

Data validation

DATA VISUALIZATION IN SPREADSHEETS



Raina Hawley

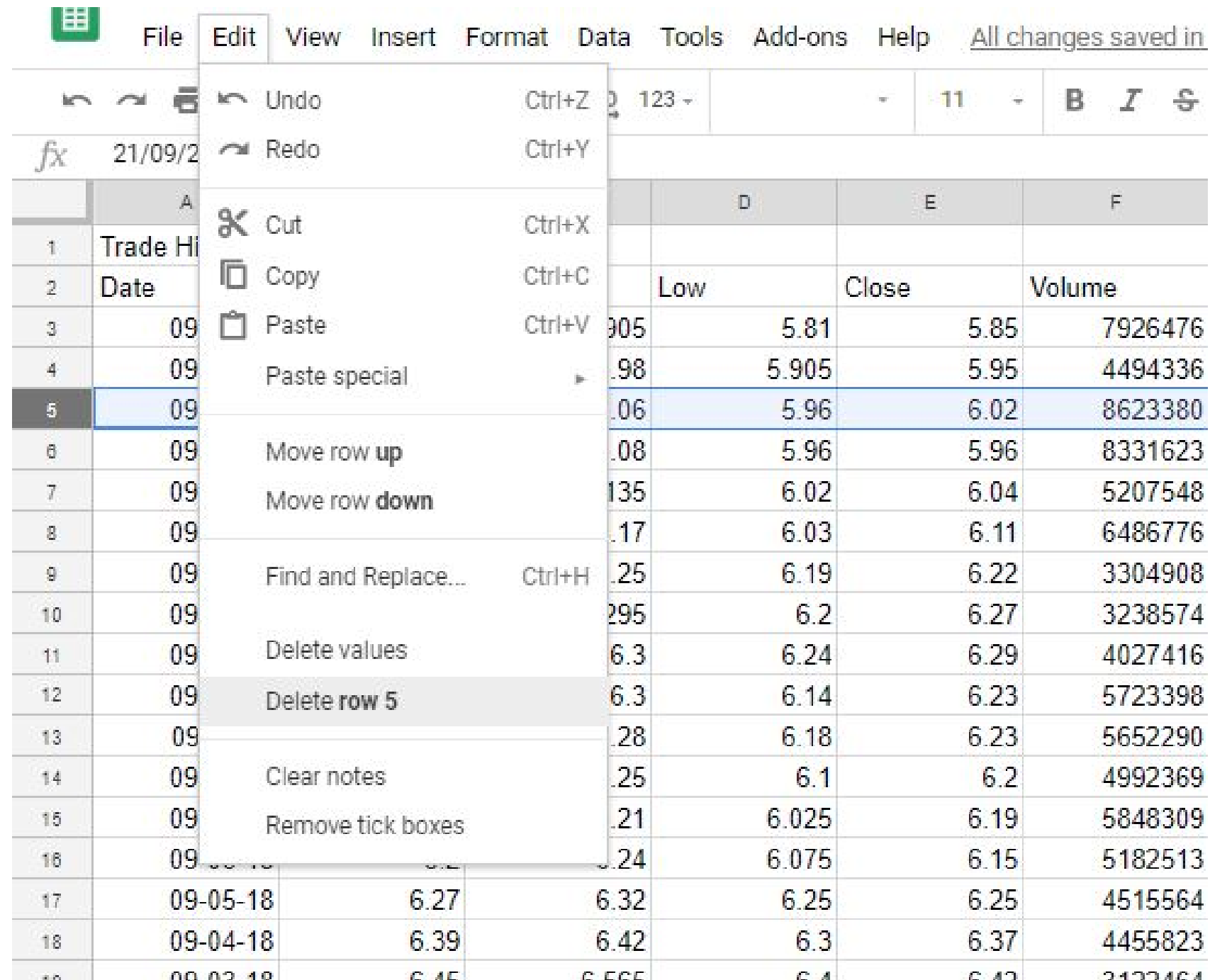
Owner/Instructor of OzGrid Business
Applications

Select dates from a list

fx			
	A	B	C
1	Qantas - Australian Stock Exchange		
2	Date	Open	Close
3	09-03-18 ▼	6.45	6.42
4	09-04-18	6.39	6.37
5	09-05-18 ▼	6.27	6.25
6	09-06-18 ▼	6.20	6.15
7	09-07-18 ▼	6.08	6.19
8	09-10-18 ▼	6.15	6.20
9	09-11-18 ▼	6.20	6.23
10	09-12-18 ▼	6.18	6.23
11	09-13-18 ▼	6.25	6.29
12	09-14-18 ▼	6.26	6.27

fx 03/09/2018			
	A	B	C
1	Qantas - Australian Stock Exchange		
2	Date	Open	Close
3	03/09/2018	6.45	6.42
4	03/09/2018	6.39	6.37
5	25/09/2018	6.27	6.25
6	24/09/2018	6.20	6.15
7	21/09/2018	6.08	6.19
8	20/09/2018	6.15	6.20
9	19/09/2018	6.20	6.23
10	18/09/2018	6.18	6.23
11	17/09/2018	6.25	6.29
12		6.26	6.27

Remove blank rows or columns



The screenshot shows a spreadsheet application interface. The 'Edit' menu is open, displaying various options. The 'Delete row 5' option is highlighted. The spreadsheet data is as follows:

	A	B	C	D	E	F
1	Trade Hi					
2	Date			Low	Close	Volume
3	09		905	5.81	5.85	7926476
4	09		.98	5.905	5.95	4494336
5	09		.06	5.96	6.02	8623380
6	09		.08	5.96	5.96	8331623
7	09		135	6.02	6.04	5207548
8	09		.17	6.03	6.11	6486776
9	09		.25	6.19	6.22	3304908
10	09		295	6.2	6.27	3238574
11	09		6.3	6.24	6.29	4027416
12	09		6.3	6.14	6.23	5723398
13	09		.28	6.18	6.23	5652290
14	09		.25	6.1	6.2	4992369
15	09		.21	6.025	6.19	5848309
16	09		.24	6.075	6.15	5182513
17	09-05-18	6.27	6.32	6.25	6.25	4515564
18	09-04-18	6.39	6.42	6.3	6.37	4455823
19	09-03-18	6.45	6.55	6.4	6.47	3123464

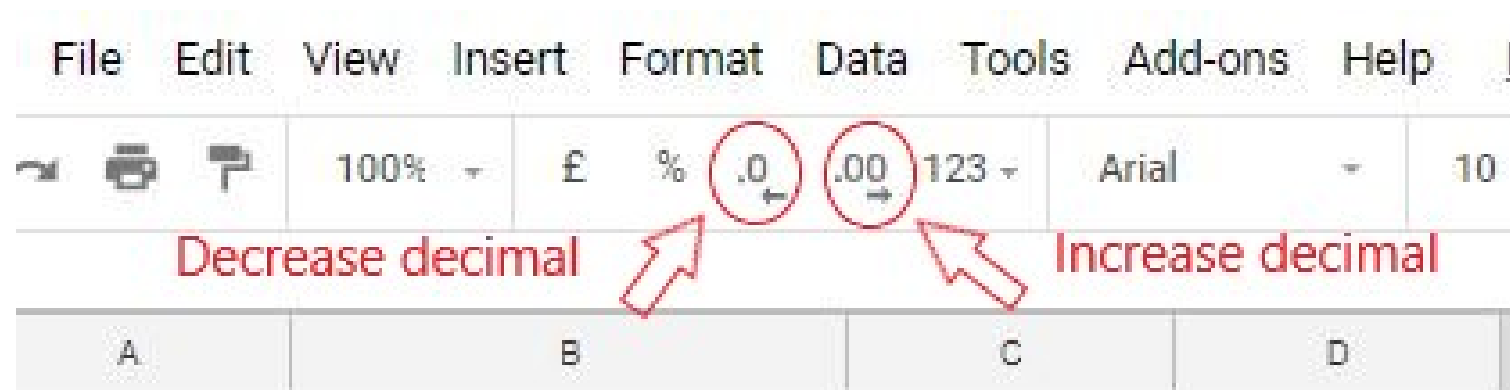
Format dates

The screenshot shows a Google Sheets interface with the 'Format' menu open. The menu is displaying various formatting options, including 'Number', 'Text', 'Date', and 'Time'. The 'Date' option is selected, showing a list of date formats. The 'Date' option is highlighted, showing a list of date formats including MM/DD/YYYY, DD/MM/YYYY, and MM/DD/YY. The 'Date' option is highlighted, showing a list of date formats including MM/DD/YYYY, DD/MM/YYYY, and MM/DD/YY.

	A	B
1	Trade History	
2	Date	Open
3	09-25-18	5.9
4	09-24-18	5.96
5	09-21-18	5.96
6	09-20-18	6.04
7	09-19-18	6.09
8	09-18-18	6.15
9	09-17-18	6.24
10	09-14-18	6.26
11	09-13-18	6.25
12	09-12-18	6.16
13	09-11-18	6.2
14	09-10-18	6.15
15	09-07-18	6.08
16	09-06-18	6.2
17	09-05-18	6.27
18	09-04-18	6.39
19	09-03-18	6.45
20	08-31-18	6.48
21	08-30-18	6.58
22	08-29-18	6.48
23	08-28-18	6.44

- Highlight the relevant range and select the Format tab
- Ex: MM/DD/YY
- Other options available

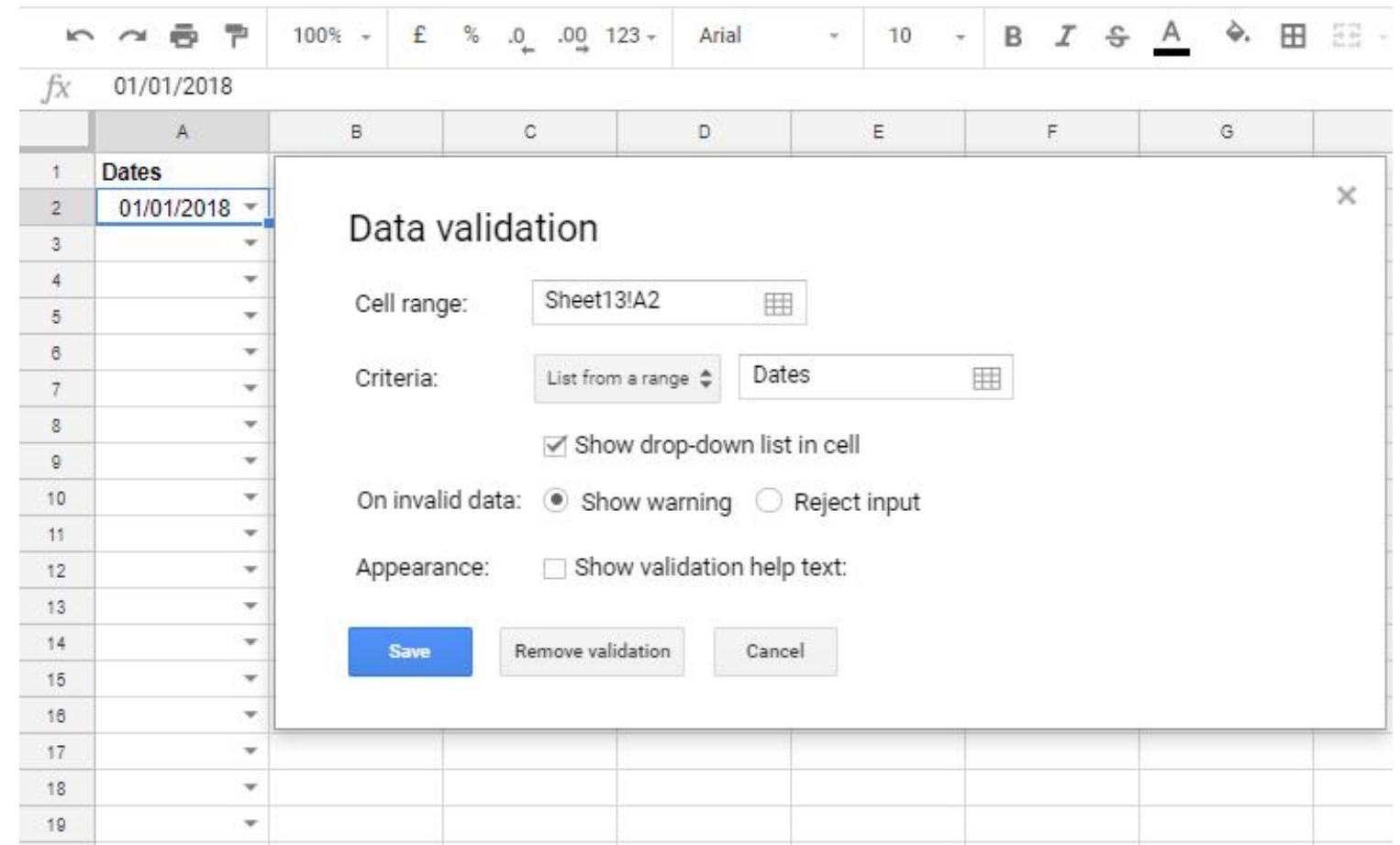
Format decimals



- Decimals should be consistent
- Spreadsheets round numbers with decimals
- Highlight, select increase or decrease tool on toolbar

Creating the data validation

- Under the Data heading, select Data, Data validation
- Use your Named range
- "Show warning" to warn user of incorrect entry
- "Reject input" to reject anything other than selection from list



Testing the list: reject input

	A	B	C	D	E	
1	Qantas - Australian Stock Exchange					
2	Date	Open	Close			
3	09-31-18	#N/A	#N/A			
4	09-04-18	6.39	6.37			
5	09-05-18	6.27	6.25			
6	09-06-18	6.20	6.15			
7	09-07-18	6.08	6.19			
8	09-10-18	6.15	6.20			
9	09-11-18	6.20	6.23			
10	09-12-18	6.18	6.23			
11	09-13-18	6.25	6.29			
12	09-14-18	6.26	6.27			
13	<div><div>There was a problem</div><div>The data that you entered in cell A3 violates the data validation rules set on this cell.</div><div>OK</div></div>					
14						
15						
16						
17						
18						
19						
20						

Testing the list: validation help

	A	B	C	D
1	Qantas - Australian Stock Exchange			
2	Date	Open	Close	
3	03/09/2018 ▾	Validation: Select a date from the list to see the Opening and Closing prices		
4	09-04-18 ▾			
5	09-05-18 ▾			
6	09-06-18 ▾			
7	09-07-18 ▾			
8	09-10-18 ▾			
9	09-11-18 ▾	6.20	6.23	
10	09-12-18 ▾	6.18	6.23	
11	09-13-18 ▾	6.25	6.29	
12	09-14-18 ▾	6.26	6.27	

Putting it into practice!

DATA VISUALIZATION IN SPREADSHEETS

Using VLOOKUP with data validation

DATA VISUALIZATION IN SPREADSHEETS



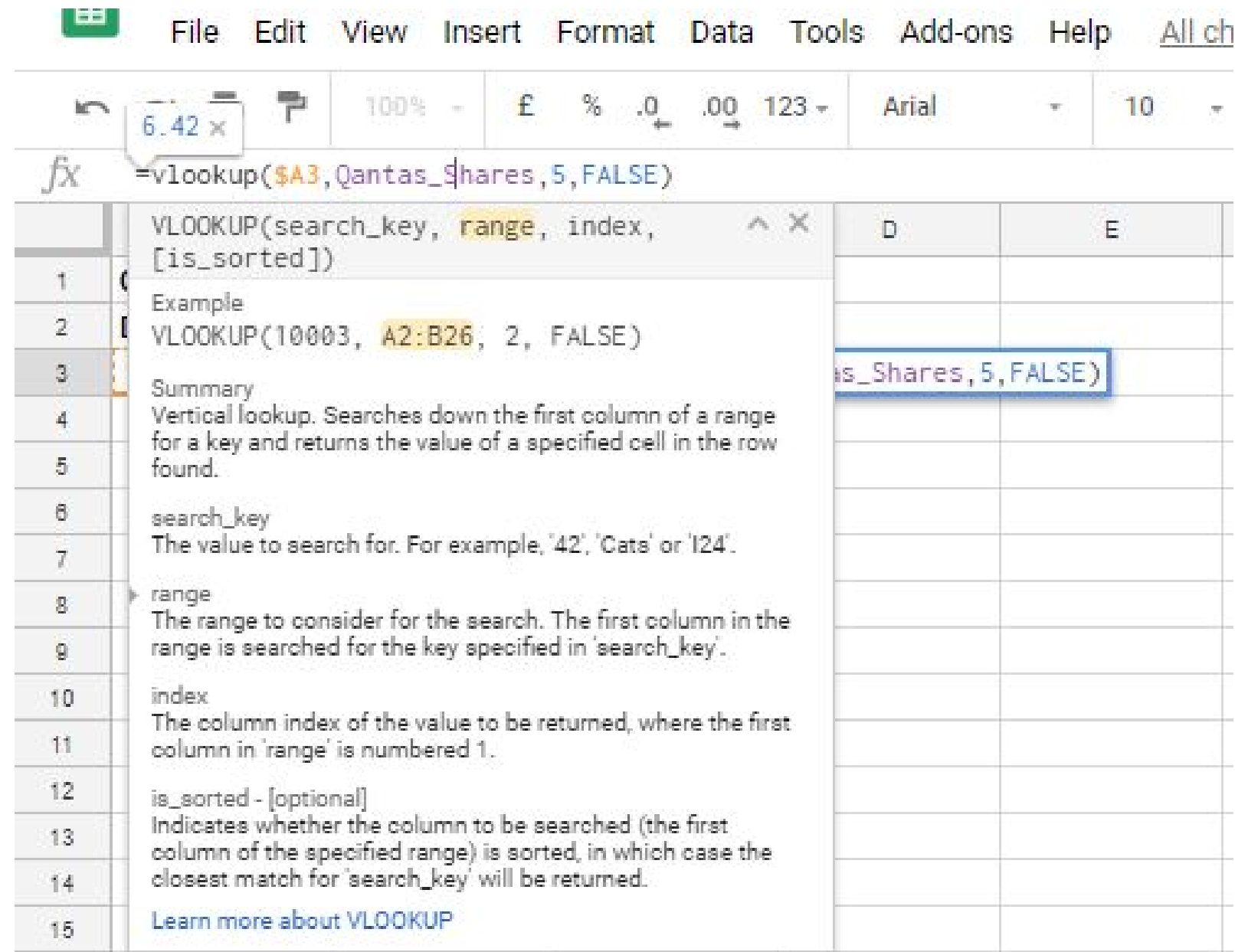
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Applications

VLOOKUP

- Vertical lookup
- Retrieve data from tables
- Find an exact match, or closest possible match, in a list
- Uses dates selected through data validation and look up data from main dataset

Adding the VLOOKUP



File Edit View Insert Format Data Tools Add-ons Help All ch

6.42 x 100% £ % .0 .00 123 Arial 10

fx =vlookup(\$A3,Qantas_Shares,5,FALSE)

VLOOKUP(search_key, range, index, [is_sorted])

Example

VLOOKUP(10003, A2:B26, 2, FALSE)

Summary

Vertical lookup. Searches down the first column of a range for a key and returns the value of a specified cell in the row found.

search_key

The value to search for. For example, '42', 'Cats' or '124'.

range

The range to consider for the search. The first column in the range is searched for the key specified in 'search_key'.

index

The column index of the value to be returned, where the first column in 'range' is numbered 1.

is_sorted - [optional]

Indicates whether the column to be searched (the first column of the specified range) is sorted, in which case the closest match for 'search_key' will be returned.

[Learn more about VLOOKUP](#)

Qantas_Shares,5,FALSE)

VLOOKUP arguments

- `search_key`
 - Value to look for in the first column of a table
- `range`
 - Table to retrieve a value from
- `index`
 - Column in the table to retrieve value from
- `[is_sorted]`
 - Optional argument
 - FALSE = exact match
 - TRUE = closest possible match

Partial absolute

The screenshot shows a Google Sheets interface. The formula bar at the top displays `=vlookup($A3,Qantas_Shares,2,FALSE)`. Below the formula bar, a tooltip shows the value `6.45 x`. The spreadsheet grid has columns A through E and rows 1 through 5. Row 1 contains the text "Qantas - Australian Stock Exchange". Row 2 has headers "Date", "Open", and "Close". Row 3 contains the date "09-03-18" in column A and the formula `=vlookup($A3,Qantas_Shares,2,FALSE)` in column B. A red circle highlights the `$A3` reference in the formula. A red text annotation at the bottom of the grid states: "The column reference (A) has partial absolute applied to it".

	A	B	C	D	E
1	Qantas - Australian Stock Exchange				
2	Date	Open	Close		
3	09-03-18	=vlookup(\$A3,Qantas_Shares,2,FALSE)			
4					
5					

- Absolution denoted by \$
- \$A3
 - Always referring to column A
 - Row reference will change as you copy it
 - "Locking" column A

Copying your formula

fx

=vlookup(\$A3,Qantas_Shares,2,FALSE)

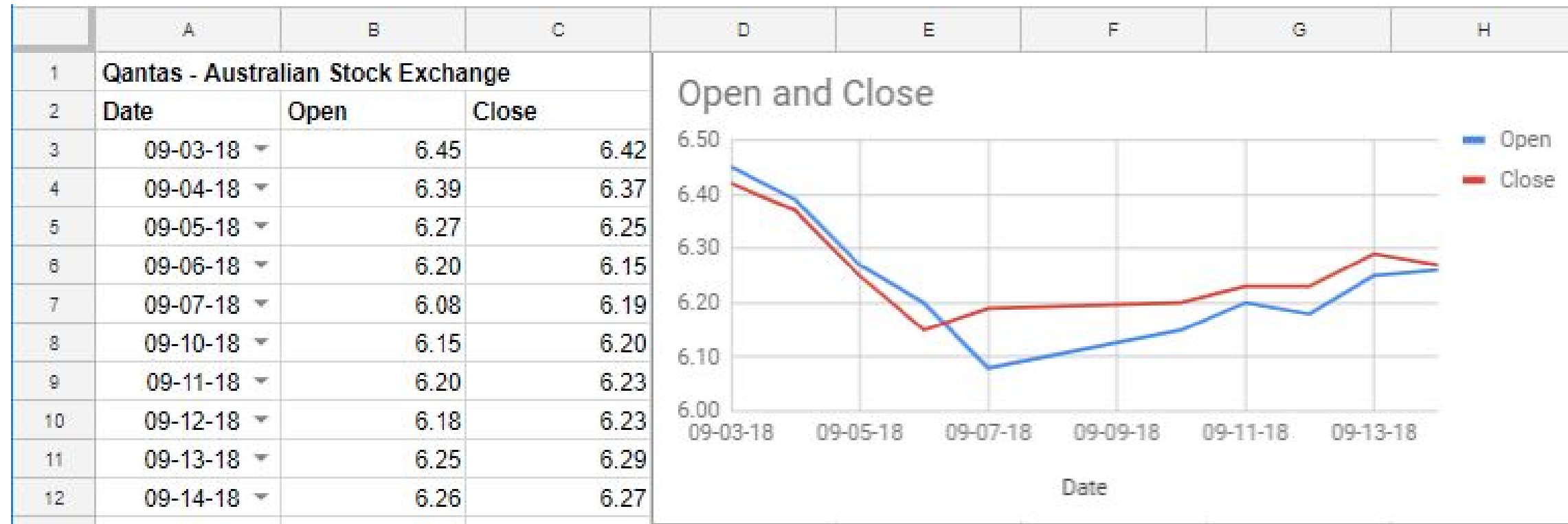
	A	B	C	D	E	F	G	H	I	J	K
1	Trade History							Qantas - Australian Stock Exchange			
2	Date	Open	High	Low	Close	Volume		Date	5.90 x	Close	
3	09-25-18	5.90	5.91	5.81	5.85	7926476		09-03-18	=vlookup(\$A3,Qantas_Shares,2,FALSE)		

Pasting the formula

fx =vlookup(\$A3,Qantas_Shares,5,FALSE)												
	A	B	C	D	E	F	G	H	I	J	K	L
1	Trade History							Qantas - Australian Stock Exchange				
2	Date	Open	High	Low	Close	Volume		Date	Open	5.85 x		
3	09-25-18	5.90	5.91	5.81	5.85	7926476		09-03-18 ▾	5.90	=vlookup(\$A3,Qantas_Shares,5,FALSE)		

- Changing the column reference number
 - To show Close figure in column 5, change from 2 to 5
 - To show the Volume figure in column 6, change from 2 to 6

Creating the line plot



- Use data validation and VLOOKUP to show only relevant values in your data
- Create a line chart
 - Highlight the range you want to plot, including headings
 - Click Insert chart icon, select line chart

Have a go!

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Formatting your line chart

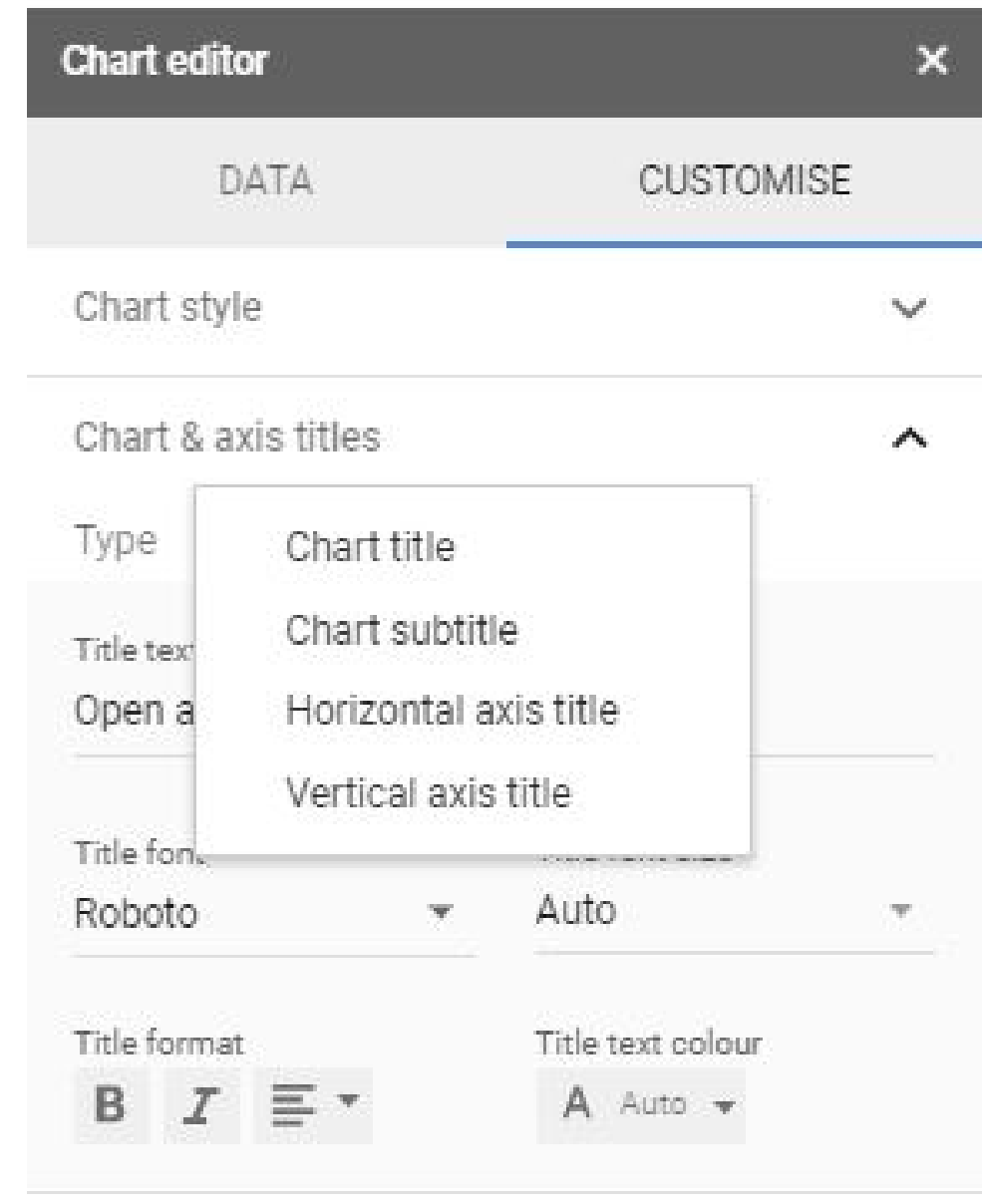
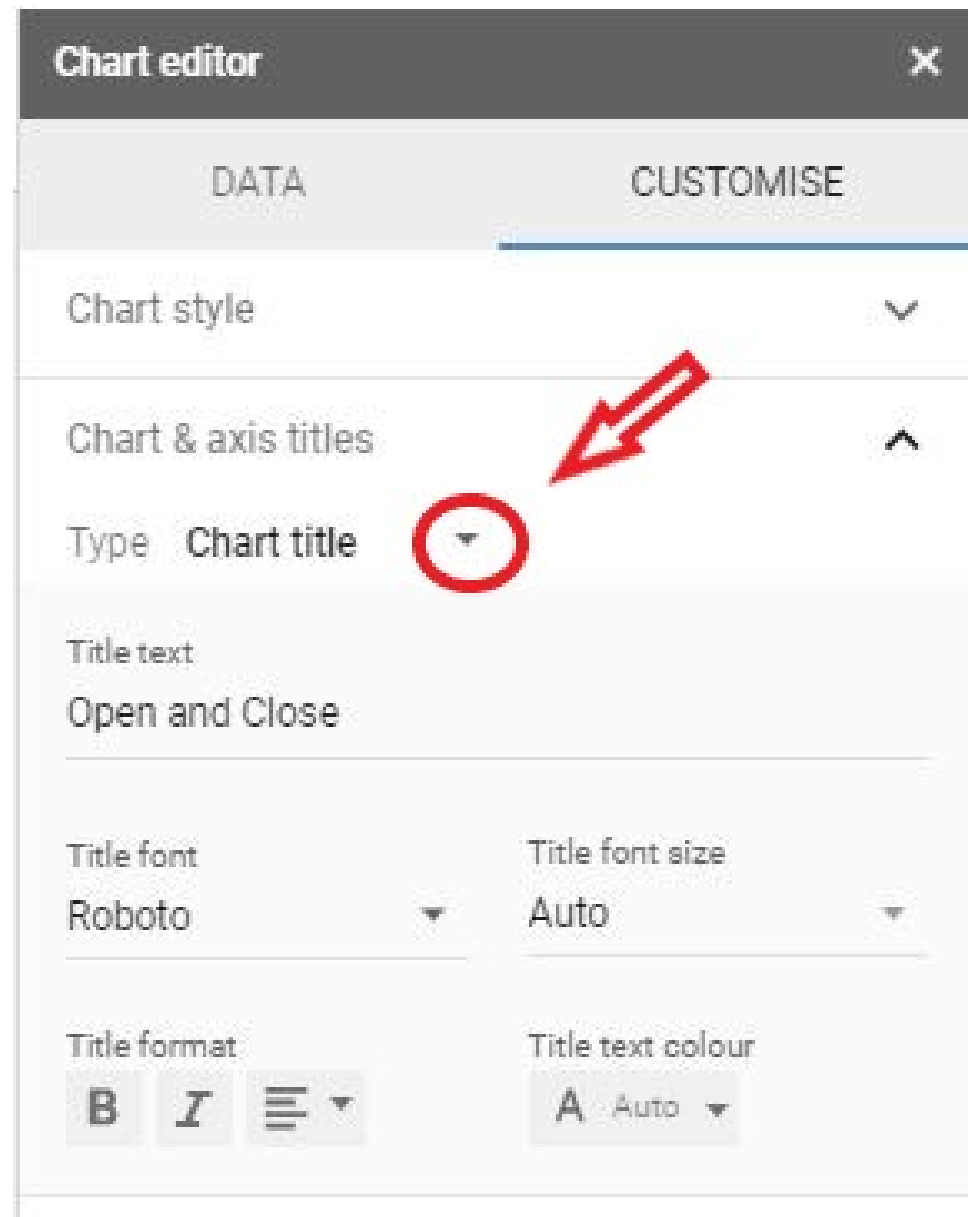
DATA VISUALIZATION IN SPREADSHEETS



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Chart and axis titles



Fonts and gridlines

Chart editor

DATA

CUSTOMISE

Chart style

Chart & axis titles

Series

Legend

Horizontal axis

Label font

Roboto

Label font size

Auto

Label format

B

I

Text colour

A

Auto

☒

Treat labels as text

Chart editor

DATA

CUSTOMISE

Chart style

Chart & axis titles

Series

Legend

Horizontal axis

Vertical axis

Gridlines

Apply to:

Vertical axis

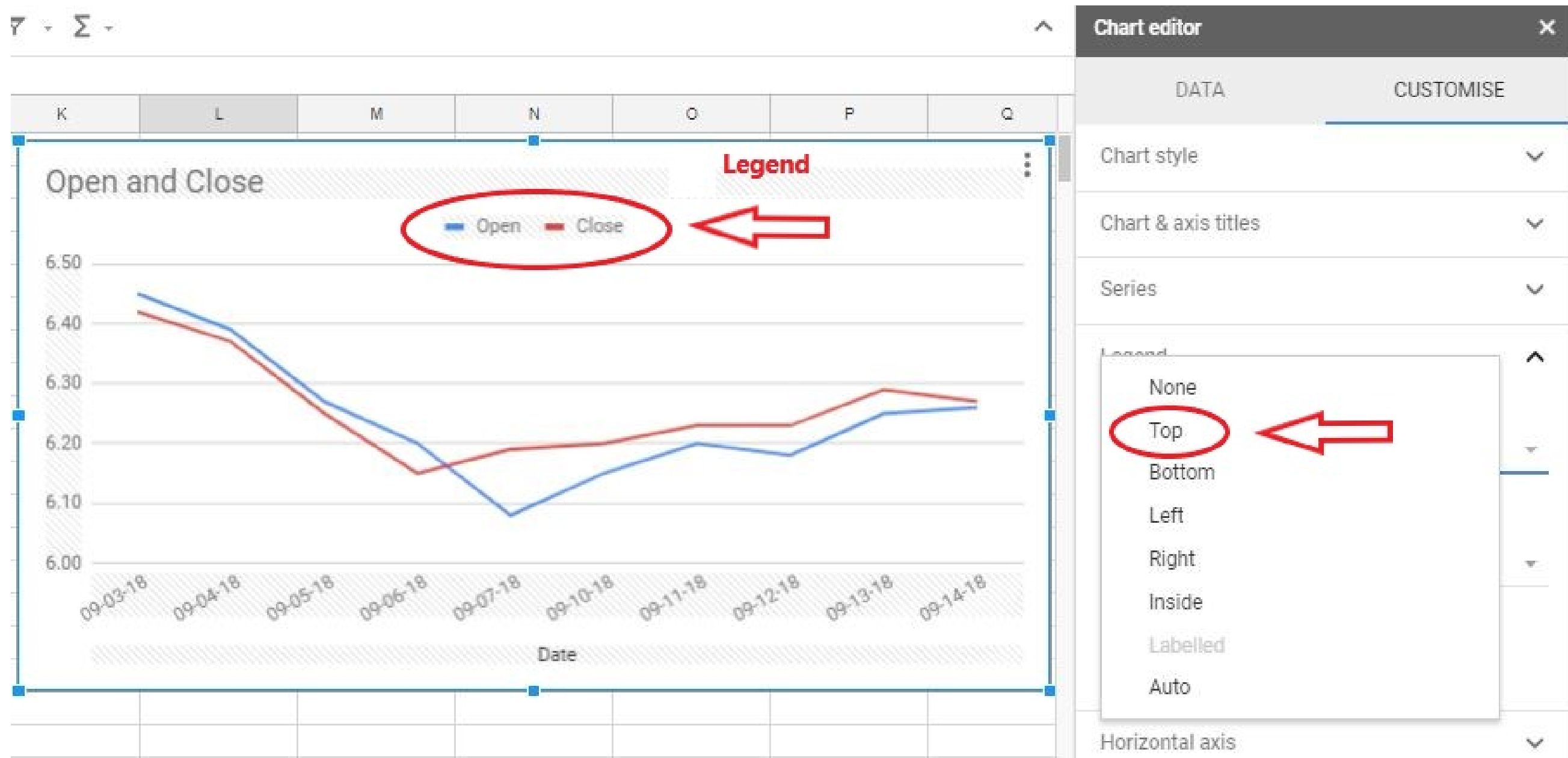
Major gridline count

Auto

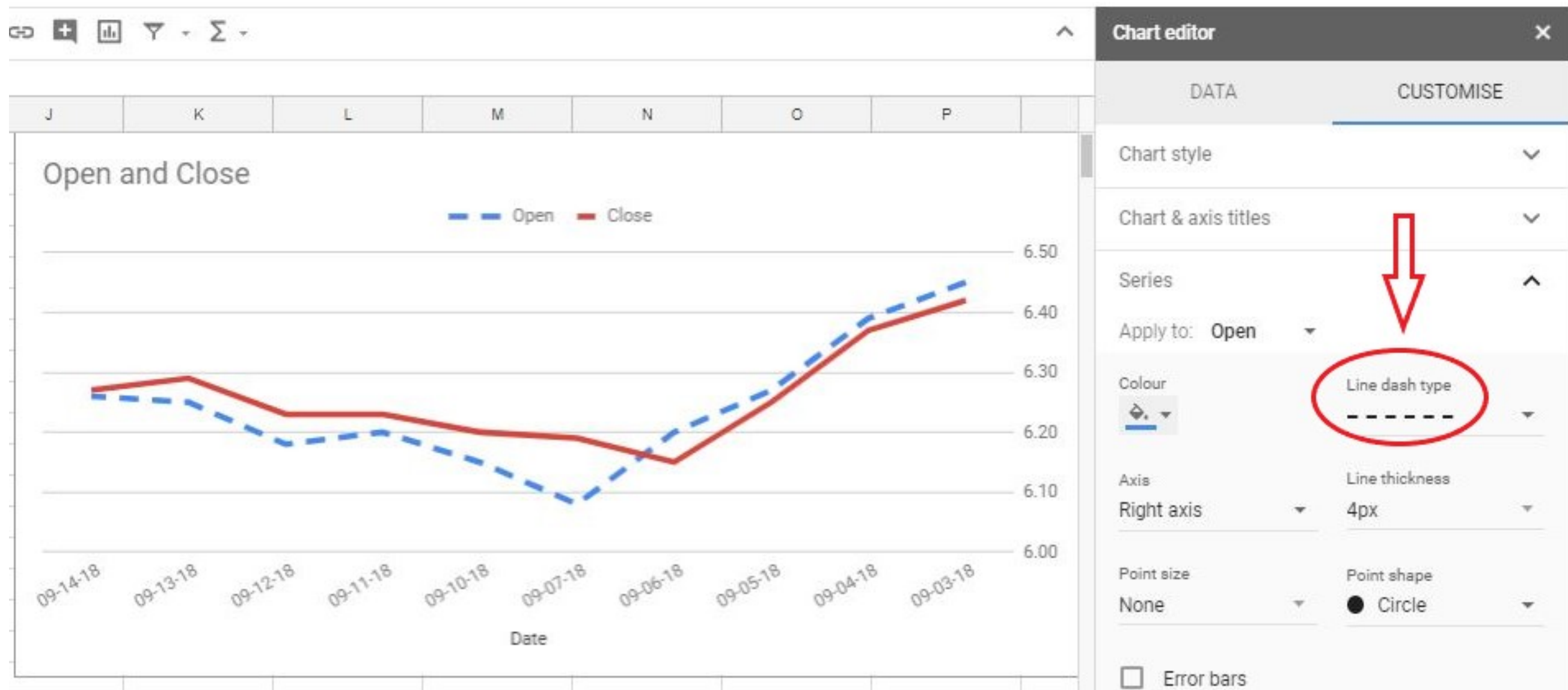
Major gridline colour

Auto

Legend Placement



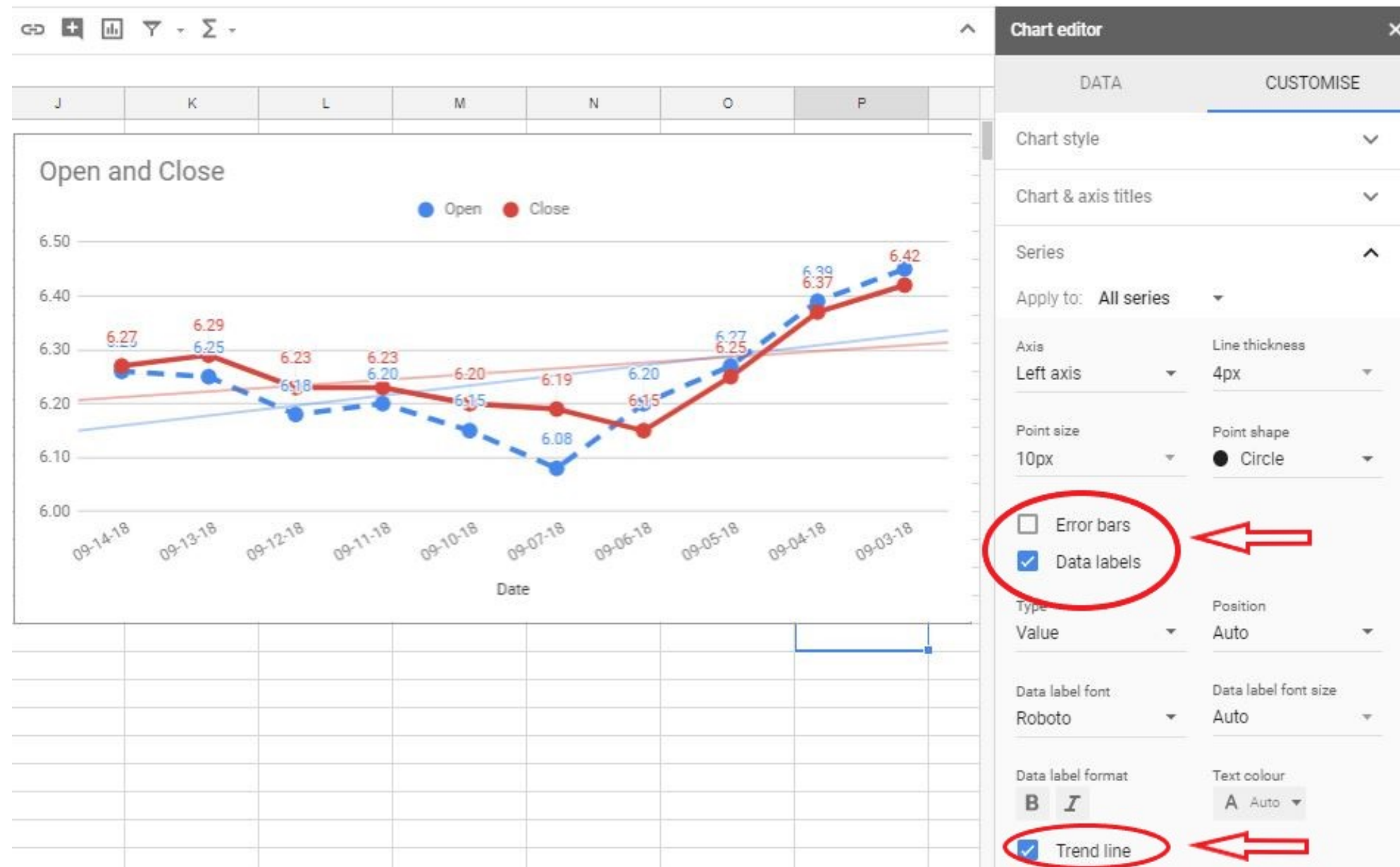
Line Style



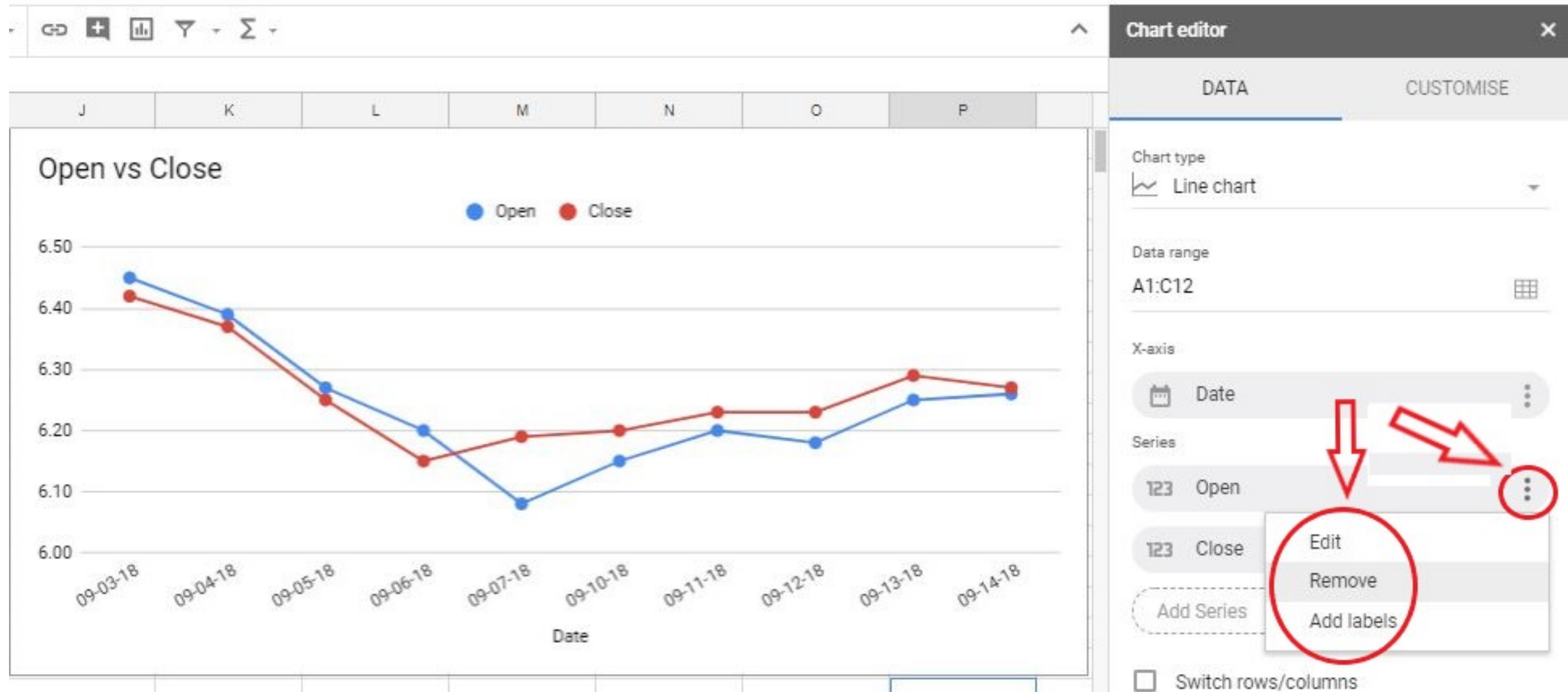
Data points



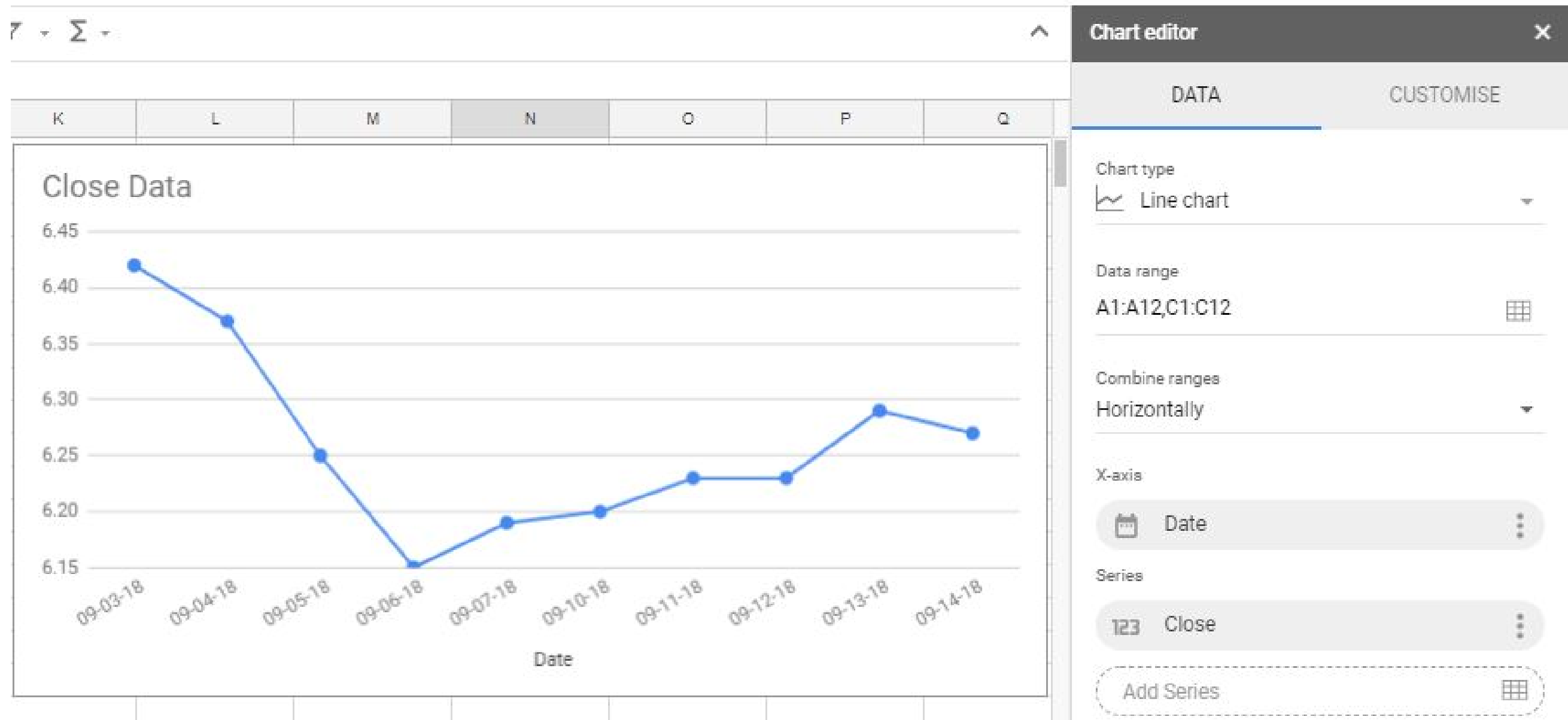
Error bars, data labels, and trendlines



Changing the plotted range



Simultaneous updates



Your turn now!

DATA VISUALIZATION IN SPREADSHEETS