FML Assignment 1

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#source: Downloaded the data set from kaggle.https://www.kaggle.com/datasets/iamsouravbanerjee/nifty50-stocks-dataset/code?resource=download.

#Importing the dataset into R

```
#install.packages("readr")
#This Library can be used to load the package
library(readr)
stocks = read.csv("C:/Users/surya/OneDrive/Desktop/FML/Assignment 1/National_Stock_Exchange_of_India_Ltd.csv")
#Printing the head of dataset
head(stocks)
```

```
##        Symbol      Open      High       Low       LTP     Chng X..Chng
## 1 ADANIPORTS       750       766    713.25       715   -47.45   -6.22
## 2 ASIANPAINT  3,101.00  3,167.35  3,091.00  3,138.00    -6.25   -0.20
## 3   AXISBANK       669     674.9    660.45       661   -18.90   -2.78
## 4 BAJAJ-AUTO  3,370.00  3,383.50  3,320.00  3,335.00   -56.70   -1.67
## 5 BAJAJFINSV 17,200.00 17,237.20 16,610.00 16,684.00  -684.85   -3.94
## 6 BAJFINANCE  7,021.00  7,047.90  6,775.00  6,780.00  -345.80   -4.85
##   Volume..lacs. Turnover..crs..    X52w.H   X52w.L X365.d...chng X30.d...chng
## 1         72.20          532.63       901    384.4         79.22        -4.65
## 2         10.29          322.53  3,505.00 2,117.15         45.66         5.66
## 3        102.53             684     866.9    568.4         10.19       -21.49
## 4          3.42          114.59  4,361.40 3,041.00          9.30       -12.05
## 5          3.42          576.79 19,325.00 8,273.70         91.38        -9.10
## 6         16.89        1,161.63  8,050.00 4,362.00         44.57       -13.69
```

#Descriptive Statistics: The data summary provided by descriptive statistics contains the mean, median, mode, range, and standard deviation.This allows us to determine the most common and average numbers, which aids in our comprehension of the data.

```
#The below functions gives the average of the column Chng
mean(stocks$Chng)
```

```
## [1] -70.133
```

```
#The below function shows the data types of the variables that are in the dataset
str(stocks)
```

```
## 'data.frame':    50 obs. of  13 variables:
##  $ Symbol       : chr  "ADANIPORTS" "ASIANPAINT" "AXISBANK" "BAJAJ-AUTO" ...
##  $ Open         : chr  "750" "3,101.00" "669" "3,370.00" ...
##  $ High         : chr  "766" "3,167.35" "674.9" "3,383.50" ...
##  $ Low          : chr  "713.25" "3,091.00" "660.45" "3,320.00" ...
##  $ LTP          : chr  "715" "3,138.00" "661" "3,335.00" ...
##  $ Chng         : num  -47.45 -6.25 -18.9 -56.7 -684.85 ...
##  $ X..Chng      : num  -6.22 -0.2 -2.78 -1.67 -3.94 -4.85 -3.83 -5.67 -0.19 7.23 ...
##  $ Volume..lacs.: num  72.2 10.29 102.53 3.42 3.42 ...
##  $ Turnover..crs..: chr  "532.63" "322.53" "684" "114.59" ...
##  $ X52w.H       : chr  "901" "3,505.00" "866.9" "4,361.40" ...
##  $ X52w.L       : chr  "384.4" "2,117.15" "568.4" "3,041.00" ...
##  $ X365.d...chng : num  79.2 45.7 10.2 9.3 91.4 ...
##  $ X30.d...chng  : num  -4.65 5.66 -21.49 -12.05 -9.1 ...
```

```
#summary can be used to print descriptive statistics such as mean,medium,mode on given variables
summary(stocks)
```

```
##     Symbol              Open               High               Low
##  Length:50          Length:50          Length:50          Length:50
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##
##
##
##     LTP                 Chng             X..Chng          Volume..lacs.
##  Length:50          Min.   :-770.500   Min.   :-7.480   Min.   :  0.30
##  Class :character   1st Qu.: -66.775   1st Qu.:-4.527   1st Qu.: 13.47
##  Mode  :character   Median : -29.975   Median :-3.300   Median : 30.75
##                     Mean   : -70.133   Mean   :-2.930   Mean   : 71.27
##                     3rd Qu.:  -7.812   3rd Qu.:-1.933   3rd Qu.: 99.20
##                     Max.   : 158.400   Max.   : 7.230   Max.   :517.88
##  Turnover..crs..       X52w.H             X52w.L           X365.d...chng
##  Length:50          Length:50          Length:50          Min.   :-16.020
##  Class :character   Class :character   Class :character   1st Qu.:  9.375
##  Mode  :character   Mode  :character   Mode  :character   Median : 35.860
##                                                           Mean   : 41.203
##                                                           3rd Qu.: 65.942
##                                                           Max.   :167.950
##   X30.d...chng
##  Min.   :-22.080
##  1st Qu.: -9.665
##  Median : -5.705
##  Mean   : -5.997
##  3rd Qu.: -2.223
##  Max.   :  6.360
```

#Here I used the log transformation for the variable volume.

```
#To calculate log transformation
log_value <- log(stocks$Volume..lacs.)
log_value
```

```
##  [1]   4.2794400  2.3311725  4.6301554  1.2296406  1.2296406  2.8267217
##  [7]   4.7133966  4.6074675  1.3164082  4.9739022  4.7732238  2.7542975
## [13]   2.3721112  1.7137979  2.0122328  3.0942192  3.5124406  4.5338890
## [19]   3.1077208  1.9242487  4.9989675  3.1990812  5.2463923  4.2115348
## [25]   3.8053283  4.3470469  5.5994215  4.4911052  3.2763897  3.3311325
## [31]   3.6722418  2.4466854 -0.5798185  4.8921520  5.4439749  4.5654934
## [37]   4.2870289  3.1424267  5.5723821 -1.2039728  3.9950766  3.2646137
## [43]   6.2497436  4.6677693  2.9657884  2.7226104  2.5564518  0.9783261
## [49]   3.2116498  3.7230393
```

#This is the histogram of an quantitative variable that is showing the stocks changing in a year.

```
hist(stocks$X365.d...chng)
```


Histogram of stocks$X365.d...chng
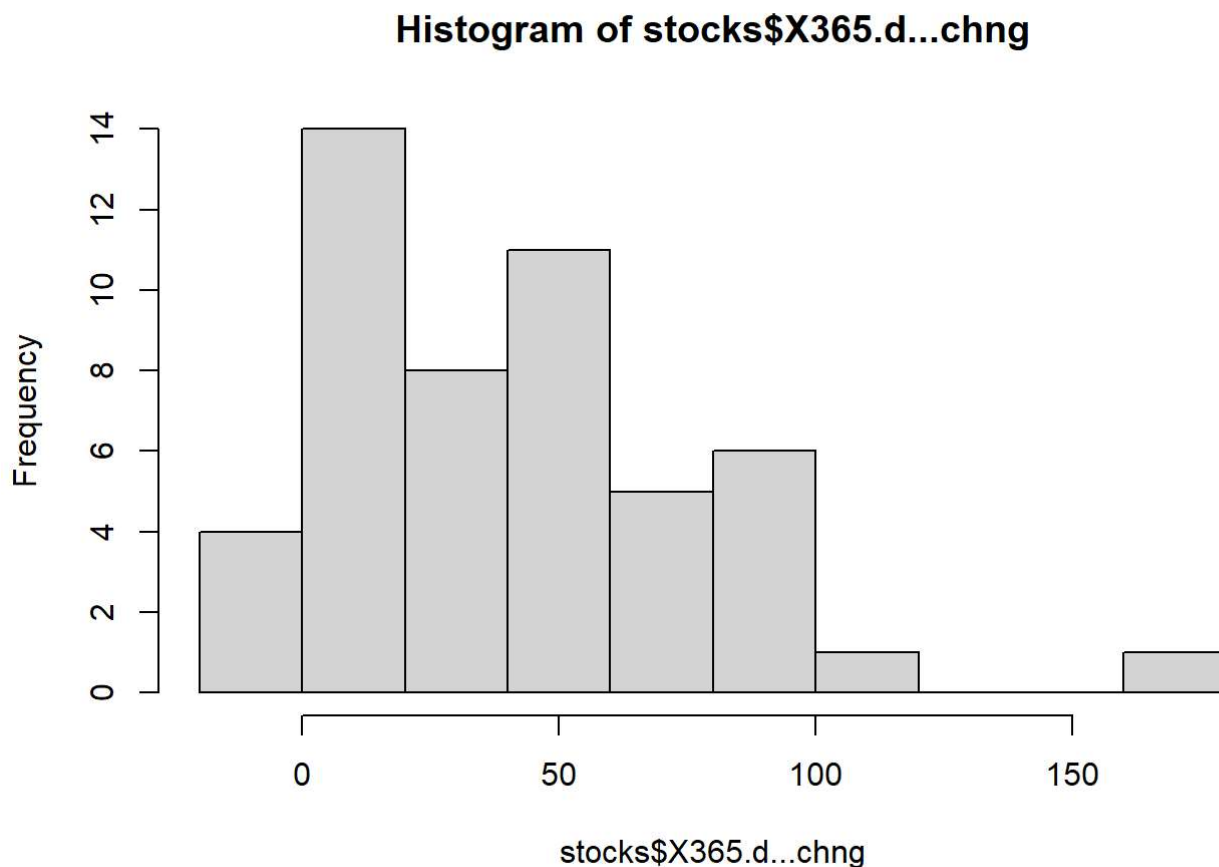
#The plot below shows the scatter plot between Volume in lakhs and Percentage of Change variables.

```
plot(x = stocks$Volume..lacs.,
     y = stocks$X365.d...chng,
     xlab = "Volume in lakhs",
     ylab= "Percentage of Change",
     main = "Stock Price Variation per Year",
     pch = 19,
     col = "red"
     )
```

Stock Price Variation per Year