

# Case Analysis of SP500

We will investigate data related to the S&P500 stocks.

This is the URL of the data we will use: <https://docs.google.com/spreadsheets/d/11ahk9uWxBkDqrhNm7qYmiTwrlSC53N1zvXYfv7tt0CM>

## 1) Reading S&P500 data from a Google Sheet into a tibble

The Google Sheet ID is: 11ahk9uWxBkDqrhNm7qYmiTwrlSC53N1zvXYfv7tt0CM. We can use the function `gsheet2tbl` in package `gsheet` to read the Google Sheet into a dataframe, as demonstrated in the following code.

```
# Read S&P500 stock data present in a Google Sheet.
library(gsheet)

prefix <- "https://docs.google.com/spreadsheets/d/"
sheetID <- "11ahk9uWxBkDqrhNm7qYmiTwrlSC53N1zvXYfv7tt0CM"
# Form the URL to connect to
url500 <- paste(prefix, sheetID)
# Read the Google Sheet located at the URL into a tibble called sp500
sp500 <- gsheet2tbl(url500)
```

No encoding supplied: defaulting to UTF-8.

## 1) Reviewing the data

We run the `str()` function to better understand the data.

```
str(sp500)
```

```
Classes 'tbl_df', 'tbl' and 'data.frame':   503 obs. of  36 variables:
 $ Date                : chr  "7/13/2023" "7/13/2023" "7/13/2023" "7/13/2023" ...
 $ Stock               : chr  "A" "AAL" "AAP" "AAPL" ...
 $ Description          : chr  "Agilent Technologies, Inc." "American Airl..."
```

```

$ Sector : chr "Health Technology" "Transportation" "Retail"
$ Industry : chr "Medical Specialties" "Airlines" "Specialty"
$ Market.Capitalization : num 3.54e+10 1.20e+10 4.19e+09 2.99e+12 2.36e+10
$ Price : num 120 18.4 70.5 190.2 133.6 ...
$ X52.Week.Low : num 113.3 11.7 63.6 124.2 131 ...
$ X52.Week.High : num 160 19.1 212 194 168 194 116 78.3 328 519 ...
$ Return.on.Equity..TTM. : num 24.8 NA 14.6 146 51.1 389 16 14.8 30.7 33.7
$ Return.on.Assets..TTM. : num 12.7 2.64 3.35 27.6 5.43 2.79 7.82 4.98 14.9
$ Return.on.Invested.Capital..TTM. : num 16.51 5.44 6.17 57.18 9.9 ...
$ Gross.Margin..TTM. : num 54.1 21.7 43.8 43.2 72.2 ...
$ Operating.Margin..TTM. : num 23.78 7.3 5.63 29.16 41.07 ...
$ Net.Margin..TTM. : num 19.19 3.39 3.61 24.49 13.3 ...
$ Price.to.Earnings.Ratio..TTM. : num 26.45 7.23 10.48 32.32 31.46 ...
$ Price.to.Book..FY. : num 6.68 NA 1.56 59.85 13.7 ...
$ Enterprise.Value.EBITDA..TTM. : num 18.8 7.08 8.85 24.5 9.24 12.8 19.1 NA 17.4
$ EBITDA..TTM. : num 1.97e+09 6.02e+09 9.21e+08 1.24e+11 3.18e+10
$ EPS.Diluted..TTM. : num 4.54 2.54 6.72 5.89 4.25 ...
$ EBITDA..TTM.YoY.Growth. : num 10.52 NA -16 -5.36 10.6 ...
$ EBITDA..Quarterly.YoY.Growth. : num 8.2 NA -39.01 -4.58 11.68 ...
$ EPS.Diluted..TTM.YoY.Growth. : num 9.17 NA -25.21 -4.33 -39.11 ...
$ EPS.Diluted..Quarterly.YoY.Growth. : num 11.69944 NA -68.3683 -0.00656 -94.8904 ...
$ Price.to.Free.Cash.Flow..TTM. : num 30.13 7.03 NA 30.92 10.09 ...
$ Free.Cash.Flow..TTM.YoY.Growth. : num 11.81 NA -100.23 -7.85 6.68 ...
$ Free.Cash.Flow..Quarterly.YoY.Growth. : num 55.7078 648.1481 -176.135 -0.0312 -15.3392
$ Debt.to.Equity.Ratio..MRQ. : num 0.473 NA 1.582 1.763 4.678 ...
$ Current.Ratio..MRQ. : num 2.37 0.718 1.244 0.94 0.96 ...
$ Quick.Ratio..MRQ. : num 1.708 0.624 0.238 0.878 0.821 ...
$ Dividend.Yield.Forward : num 0.75 NA 1.413 0.506 4.386 ...
$ Dividends.per.share..Annual.YoY.Growth. : num 8.25 NA 84.62 5.88 7.53 ...
$ Price.to.Sales..FY. : num 5.257 0.246 0.383 7.875 4.091 ...
$ Revenue..TTM.YoY.Growth. : num 7.8597 50.2948 1.4153 -0.2544 0.0282 ...
$ Revenue..Quarterly.YoY.Growth. : num 6.85 36.97 1.29 -2.51 -9.7 ...
$ Technical.Rating : chr "Neutral" "Sell" "Buy" "Sell" ...

```

The `str(sp500)` output provides valuable insights into the structure and data types of the columns in the `sp500` tibble. Let's delve into the details:

The output reveals that `sp500` is a tibble with dimensions  $[503 \times 36]$ . This means it consists of 503 rows, each representing a specific S&P500 stock, and 36 columns containing information about each stock.

Here's a breakdown of the information associated with each column:

- The columns labeled `Date`, `Stock`, `Description`, `Sector`, and `Industry` are character columns. They respectively represent the date, stock ticker symbol, description, sector, and industry of each S&P500 stock.
- Columns such as `Market.Capitalization`, `Price`, `X52.Week.Low`, `X52.Week.High`, and other numeric columns contain diverse financial metrics and stock prices related to the S&P500 stocks.
- The column labeled `Technical.Rating` is a character column that assigns a technical rating to each stock.

By examining the `str(sp500)` output, you gain a comprehensive understanding of the data types and column names present in the `sp500` tibble, enabling you to grasp the structure of the dataset effectively.