**R Assignment**

**Stock Analyses using Basic Statistics**

**Step 1**: Using R, download NIFTY 50 data from yahoo finance/google/NSE (This should include all 50 stocks and Nifty Index – in all 51 data sets). Please download the data for last 5 years starting from 1st January 2012 till date.

**Step 2**: Process the data in R and extract the closing prices for all the fifty companies and the Nifty. The data should follow the following format,

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Closing price for 1st company | Closing price for 2nd company | Closing price for  3rd company | …… | Closing price for  the 50th company |

**Step 3**: Find the mean, median, mode, standard deviation, variance, standard error, max value, minimum value, IQR (Inter Quantile Range), quantile range from 0 to 100% in steps of 10, skewness, kurtosis and plot the density function for each time series.

**Step 4**: Find out if the distribution is log normal. [Assumption: All stocks are assumed to be log normally distributed] –

(Note - There are several distribution fitting distribution packages in R. Please explore some of them).

**Step 5**: Plot cumulative distribution function for each time series.

**Step 6**: Find the log returns.

[**Note**:

Say if P1 is the price of the stock previous day and P2 is the today’s price of the stock, then log returns = log(P2/P1) to the base e.]

**Step 7**: Apply hypothesis testing to verify if the distribution fitting is good or not.

**Step 8**: Find correlation and variance covariance matrix (both for the price series and the return series) and analyze what the matrices indicate.

Note- please use Corrplot package is understand various excellent representations of the correlation matrix.

**Step 9**: Write a one-page summary of your inference from the processed data set focusing on which stocks are doing well and which stocks are not doing well. Which are the stocks you would recommend to be bought for good returns.