Stock Price Visualization using R

2020-01-27

- Data:
- Line Chart:
- Candlestick Chart:
- Calendar Heatmap:

Here are some simple and effective charts to visualize stock prices.

Load libraries:

```
if(!require(tidyverse)) install.packages("tidyverse", repos = "http://cran.us.r-project.org")
if(!require(tidyquant)) install.packages("tidyquant", repos = "http://cran.us.r-project.org")
```

Data:

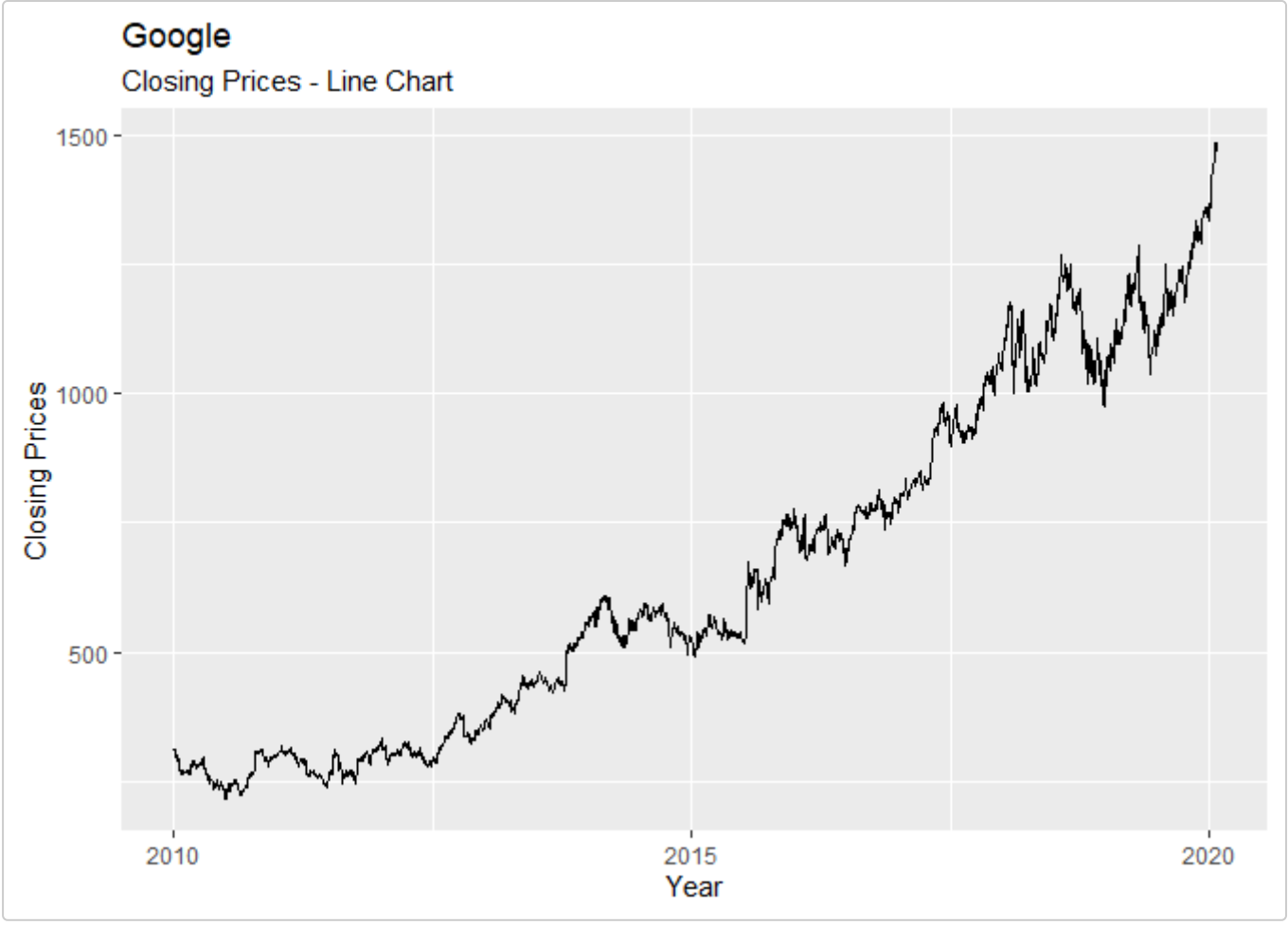
Using Google stock prices from tidyquant - FANG which has historical daily prices

```
dat <- tq_get("GOOG", get = "stock.prices")
```

Line Chart:

- Using `ggplot` function with `geom_line` from `ggplot2` package to plot the line chart

```
dat %>%
  ggplot(aes(x = date, y = close)) +
  geom_line() +
  labs(title = "Google",
       subtitle = "Closing Prices - Line Chart",
       x = "Year",
       y = "Closing Prices")
```

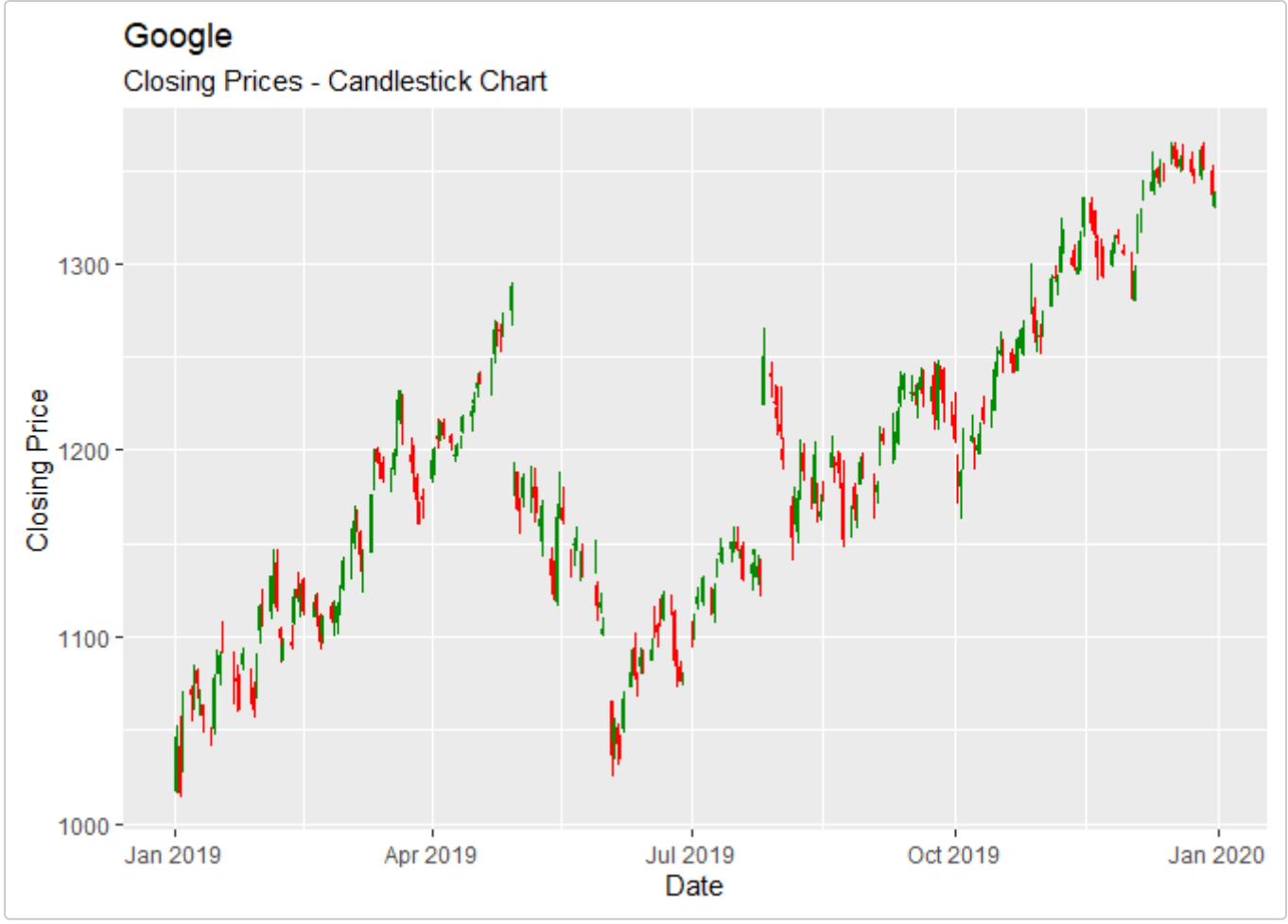


Candlestick Chart:

- Using `geom_candlestick` from `tidyquant` to plot Candlestick chart
- Candlestock chart needs Open,High,Low and Close prices
- Line colors are set using `colour-up` & `colour_down`
- Fill colors are set using `fill_up` & `fill_down`

```
dat$year <- year(dat$date)

dat %>%
  filter(year==2019) %>%
  ggplot(aes(x = date, y = close)) +
   geom_candlestick(aes(open = open, high = high, low = low, close = close),
                        colour_up = "green4", colour_down = "red",
                        fill_up  = "green4", fill_down  = "red") +
  labs(title = "Google",
       subtitle = "Closing Prices - Candlestick Chart",
       x = "Date",
       y = "Closing Price")
```

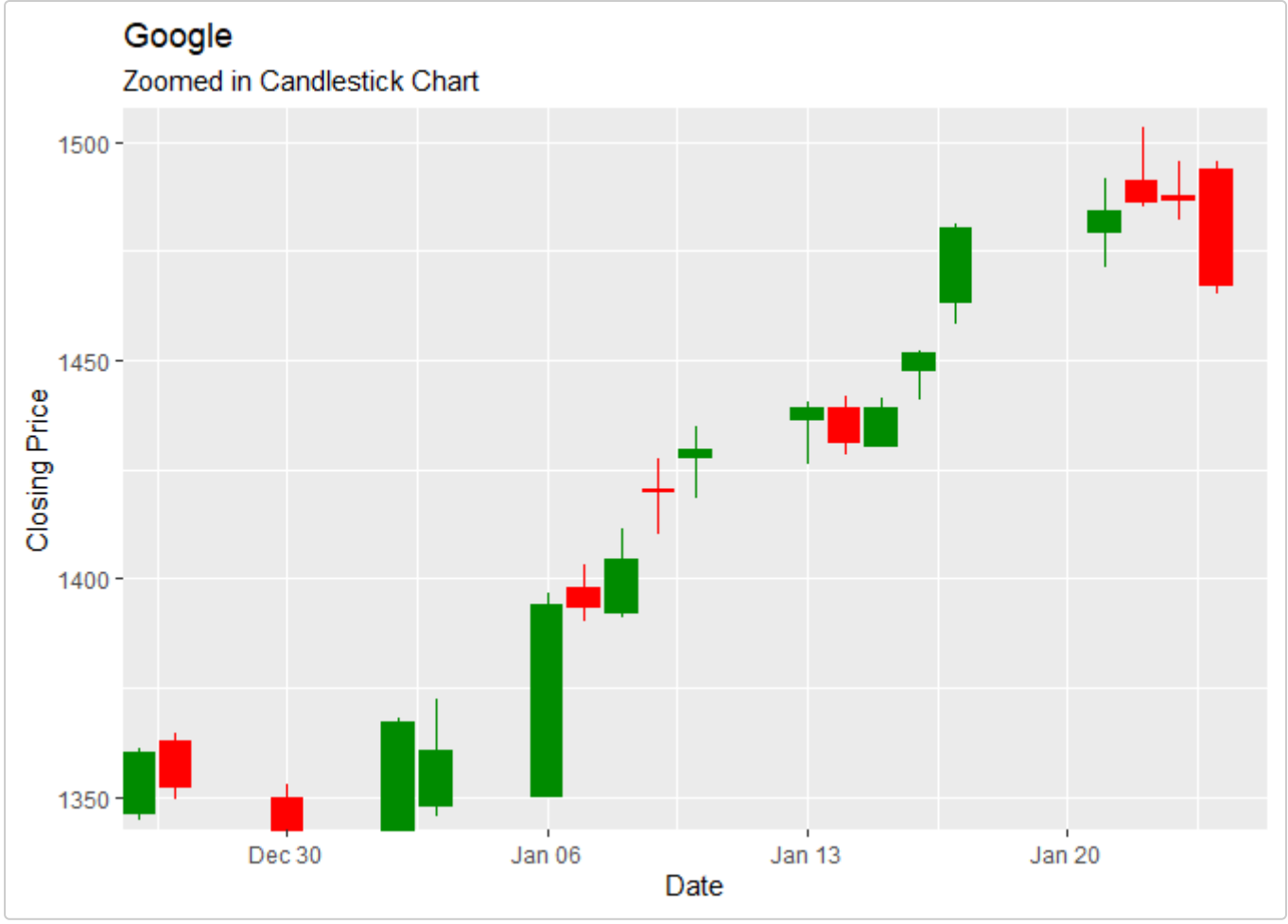


Zooming in on the Candlestick Chart

- using `coord_x_date` to zoom in by specifying the start date and end date for x-axis and price range for the y-axis

```
enddate <- max(dat$date)
startdate <- enddate - weeks(4)

dat %>%
  ggplot(aes(x = date, y = close)) +
     geom_candlestick(aes(open = open, high = high, low = low, close = close),
                      colour_up = "green4", colour_down = "red",
                      fill_up  = "green4", fill_down  = "red") +
    labs(title = "Google",
         subtitle = "Zoomed in Candlestick Chart",
          x = "Date",
         y = "Closing Price") +
    coord_x_date(xlim = c(startdate, enddate),
                 ylim = c(1350, 1500))
```



Calendar Heatmap:

- a heatmap of daily prices shown in a calendar

Adding required variables for calendar heatmap

```
dat$year <- year(dat$date)
dat$month <- month(dat$date)
dat$weekday = as.POSIXlt(dat$date)$wday
dat$weekofmonth= (1 + as.integer(format(dat$date, "%d")) %/% 7)

# to order by month names
dat$month.f<-factor(dat$month,levels=as.character(1:12),
                    labels=c("Jan","Feb","Mar","Apr","May","Jun","Jul","Aug","Sep","Oct","Nov","Dec"),
                    ordered=TRUE)

# to order by week day names
dat$weekday.f<-factor(dat$weekday,levels=rev(1:7),
                      labels=rev(c("Mon","Tue","Wed","Thu","Fri","Sat","Sun")),
                      ordered=TRUE)
```

- using `facet_grid` to create year, month grids
- using `scale_fill_gradient` to show low to high prices in specified color gradient

```
dat %>% ggplot(aes(weekofmonth, weekday.f, fill = close)) +
  geom_tile(colour = "white") +
  facet_grid(year~month.f) +
  scale_fill_gradient(low="red", high="green4") +
  labs(title = "Google",
       subtitle = "Closing Prices Heatmap",
       x = "Week of Month",
```

```
      y = "Week Day",
      fill = "Close")
```