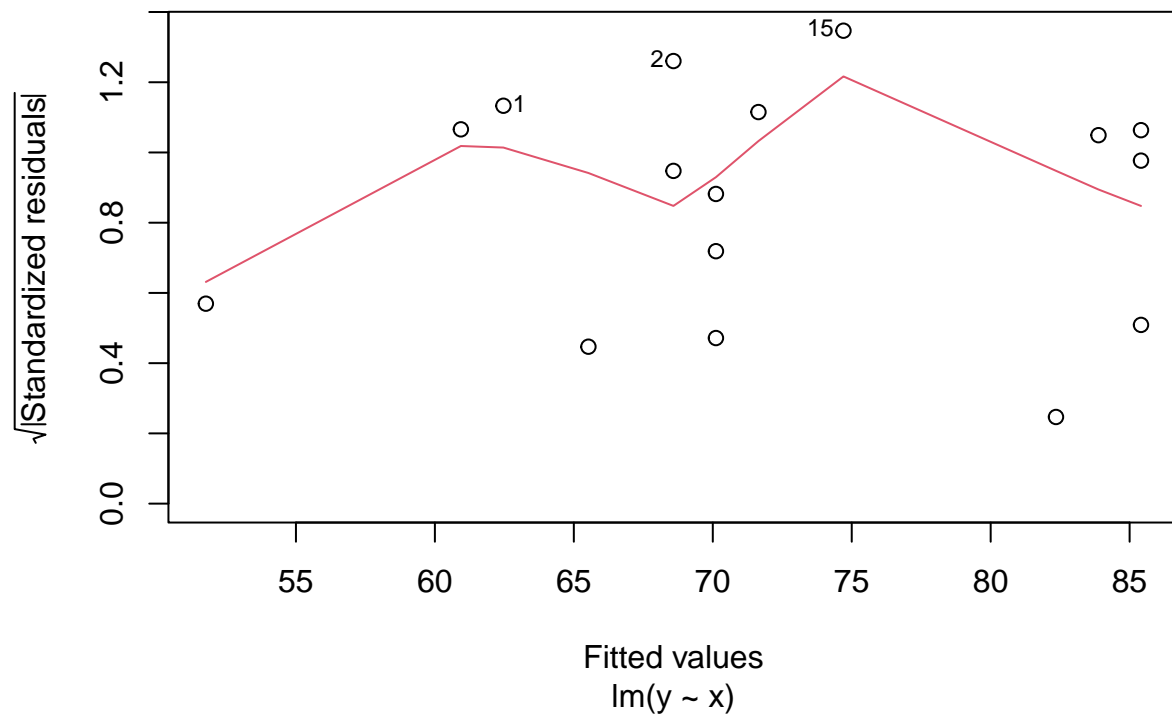
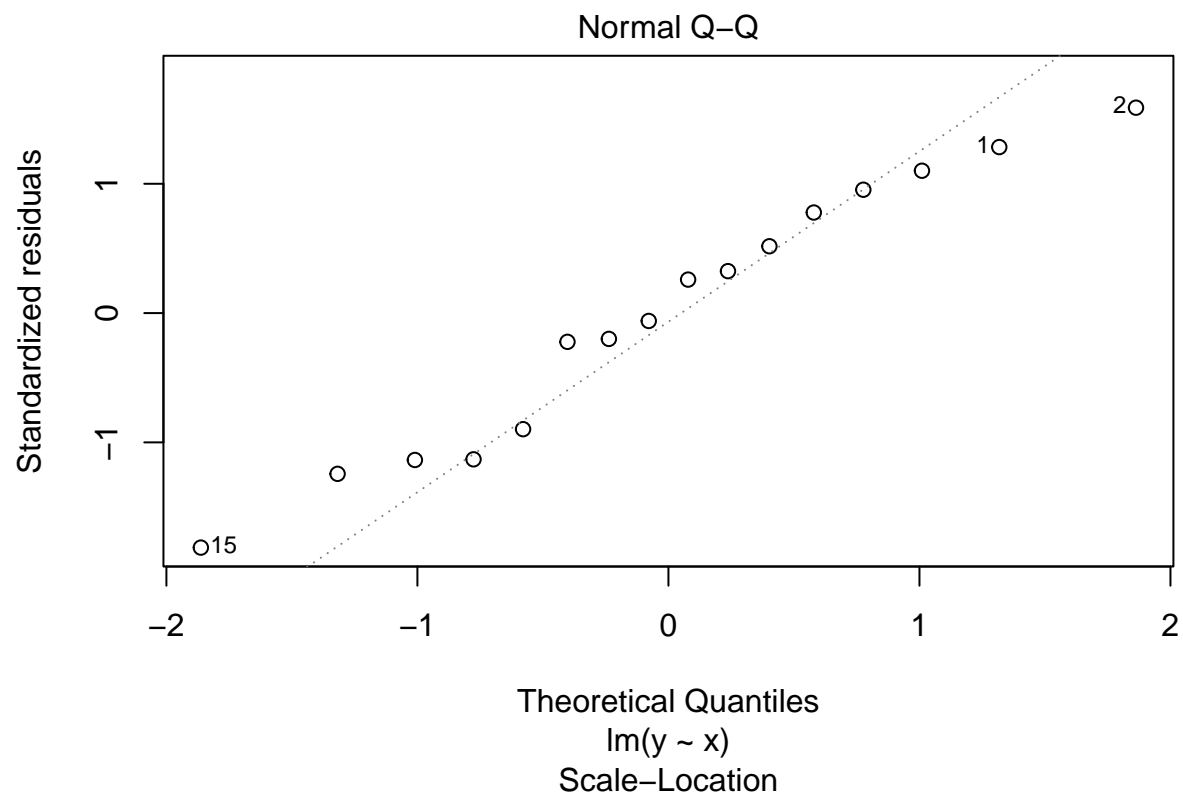


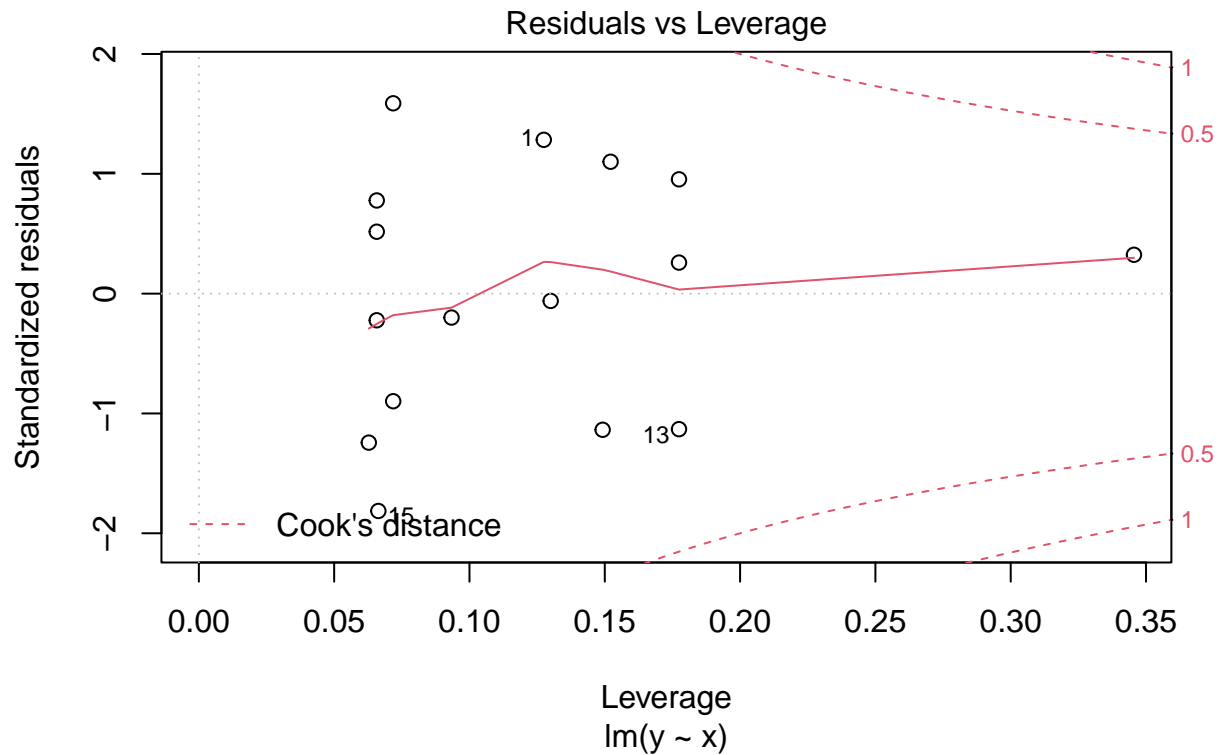
Answer to the ques no. d

```
plot(model)
```

Residuals vs Fitted







```
#Constant variance check: Residual vs. fitted value plot shows random scatter
# which indicates that variance is constant.
# Normality Check: From the Normal Q-Q plot we can see that the error is normally
# distributed
# from the fitted values vs. sqrt(standardized residuals) plot we see that all
# the data points distance between them is not too higher and within the value
# 1.5 so it seems that there will be no outliers or possibly observations 1,2
# and 15 may be outliers

# Answer to the ques no. e

# From the summary of the model, we see that abs value of t is 1.624 which is less
# than the value of t[alpha/2,n-2] which is 2.144 which does not reject the null
# hypothesis beta1 = 0 hence the regression is not significant
```