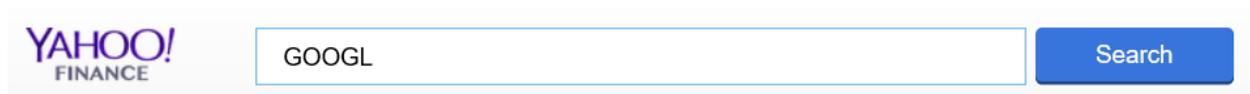


# ChE 263

## Assignment #2

Remember: An Excel file is called a *Workbook*. You can have several *Worksheets* in a workbook. For the following, each problem should be done on a separate worksheet, but each worksheet should be in the same workbook. You can change the name of a worksheet (by default it is Sheet1, Sheet2, ...) to another name by double clicking on the Sheet1 name.

1. Visit [finance.yahoo.com](https://finance.yahoo.com) and select a stock by searching for a company name (e.g. Google).



Download the “Historical Data” for the stock.

**Alphabet Inc. (GOOGL)** [★ Add to watchlist](#)  
NasdaqGS - NasdaqGS Real Time Price. Currency in USD

**1,018.58** -12.87 (-1.25%)  
At close: April 30 4:00PM EDT

[Buy](#) [Sell](#)

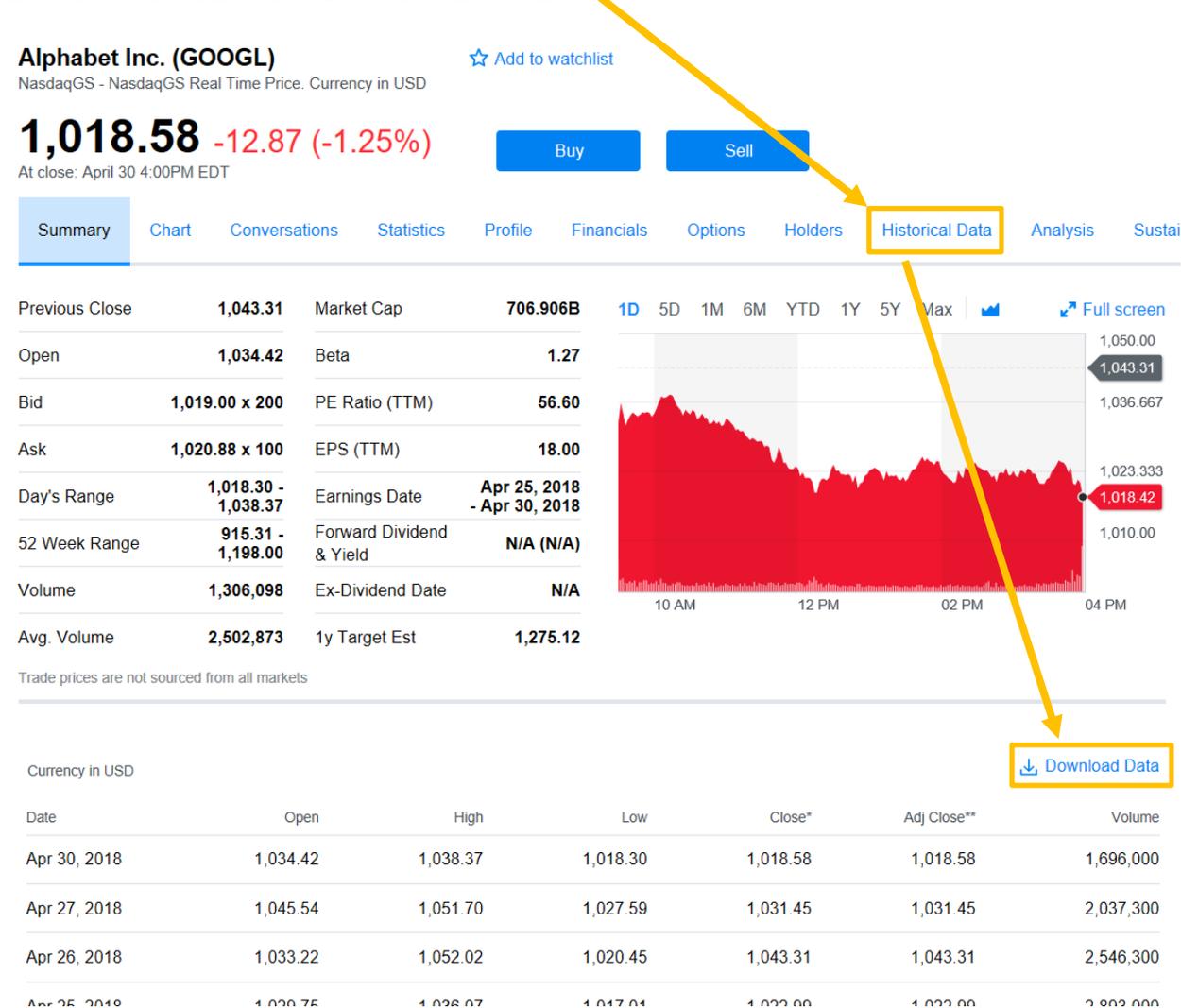
[Summary](#) [Chart](#) [Conversations](#) [Statistics](#) [Profile](#) [Financials](#) [Options](#) [Holders](#) [Historical Data](#) [Analysis](#) [Sustain](#)

Previous Close	1,043.31	Market Cap	706.906B
Open	1,034.42	Beta	1.27
Bid	1,019.00 x 200	PE Ratio (TTM)	56.60
Ask	1,020.88 x 100	EPS (TTM)	18.00
Day's Range	1,018.30 - 1,038.37	Earnings Date	Apr 25, 2018 - Apr 30, 2018
52 Week Range	915.31 - 1,198.00	Forward Dividend & Yield	N/A (N/A)
Volume	1,306,098	Ex-Dividend Date	N/A
Avg. Volume	2,502,873	1y Target Est	1,275.12

Trade prices are not sourced from all markets

Currency in USD

Date	Open	High	Low	Close*	Adj Close**	Volume
Apr 30, 2018	1,034.42	1,038.37	1,018.30	1,018.58	1,018.58	1,696,000
Apr 27, 2018	1,045.54	1,051.70	1,027.59	1,031.45	1,031.45	2,037,300
Apr 26, 2018	1,033.22	1,052.02	1,020.45	1,043.31	1,043.31	2,546,300
Apr 25, 2018	1,020.75	1,026.07	1,017.01	1,022.00	1,022.00	2,892,000



Place that data in an Excel *Worksheet*. Repeat this process for a different company stock so that there are two Worksheets, each with the appropriate stock ticker symbol.

Generate a plot that includes the two stock “Close” data and daily “High” and “Low” values. Normalize the data by the maximum “Close” price over the past month so that all values are divided by the maximum value for that particular stock. Calculate the MAX, MIN, STDEV, AVERAGE, and the MEDIAN for each stock “Close” data. Format the plots with appropriate font size for readability, eliminate shadow effects, make the plot readable in black and white, and remove the outside border. Describe how you would export the figure for a presentation or document. The final plot should be both readable and aesthetically pleasing.

- Download the data from an Arduino temperature control device and import the data into an Excel workbook.

<http://apmonitor.com/che263/uploads/Main/tclab.txt>



Generate a plot that shows the measured temperature values on one plot and the heater values on another plot. Add appropriate labels to the plots such as x-label, y-label, title, and legend. Make sure that the plot is readable even when printed in black and white or for someone who may be color-blind. Horizontally align the time of two plots so that the heater effect on the temperature is observable.

- For each of the following problems, on a worksheet entitled *Functions*, allow input of the independent variable,  $x$ , in one column. In a second column, show the function in text. In a third, show the value of the function.

	<u>Input value (x)</u>	<u>Output function f(x)</u>
a.	0.5 radians	$\cos(x)$
b.	30 degrees	$\sin(x)$
c.	2	$\tan(\pi/x)$ $\pi/x$ in radians
d.	5	maximum of $2\sqrt{x}$ , $x^2/2$ , $x^3/3$ , and $(x^2+x^3)/5$
e.	25	$x!$
f.	.5	$x^2$ when $x < 1$ ; $\sin(\pi x/2)$ when $x \geq 1$ .
g.	4.999	largest integer less than or equal to $x$

Submit your solution to Learning Suite. The assignment is due midnight **before** the beginning of the next class period.