d) We do not appear to have an adequate model. The pattern evident in the time series plot of the residuals reveals a misspecification of the functional form and/or non-constant variance. This means that there is observable pattern, and the variance seems inconstant. The departure from a straight line relationship in the qq plot is in contradiction to the assumption of normal errors. This means that there is no linear relationship and so it does not satisfy the assumption of Normality of the Errors. When observing the correlogram, we find that there exists significant positive autocorrelation at lag 1. Thus, it does not satisfy the assumption of independence.
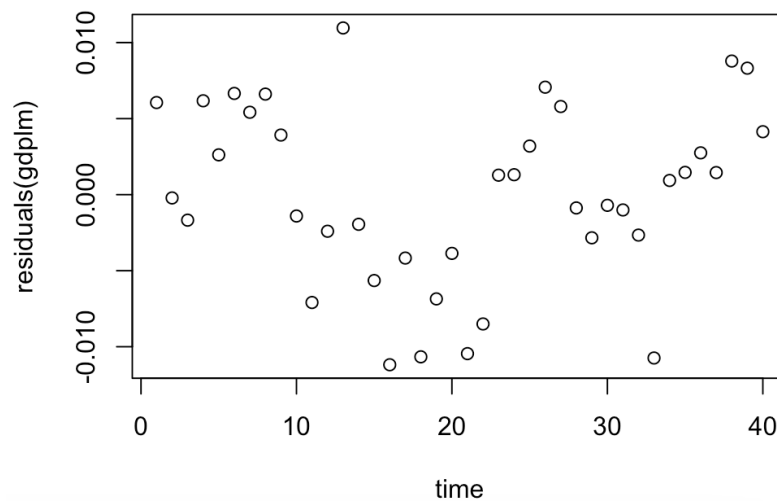
```
# d)
plot(GDP_US$time,residuals(gdplm),xlab="time",main="Time Series Plot of the Residuals")
qqnorm(residuals(gdplm))
acf(residuals(gdplm))
```
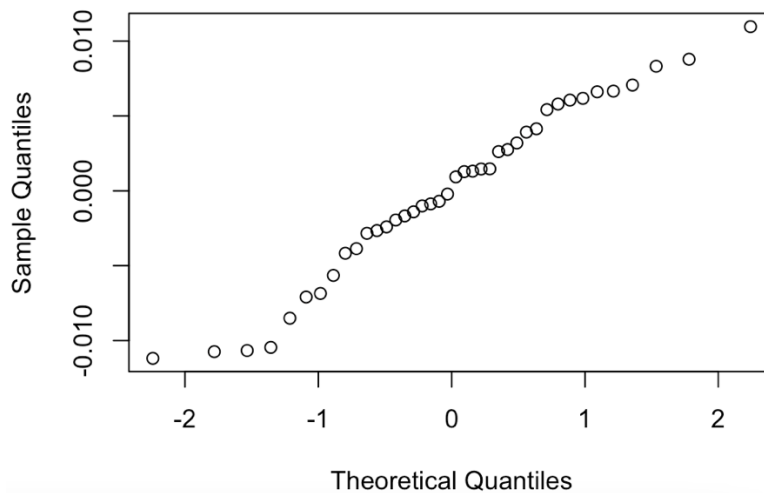

Time Series Plot of the Residuals

Normal Q-Q Plot

Series residuals(gdplm)