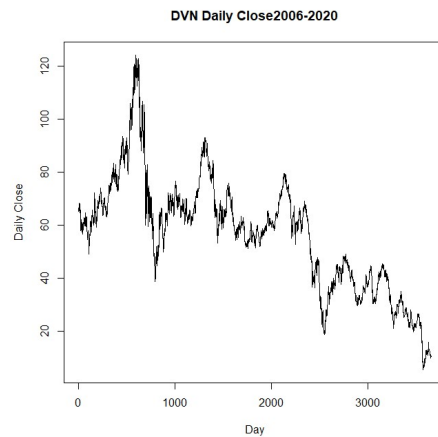**Exercise 2.1**

Exercise 2.2

a. This is a time series plot of the closing daily prices of DVN. This doesn't tell much as it doesn't explain percent change.

```
plot(dvn$Close,main="DVN Daily Close2006-2020",xlab="Day",ylab="Daily Close",type="l")
```


b. This is a time series plot of the daily returns of DVN from 2006-2020. This shows us the percent change of daily closing prices.

```
plot(dvn$DVNret,main="DVN Daily Return 2006-2020",xlab="Day",ylab="Daily Close",type="l")
```
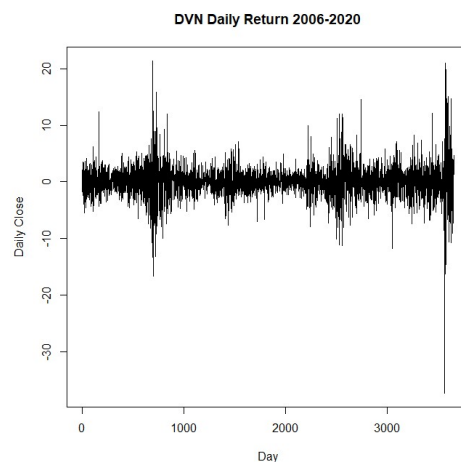

c. The two different plots point out the differences between the two. The daily close plot provided in the first example does not provide a stable underlying system over time. The daily return plot In the second example displays an underly probability distribution of the daily return that is stable according to the central value, μ.

d. I believe it is, because the percentage of returns between 2006 and 2020 shows that the standard deviation of the stock shift over time. The standard deviation of returns is a measure of stock risk.
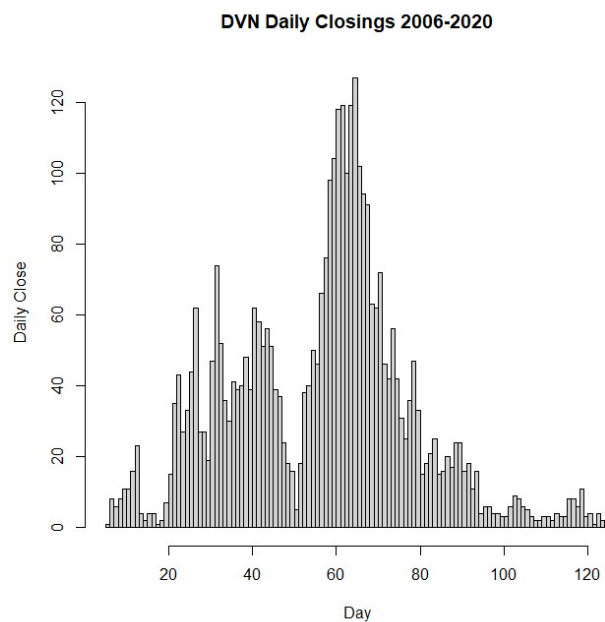

Exercise 2.3

a. This histogram displays the daily close of DVN stock from 2006-2020

```
hist(dvn$Close, main="DVN Daily Closings 2006-2020",xlab="Day",ylab="Daily Close")
```
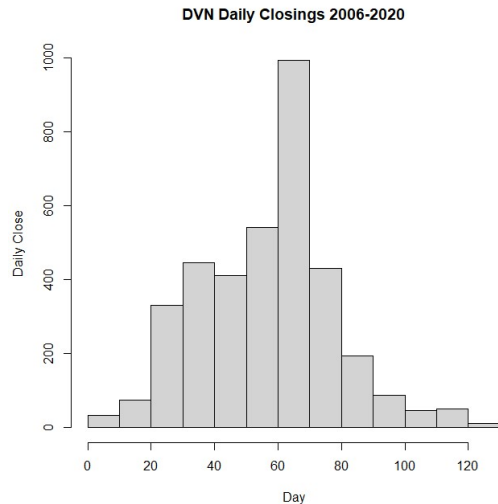

b. This histogram displays the daily close of DVN stock from 2006-2020 with 100 breaks to increase the bins.

```
hist(dvn$Close, main="DVN Daily Closings 2006-2020",xlab="Day",ylab="Daily Close", breaks = 100)
```
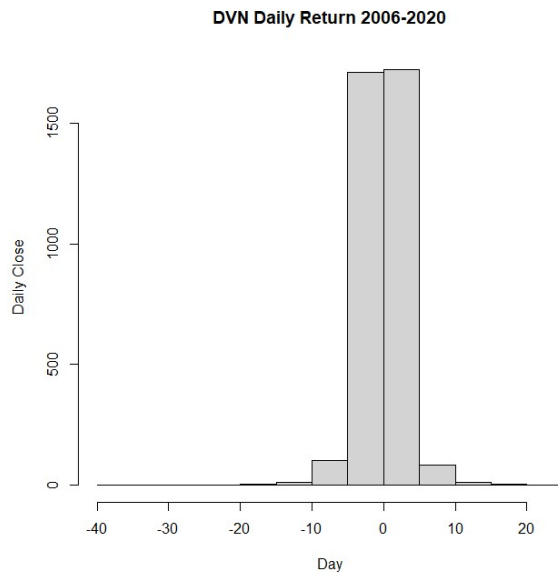

c. Increasing the number of bins provides a better visual accuracy of the data in a histogram. It helps to produce a "mound-shape" curve to the histogram.
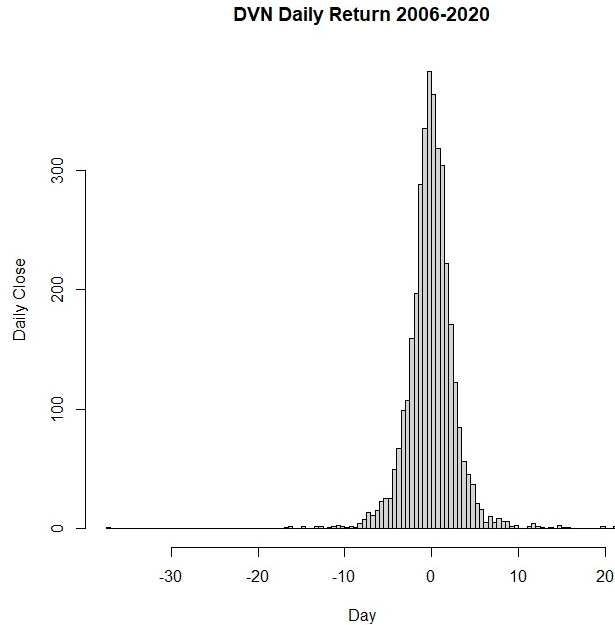
Exercise 2.4

a. This is a histogram with the default amount of breaks for daily returns

```
hist(dvn$DVNret,main="DVN Daily Return 2006-2020",xlab="Day",ylab="Daily Close")
```


DVN Daily Return 2006-2020

b. This histogram displays the daily return with an increase of bins (100) using the breaks argument

```
hist(dvn$DVNret,main="DVN Daily Return 2006-2020",xlab="Day",ylab="Daily Close",breaks=100)
```
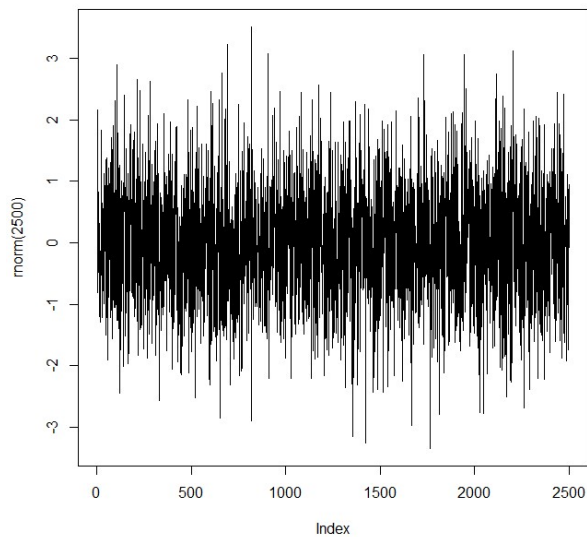

DVN Daily Return 2006-2020

c. The increasing the bins increases the accuracy of the data and produces more of a bell shape in the diagram

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Extra Credit Exercises

Exercise 2.5

   a. This is a randomly generated standard normal deviate
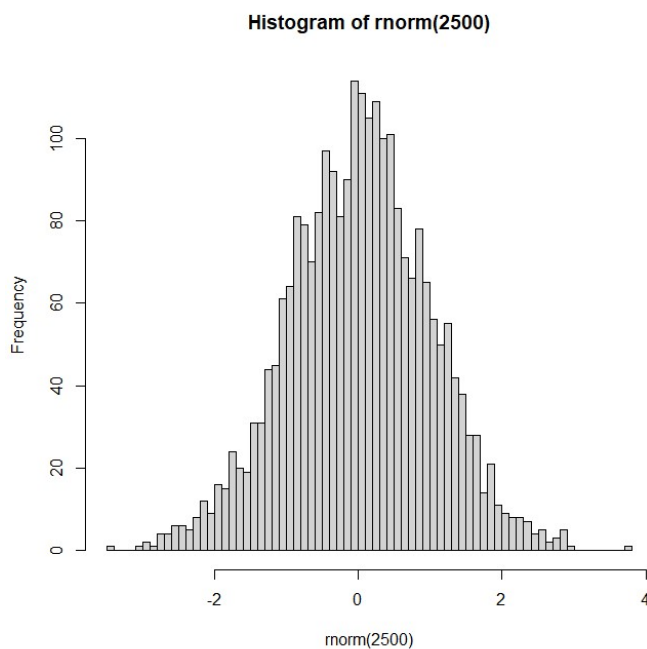
```
plot(rnorm(2500),type="l")
```


   b.
   c. Using randomly generated points, my histogram appears to be a bell curve

```
hist(rnorm(2500), breaks=100)
```


Histogram of rnorm(2500)

Exercise 2.6