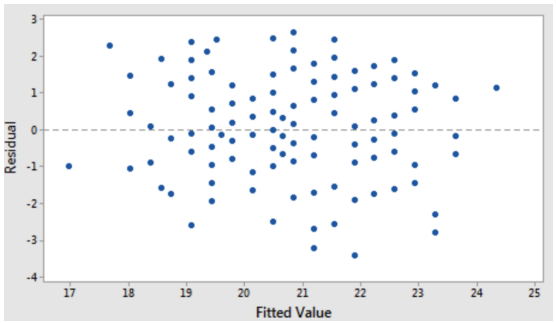
1. Consider the fitted against residuals plot below:

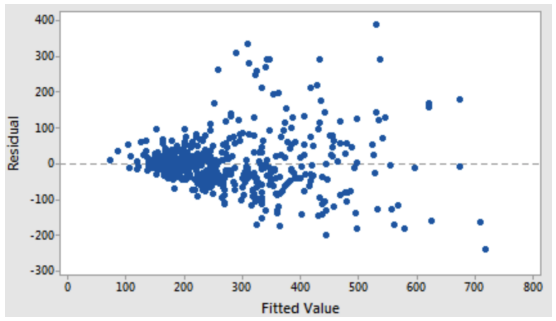


What can you say about the constant variance assumption?

(X) The constant variance assumption seems to be satisfied.
( ) The constant variance assumption seems to be violated.

Justification: The points are randomly scattered, so there are no departures from the constant variance assumption.

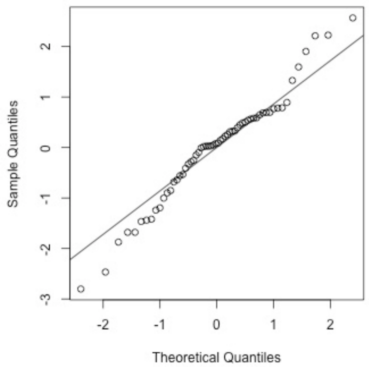
2. Consider the fitted against residuals plot below:



What can you say about the constant variance assumption?

( ) The constant variance assumption seems to be satisfied.
(X) The constant variance assumption seems to be violated.
Justification: There is a fan-shaped pattern and the variance seems to increase.

3. Consider the QQ plot below:

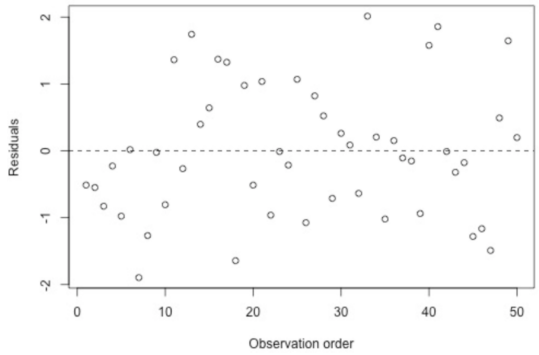


What can you say about the Normality assumption?

( ) The Normality assumption is satisfied.
(X) The Normality assumption is violated.

Justification: The points are not a straight line. The tails of the empirical distribution are heavier than the tails of the normal distribution, so the normality assumption is not satisfied.

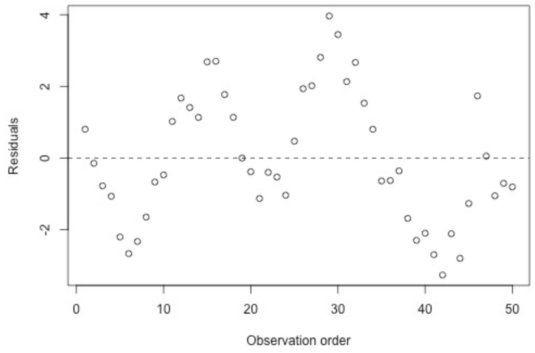
4. Consider the residuals against order (time) plot below (also known as sequence plot):



What can you say about the serial correlation of the residuals?

(X) The residuals seem to be uncorrelated.
( ) The residuals seem to be correlated.
Justification: The points are randomly scattered, so there is no serial correlation.

5. Consider the residuals against order (time) plot below (also known as sequence plot):



What can you say about the serial correlation of the residuals?

( ) The residuals seem to be uncorrelated.
(X) The residuals seem to be correlated.
Justification: The points seem to have a sinusoidal pattern, so serial correlation is probably present.

6. According to the Studentized Breusch-Pagan test from the lmtest library, we get the following R results after fitting the following model to the fat data set in the faraway library:

$$mod4p < -lm(brozek\ age + weight + height + abdom, data = fat)$$

```
 studentized Breusch-Pagan test    data:
mod4p  BP = 0.32274, df = 4, p-value =
0.9883
```

According to these results we can conclude:

( ) The homoscedasticity hypothesis is rejected.
(X) We fail to reject the homoscedasticity hypothesis.
( ) We fail to reject the independent errors hypothesis.
( ) The residuals are independent.

Justification: The p-value is high, se we fail to reject the null hypothesis of constant variance.