

Final Project

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Loading Data + Cleaning

```
## Goals:  
# Cleaning up data, making it easier to read.  
# **Also need to filter out any NA's.**
```

```
data <- read.csv("all_stocks_5yr.csv")
```

```
summary(data)
```

```
##           date           open           high           low  
## 2017-12-05: 505   Min.      : 1.62   Min.      : 1.69   Min.      : 1.50  
## 2017-12-06: 505   1st Qu.: 40.22   1st Qu.: 40.62   1st Qu.: 39.83  
## 2017-12-07: 505   Median : 62.59   Median : 63.15   Median : 62.02  
## 2017-12-08: 505   Mean    : 83.02   Mean    : 83.78   Mean    : 82.26  
## 2017-12-11: 505   3rd Qu.: 94.37   3rd Qu.: 95.18   3rd Qu.: 93.54  
## 2017-12-12: 505   Max.    :2044.00   Max.    :2067.99   Max.    :2035.11  
## (Other)    :616010 NA's    :11     NA's    :8       NA's    :8  
##           close           volume           Name  
## Min.      : 1.59   Min.      : 0       A       : 1259  
## 1st Qu.: 40.24   1st Qu.: 1070320   AAL      : 1259  
## Median : 62.62   Median : 2082094   AAP      : 1259  
## Mean    : 83.04   Mean    : 4321823   AAPL     : 1259  
## 3rd Qu.: 94.41   3rd Qu.: 4284509   ABBV     : 1259  
## Max.    :2049.00   Max.    :618237630   ABC      : 1259  
##                                     (Other):611486
```

```
str(data)
```

```
## 'data.frame': 619040 obs. of 7 variables:  
## $ date : Factor w/ 1259 levels "2013-02-08","2013-02-11",...: 1 2 3 4 5 6 7 8 9 10 ...  
## $ open : num 15.1 14.9 14.4 14.3 14.9 ...  
## $ high : num 15.1 15 14.5 14.9 15 ...  
## $ low : num 14.6 14.3 14.1 14.2 13.2 ...  
## $ close : num 14.8 14.5 14.3 14.7 14 ...  
## $ volume: int 8407500 8882000 8126000 10259500 31879900 15628000 11354400 14725200 11922100 6071400 ...  
## $ Name : Factor w/ 505 levels "A","AAL","AAP",...: 2 2 2 2 2 2 2 2 2 2 ...
```

```
SP_data <- data %>%  
  select(Name,date,open,low,high,close, volume)  
# Changing the order of the columns
```

Ommiting NA rows vs replacing them with 0

```

SP_data <- na.omit(SP_data)
#SP_data[is.na(SP_data)] <- 0

# Omitting rows with NA values in order to make calculations error free, vs setting them to 0.

summary(SP_data)

```

```

##      Name      date      open      low
## A      : 1259 2017-12-05: 505  Min.   : 1.62  Min.   : 1.50
## AAL     : 1259 2017-12-06: 505  1st Qu.: 40.22 1st Qu.: 39.83
## AAP     : 1259 2017-12-07: 505  Median : 62.59 Median : 62.02
## AAPL    : 1259 2017-12-08: 505  Mean    : 83.02 Mean    : 82.26
## ABBV    : 1259 2017-12-11: 505  3rd Qu.: 94.37 3rd Qu.: 93.54
## ABC     : 1259 2017-12-12: 505  Max.    :2044.00 Max.    :2035.11
## (Other):611475 (Other)  :615999
##      high      close      volume
## Min.   : 1.69  Min.   : 1.59  Min.   : 101
## 1st Qu.: 40.62 1st Qu.: 40.24 1st Qu.: 1070351
## Median : 63.15 Median : 62.62 Median : 2082165
## Mean    : 83.78 Mean    : 83.04 Mean    : 4321892
## 3rd Qu.: 95.18 3rd Qu.: 94.41 3rd Qu.: 4284550
## Max.    :2067.99 Max.    :2049.00 Max.    :618237630
##

```

Changing date column from a factro to date

```

# Making the "date" column usable.

SP_data$Date <- as.Date(SP_data$date, format = "%Y-%m-%d")
SP_data$date <- NULL
# Changing the date column format into a new variable, and deleting the previous one

summary(SP_data)

```

```

##      Name      open      low      high
## A      : 1259  Min.   : 1.62  Min.   : 1.50  Min.   : 1.69
## AAL     : 1259  1st Qu.: 40.22 1st Qu.: 39.83 1st Qu.: 40.62
## AAP     : 1259  Median : 62.59 Median : 62.02 Median : 63.15
## AAPL    : 1259  Mean    : 83.02 Mean    : 82.26 Mean    : 83.78
## ABBV    : 1259  3rd Qu.: 94.37 3rd Qu.: 93.54 3rd Qu.: 95.18
## ABC     : 1259  Max.    :2044.00 Max.    :2035.11 Max.    :2067.99
## (Other):611475
##      close      volume      Date
## Min.   : 1.59  Min.   : 101  Min.   :2013-02-08
## 1st Qu.: 40.24 1st Qu.: 1070351 1st Qu.:2014-05-20
## Median : 62.62 Median : 2082165 Median :2015-08-21
## Mean    : 83.04 Mean    : 4321892 Mean    :2015-08-18
## 3rd Qu.: 94.41 3rd Qu.: 4284550 3rd Qu.:2016-11-15
## Max.    :2049.00 Max.    :618237630 Max.    :2018-02-07
##

```

#Top S&P 500 Stocks * Categorized by competitors and similar industries

S&P500 Sectors

Information Technology - 19.9%

- AMD
- FTNT
- RHT
- KEYS
- MSI

<https://us.spindices.com/indices/equity/sp-500-health-care-sector>

Health Care - 15.8%

- JNJ
- UNH
- MRK
- ABT
- LLY

<https://us.spindices.com/indices/equity/sp-500-health-care-sector>

Financials - 13.7%

- BRK.B
- JPM
- BAC
- WFC
- C

<https://us.spindices.com/indices/equity/sp-500-financials-sector>

Consumer Discretionary - 9.9%

- AMZN
- HD
- MCD
- NKE
- SBUX

<https://us.spindices.com/indices/equity/sp-500-consumer-discretionary-sector>

Communications Services - 9.9%

- Facebook
- Alphabet Inc. Class A and Class C
- Charter Communications Inc Class A
- Walt Disney
- NFLX, AT&T, Verizon, comcast, activision

<https://us.spdrs.com/en/etf/the-communication-services-select-sector-spdr-fund-XLC>

Industrials - 9.4%

- BA
- HON
- UNP
- UTX
- MMM, LMT, GE

<https://us.spindices.com/indices/equity/sp-500-industrials-sector>

Consumer Staples - 7.4%

- WMT
- PG
- KO
- PEP
- PM, COST, MO

<https://www.fool.com/investing/the-10-biggest-consumer-staples-stocks.aspx>

Energy - 5.4%

- XOM
- RDS.A (shell)
- CVX
- TOT
- BP, PTR, NEE

<https://www.fool.com/investing/the-10-biggest-energy-stocks.aspx>

Utilities - 3.1%

- PPL
- D
- SO
- DUK
- CNNP, AES, EIX, FE, ED

<https://www.barrons.com/articles/you-may-be-surprised-which-stock-market-sector-has-been-the-hottest-in>

Real Estate - 2.9%

- ENSG
- ROIC
- AMT
- VNO
- HST, CBRE, WELL, PLD, CCI

<https://www.fool.com/investing/2019/01/13/the-3-best-real-estate-stocks-to-buy-in-2019.aspx>

&

<https://www.investopedia.com/top-real-estate-stocks-4582128>

Materials - 2.6%

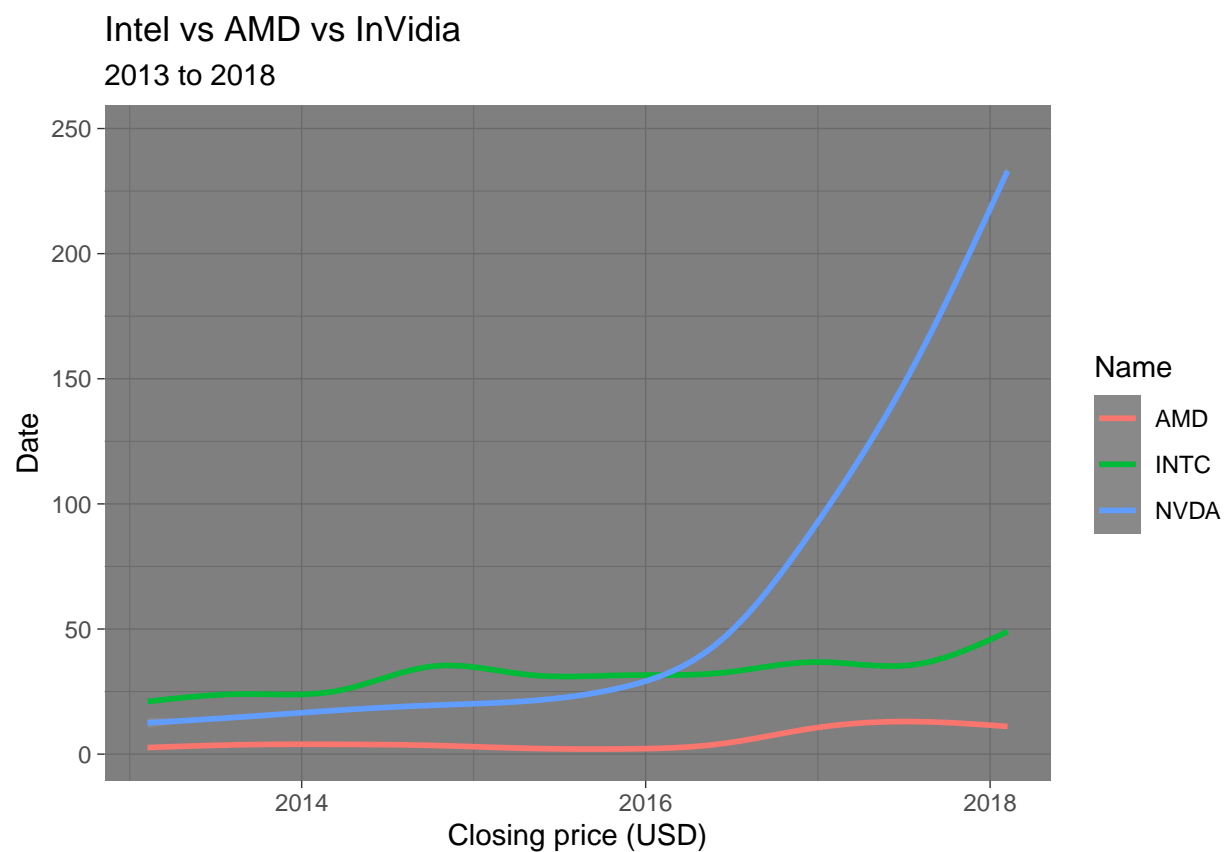
- NUE

- LYB
- ALB
- NEM
- CF, FMC,

<https://www.investopedia.com/top-materials-stocks-4582152>

```
AMD_NVDA_INTC <- ggplot(filter(SP_data, Name %in% c("INTC", "AMD", "NVDA")), aes(x = Date, y = close, color = Name),
  subtitle = "2013 to 2018",
  y = "Date",
  x = "Closing price (USD)") + theme_dark()
```

AMD_NVDA_INTC



```
AMD_NVDA_INTC_ <- ggplot(filter(SP_data, Name %in% c("INTC", "AMD", "NVDA")), aes(x = Date, y = close, color = Name),
  subtitle = "2013 to 2018",
  y = "Date",
  x = "Closing price (USD)") + theme_dark()
```

AMD_NVDA_INTC_

Intel vs AMD vs InVidia
2013 to 2018

