

Normality assumption for log value price variable:

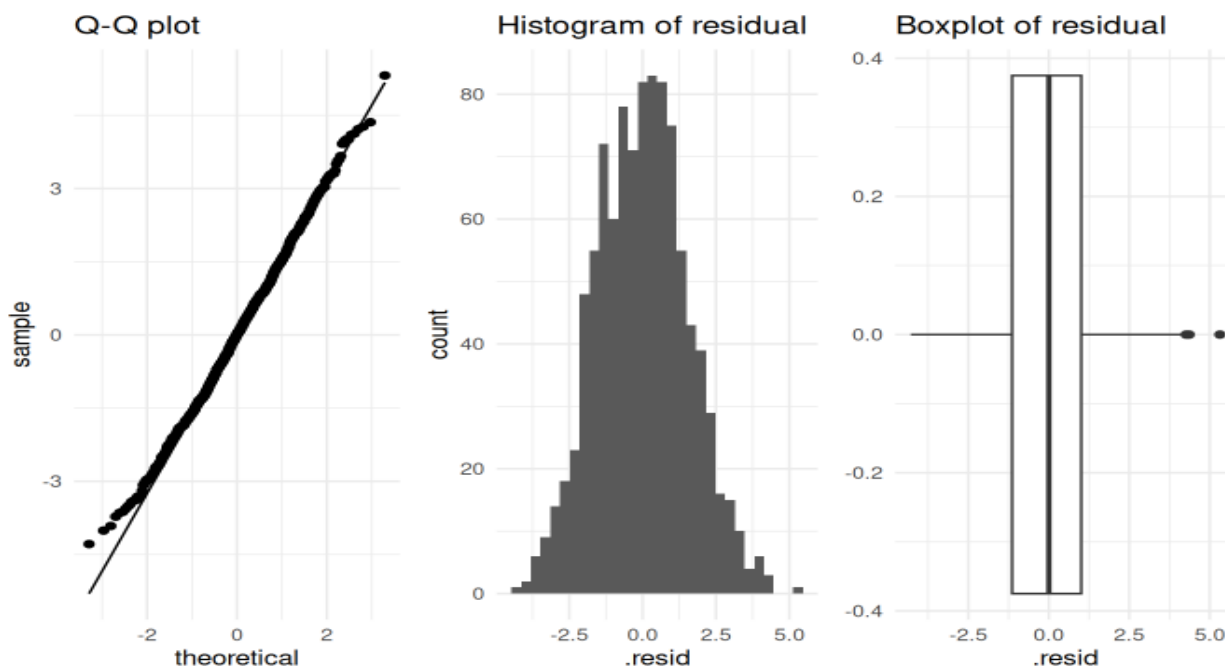
Several diagnostic plots and statistical tests were employed to analyze the normality assumption for the variable Log value price. The QQ plot displayed a straight diagonal line, indicating that the residuals follow a normal distribution. Additionally, the histogram showed a distribution that closely resembled a normal distribution, albeit with some outliers observed on the left side. Furthermore, the boxplot revealed the presence of outliers on the left side. In addition, when conducting the Shapiro-Wilk test, the obtained p-value was 0.243. This p-value is higher than the conventional significance level of 0.05, indicating insufficient evidence to reject the null hypothesis. Therefore, we conclude that the errors in the regression model, represented by the residuals, are normally distributed. Consequently, this suggests that the assumption of normality is not violated for the predictor variable Log value price, enhancing the reliability of the regression analysis and its conclusions.

```
```{r}
QQ-plot for this model
p3 <- ggplot(data = love_lm1_aug, aes(sample = .resid)) +
 geom_qq_line() +
 geom_qq() +
 theme_minimal() +
 ggtitle("Q-Q plot")

Create a histogram of the residuals
p4 <- ggplot(data = love_lm1_aug, aes(x = .resid)) +
 geom_histogram() +
 theme_minimal() +
 ggtitle("Histogram of residual")

Create a boxplot of the residuals
p5 <- ggplot(data = love_lm1_aug, aes(x = .resid)) +
 geom_boxplot() +
 theme_minimal() +
 ggtitle("Boxplot of residual") plot_grid(p3, p4, p5, nrow = 1)
```
```

QQ plot, histogram and boxplot for log value price



Shapiro-Wilks test:

H_0 : errors are normally distributed

H_A : errors are NOT normally distributed

```
```{r}
shapiro.test(love_lm1$residuals)
```
```

Shapiro-Wilk normality test

```
data: love_lm1$residuals
W = 0.9979, p-value = 0.2438
```

Because the p-value is > 0.05 , fail to reject H_0 and conclude the errors are normally distributed.