Data formatting overview

Data formatting involves **converting raw data into a structured format** that is suitable for analysis and interpretation.

Data formatting ensures that data are **accurate, consistent, and compatible** to make working with them and deriving meaningful insights from them easier.

There are several types of formatting, such as **numerical**, **text**, **datetime**, and **conditional formatting**.

Numerical formatting

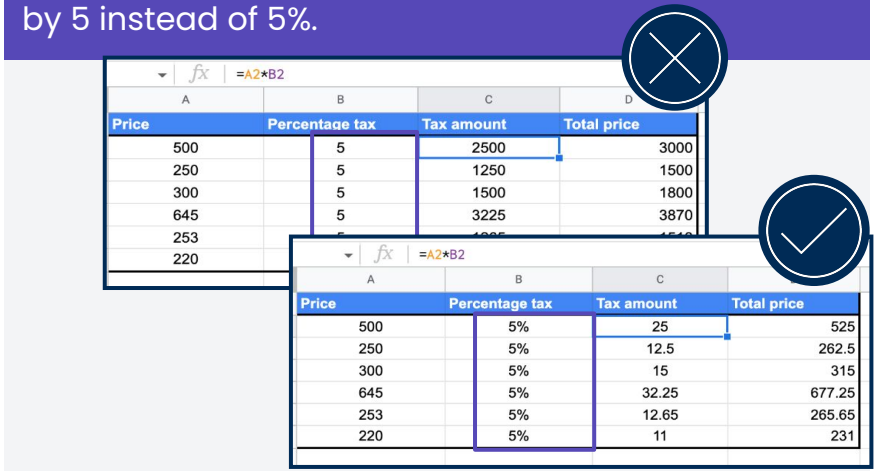
Numerical formatting is the process of **altering the appearance** of **numerical data** in a spreadsheet so that it is in a format that the spreadsheet application can understand for numerical functions.

Why perform numerical formatting?

By applying a number format to a cell, we can specify precisely what kind of numerical value is stored in that cell.

As a result, the spreadsheet application is better able to **comprehend the data**, which can help guarantee that it is consistent and the **formulas are calculated and outputs displayed correctly** for **enhanced user interpretation.**

Without the percentage number format, the spreadsheet assumes we want to multiply “Price” by 5 instead of 5%.



Text formatting

Text formatting is the process of **modifying the appearance** of **text** in a cell to ensure readability.

Why perform text formatting?

Text can be changed in a number of ways, including **splitting text columns** that contain multiple pieces of information and **extracting relevant text** from a column.

Splitting and extracting text from a column can be **more or less complicated** depending on how the **text in the column is structured.**

The simplest way to split text is to use the built-in **`Split text to columns`** tool in Google Sheets.

However, we might need to apply additional functions to trim and clean the split text.

In order to extract text, we can use functions such as **`LEFT()`** and **`RIGHT()`**, which will return a subset of our string.

Text formatting: splitting text to columns

`Select the column > Data > Split text to columns.`

Divides text around a specified character or string and splits it into multiple columns.

F	G	H	I	J	K
Commodity	Product quality	pricetype	currency	price	usdprice
Maize (white)	1 out of 5	Wholesale(100)	ETB	Birr69.60	$8.30
Maize (white)	3 out of 5	Wholesale(100)	ETB	Birr70.00	$8.38
Maize (white)	4 out of 5	Wholesale(100)	ETB	Birr73.75	$8.88
Sorghum (red)	2 out of 5	Wholesale(100)	ETB	Birr75.25	$8.98
Maize (white)	4 out of 5	Retail(50)	ETB	Birr75.50	$9.04
Maize (white)	2 out of 5	Wholesale(100)	ETB	Birr76.50	$9.19
Maize (white)	1 out of 5	Configuring	ETB	Birr80.00	$9.61
Maize (white)	1 out of 5	Configuring	ETB	Birr83.50	$10.06
Maize (white)	4 out of 5	Wholesale(100)	ETB	Birr88.00	$10.62
Maize (white)	3 out of 5	Wholesale(100)	ETB	Birr90.00	$10.87
Maize (white)	1 out of 5	Wholesale(100)	ETB	Birr91.50	$11.08
Maize (white)	2 out of 5	Wholesale(100)	ETB	Birr99.00	$11.98
Maize (white)	5 out of 5	Wholesale(100)	ETB	Birr105.75	$12.74
Maize (white)	2 out of 5	Retail(50)	ETB	Birr106.25	$12.90
Maize (white)	3 out of 5	Wholesale(100)	ETB	Birr110.00	$13.39
Maize (white)	4 out of 5	Wholesale(100)	ETB	Birr111.75	$13.55
Maize (white)	2 out of 5	Retail(50)	ETB	Birr113.25	$13.60

F	G	H	I	J	K
modity	Product quality	pricetype		price	usdprice
Maize (white)	1 out of 5	Wholesale	100	Birr69.60	$8.30
Maize (white)	3 out of 5	Wholesale	100	Birr70.00	$8.38
Maize (white)	4 out of 5	Wholesale	100	Birr73.75	$8.88
orghum (red)	2 out of 5	Wholesale	100	Birr75.25	$8.98
Maize (white)	4 out of 5	Retail	50	Birr75.50	$9.04
Maize (white)	2 out of 5	Wholesale	100	Birr76.50	$9.19
Maize (white)	1 out of 5	Configuring		Birr80.00	$9.61
Maize (white)	1 out of 5	Configuring		Birr83.50	$10.06
Maize (white)	4 out of 5	Wholesale	100	Birr88.00	$10.62
Maize (white)	3 out of 5	Wholesale	100	Birr90.00	$10.87
Maize (white)	1 out of 5	Wholesale	100	Birr91.50	$11.08
Maize (white)	2 out of 5	Wholesale	100	Birr99.00	$11.98
Maize (white)	5 out of 5	Wholesale	100	Birr105.75	$12.74
Maize (white)	2 out of 5	Retail	50	Birr106.25	$12.90
Maize (white)	3 out of 5	Wholesale	100	Birr110.00	$13.39

Text formatting: extracting text

```
=LEFT(string,[number_of_characters])
=RIGHT(string,[number_of_characters])
```

Returns a substring from the beginning/end of a specified string.

	Commodity	Product quality	pricetype		pri
bers	Maize (white)	1 out of 5	Wholesale	100	B
bers	Maize (white)	3 out of 5	Wholesale	100	B
bers	Maize (white)	4 out of 5	Wholesale	100	B
bers	Sorghum (red)	2 out of 5	Wholesale	100	B
bers	Maize (white)	4 out of 5	Retail	50	B
bers	Maize (white)	2 out of 5	Wholesale	100	B
bers	Maize (white)	1 out of 5	Configuring		B
bers	Maize (white)	1 out of 5	Configuring		B
bers	Maize (white)	4 out of 5	Wholesale	100	B
bers	Maize (white)	3 out of 5	Wholesale	100	B
bers	Maize (white)	1 out of 5	Wholesale	100	B
bers	Maize (white)	2 out of 5	Wholesale	100	B
bers	Maize (white)	5 out of 5	Wholesale	100	B
bers	Maize (white)	2 out of 5	Retail	50	B
bers	Maize (white)	3 out of 5	Wholesale	100	B

y	Commodity	Product quality	pricetype		p
and tubers	Maize (white)	1	Wholesale	100	
and tubers	Maize (white)	3	Wholesale	100	
and tubers	Maize (white)	4	Wholesale	100	
and tubers	Sorghum (red)	2	Wholesale	100	
and tubers	Maize (white)	4	Retail	50	
and tubers	Maize (white)	2	Wholesale	100	
and tubers	Maize (white)	1	Configuring		
and tubers	Maize (white)	1	Configuring		
and tubers	Maize (white)	4	Wholesale	100	
and tubers	Maize (white)	3	Wholesale	100	
and tubers	Maize (white)	1	Wholesale	100	
and tubers	Maize (white)	2	Wholesale	100	
and tubers	Maize (white)	5	Wholesale	100	
and tubers	Maize (white)	2	Retail	50	
and tubers	Maize (white)	3	Wholesale	100	

Datetime formatting

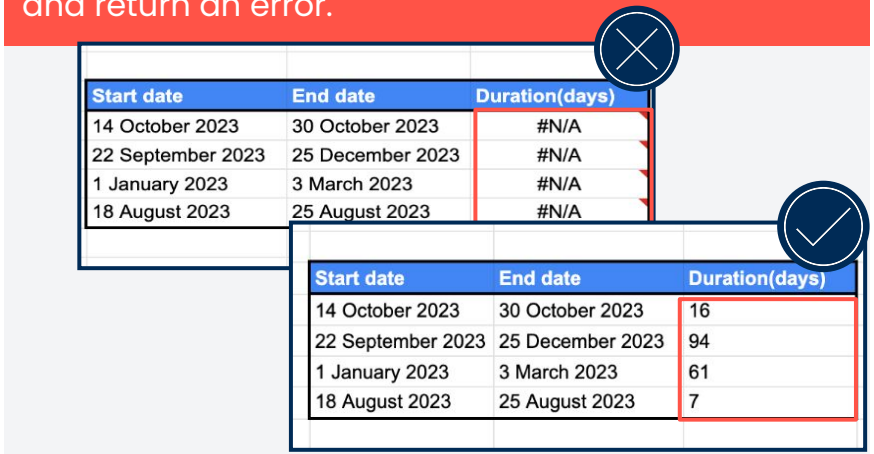
Datetime formatting **enhances** the spreadsheet by ensuring that the correct **date or time formats**, depending on the locale or company standards, are used, thus improving human interpretation.

Why perform datetime formatting?

Date or time formats allow us to work with a **set of functions** that use time and date information to perform calculations.

For example, when a cell is in a date or time format, we are able to **calculate durations and time differences easily**.

Without the datetime number format, the spreadsheet will attempt to calculate text values and return an error.



Start date	End date	Duration(days)
14 October 2023	30 October 2023	#N/A
22 September 2023	25 December 2023	#N/A
1 January 2023	3 March 2023	#N/A
18 August 2023	25 August 2023	#N/A

Start date	End date	Duration(days)
14 October 2023	30 October 2023	16
22 September 2023	25 December 2023	94
1 January 2023	3 March 2023	61
18 August 2023	25 August 2023	7

Conditional formatting

Conditional formatting enables you to **format cells** so that their appearance changes dynamically **in response to the value they hold or to values in other cells**.

Why perform conditional formatting?

01. **To highlight cells** that are greater than, less than, or equivalent to a certain **threshold**. For example, highlight prices that are greater than $20 to call attention to above-standard price levels.

02. To format cells so that they have **varying formatting styles.** For example, a different color for each commodity type will help the user to roughly gauge the amount of a particular commodity against the entire set of commodities.

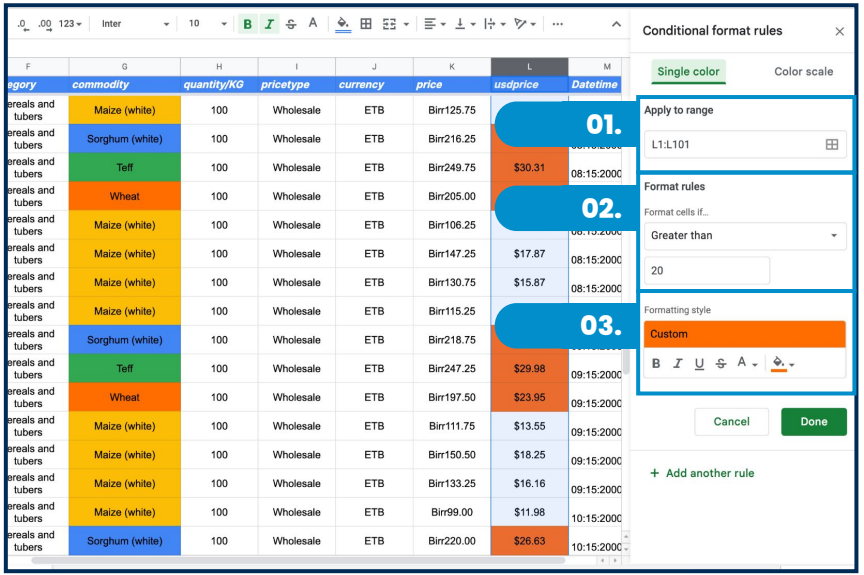
03. To **dynamically format cells** based on the **value of other cells**. This can help users easily notice any underlying trends or patterns. For example, highlight the hours of the day when the USD price is higher than $20.

Conditional formatting

Conditional formatting is expressed using **formatting rules**. Each rule specifies a **target range**, **type of rule**, **conditions** for triggering the rule, and **formatting to apply**.

Elements of conditional formatting:

01. **Range—**This can be a single cell, a range of cells, or multiple ranges.
02. **Format rule—**The rule that needs to be met for the formatting to apply.
03. **Formatting style—**The formatting to apply if the rule is met.



Data formatting

Conditional formatting

01. Highlight prices that are greater than $20 to call attention to above-standard price levels.

Add a value as the conditional format:

01. Highlight **usdprice** column.
02. Format > Conditional formatting.
03. Format rule = Format cells if “**greater than**” **20**.

H	I	J	K	L	M
quantity/KG	*pricetype*	*currency*	*price*	*usdprice*	*Datetime*
100	Wholesale	ETB	Birr125.75	$15.26	08:15:2000 20:0
100	Wholesale	ETB	Birr216.25	$26.25	08:15:2000 21:0
100	Wholesale	ETB	Birr249.75	$30.31	08:15:2000 22:0
100	Wholesale	ETB	Birr205.00	$24.88	08:15:2000 23:0
100	Wholesale	ETB	Birr106.25	$12.90	08:15:2000 00:0
100	Wholesale	ETB	Birr147.25	$17.87	08:15:2000 01:0
100	Wholesale	ETB	Birr130.75	$15.87	08:15:2000 00:0
100	Wholesale	ETB	Birr115.25	$13.98	09:15:2000 00:0
100	Wholesale	ETB	Birr218.75	$26.53	09:15:2000 00:0
100	Wholesale	ETB	Birr247.25	$29.98	09:15:2000 01:0
100	Wholesale	ETB	Birr197.50	$23.95	09:15:2000 02:0
100	Wholesale	ETB	Birr111.75	$13.55	09:15:2000 03:0
100	Wholesale	ETB	Birr150.50	$18.25	09:15:2000 04:0
100	Wholesale	ETB	Birr133.25	$16.16	09:15:2000 12:0
100	Wholesale	ETB	Birr99.00	$11.98	10:15:2000 13:0
100	Wholesale	ETB	Birr220.00	$26.63	10:15:2000 14:0

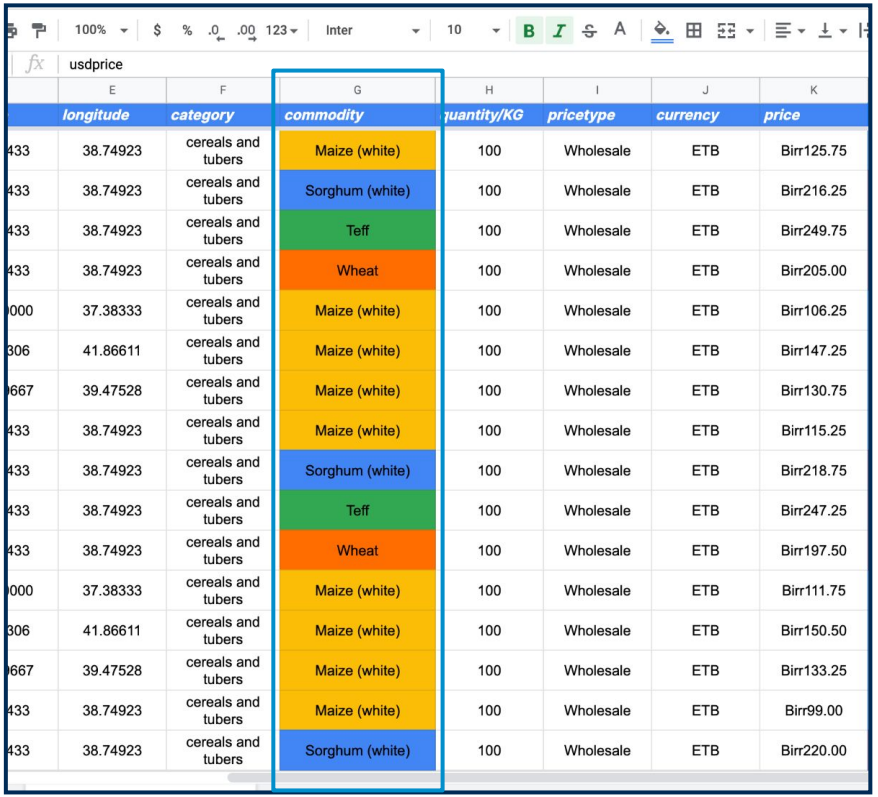
Data formatting

Conditional formatting

02. Highlight commodities by type.

Add a text conditional format:

01. Highlight the **commodity** column.
02. Format > Conditional formatting.
03. Format rule = Format cells if **"text is exactly" each commodity type**.



usdprice

	E	F	G	H	I	J	K
	longitude	category	commodity	quantity/KG	pricetype	currency	price
433	38.74923	cereals and tubers	Maize (white)	100	Wholesale	ETB	Birr125.75
433	38.74923	cereals and tubers	Sorghum (white)	100	Wholesale	ETB	Birr216.25
433	38.74923	cereals and tubers	Teff	100	Wholesale	ETB	Birr249.75
433	38.74923	cereals and tubers	Wheat	100	Wholesale	ETB	Birr205.00
000	37.38333	cereals and tubers	Maize (white)	100	Wholesale	ETB	Birr106.25
306	41.86611	cereals and tubers	Maize (white)	100	Wholesale	ETB	Birr147.25
667	39.47528	cereals and tubers	Maize (white)	100	Wholesale	ETB	Birr130.75
433	38.74923	cereals and tubers	Maize (white)	100	Wholesale	ETB	Birr115.25
433	38.74923	cereals and tubers	Sorghum (white)	100	Wholesale	ETB	Birr218.75
433	38.74923	cereals and tubers	Teff	100	Wholesale	ETB	Birr247.25
433	38.74923	cereals and tubers	Wheat	100	Wholesale	ETB	Birr197.50
000	37.38333	cereals and tubers	Maize (white)	100	Wholesale	ETB	Birr111.75
306	41.86611	cereals and tubers	Maize (white)	100	Wholesale	ETB	Birr150.50
667	39.47528	cereals and tubers	Maize (white)	100	Wholesale	ETB	Birr133.25
433	38.74923	cereals and tubers	Maize (white)	100	Wholesale	ETB	Birr99.00
433	38.74923	cereals and tubers	Sorghum (white)	100	Wholesale	ETB	Birr220.00

Conditional formatting

03. Highlight the hours of the day when the USD price is higher than $20.

Add formatting to cells based on the value of other cells:

01. Highlight the column to which formatting needs to be applied, that is, the **time** column.

02. Format rule = Format cells if "**Custom formula is" = L1 > $20**.

03. Note that we use **relative cell references** (for example, A1) rather than absolute cell references (for example, A1) since we want the formula to be applied to all cells in the selected range.

	B	C	D	I	J	K	L	
1	time	market	latitude	pricetype	currency	price	usdprice	Da
51	20:00	Addis Ababa	9.02433	Wholesale	ETB	Birr125.75	$15.26	08:
52	21:00	Addis Ababa	9.02433	Wholesale	ETB	Birr216.25	$26.25	08:
53	22:00	Addis Ababa	9.02433	Wholesale	ETB	Birr249.75	$30.31	08:
54	23:00	Addis Ababa	9.02433	Wholesale	ETB	Birr205.00	$24.88	08:
55	0:00	Baher Dar	11.60000	Wholesale	ETB	Birr106.25	$12.90	08:
56	1:00	Diredawa	9.59306	Wholesale	ETB	Birr147.25	$17.87	08:
57	0:00	Mekele	13.49667	Wholesale	ETB	Birr130.75	$15.87	08:
58	0:00	Addis Ababa	9.02433	Wholesale	ETB	Birr115.25	$13.98	09:
59	0:00	Addis Ababa	9.02433	Wholesale	ETB	Birr218.75	$26.53	09:
60	1:00	Addis Ababa	9.02433	Wholesale	ETB	Birr247.25	$29.98	09:
61	2:00	Addis Ababa	9.02433	Wholesale	ETB	Birr197.50	$23.95	09:
62	3:00	Baher Dar	11.60000	Wholesale	ETB	Birr111.75	$13.55	09:
63	4:00	Diredawa	9.59306	Wholesale	ETB	Birr150.50	$18.25	09:
64	12:00	Mekele	13.49667	Wholesale	ETB	Birr133.25	$16.16	09:
65	13:00	Addis Ababa	9.02433	Wholesale	ETB	Birr99.00	$11.98	10:
66	14:00	Addis Ababa	9.02433	Wholesale	ETB	Birr220.00	$26.63	10: