Indian Stock Market - Nifty 100

Group 1: Marwan, Max, Skylar, Rachel, James

11/16/2022

~Link to GitHub Repo~

```
myFiles <- list.files(path=path, pattern="*.csv",)
for(i in 1:length(myFiles)) {
  name<- str_split(myFiles[i], "_")[[1]][1]
  assign(name, read.csv(myFiles[i], nrows=1000))} #n=1000 for presentation purposes
```

```
##                       date  close high    low open volume
## 1 2015-02-02 10:18:00+05:30 1544.0 1545 1543.1 1545    220
## 2 2015-02-02 10:19:00+05:30 1543.7 1544 1543.0 1544     29
```

```
##                       date close high low open volume
## 1 2018-06-18 10:47:00+05:30    31   31  31   31   1250
## 2 2018-06-18 10:48:00+05:30    31   31  31   31   4715
```

Our dataset contains information from **100 stock and 2 indices** (will be excluded) from the Indian Stock Market (Jan 2015 - Feb 2022). Each observation is a 1 minute interval. There are many other variables created that provide deeper insight to how the stocks perform, but we choose to not use these indices.

We focused on 6 variables of the dataset, listed below:

1) **Date** - Date of observation
2) **Open** - Open price of the index
3) **High** - High price of the index
4) **Low** - Low price of the index
5) **Close** - Close price of the index
6) **Volume** - Number of shares traded

Our plan for each stock file:

- Filter only the 6 columns of interest and sort by date
- Create day open & close prices
- Calculate a 50 moving average
- Find the different lengths of days when closing price is higher than the MA price
- Calculate a mean/median duration

Best performing stock? Comparing the 100 mean/median durations for **highest values**

Stationarity? **Augmented Dickey-Fuller test** to evaluate for non-stationarity (evidence of trends & cycles).