

Excel and Google sheets for Data Analytics

-A STUDY RESOURCE



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Why Excel and Google sheets matter

- First step for every data analyst
- Excel = powerful desktop tool for analysis & reporting
- Google Sheets = cloud-based, real-time collaboration
- Together they are foundation before SQL, Python, Tableau

Basic Functions and operations

- Formulas: $=A1+B1$. $=A1-B1$
- Cell Referencing:
- Relative $\rightarrow A1$
- Absolute $\rightarrow \$A\1
- Functions you'll use daily:
- SUM, AVERAGE, COUNT, MAX, MIN

Text Functions

- CONCAT / CONCATENATE → join text
- LEFT / RIGHT → extract characters
- TRIM → clean unwanted spaces
- PROPER → format text into proper case

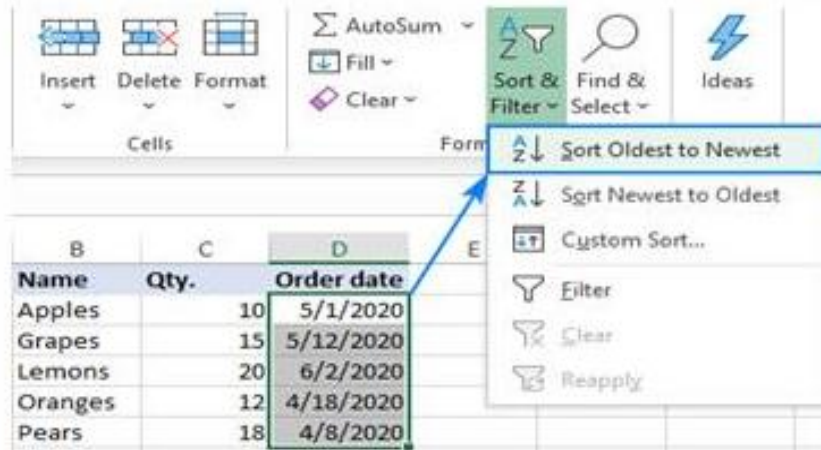
H14		fx		
	A	B	C	D
1	Mr.	selvaraj	Mr.selvaraj	
2			"=Concat	
3				
4	Mr.	selvaraj	Selvaraj	
5			"=proper	
6				
7			sel	
8			"=Left 3 characters	
9				
10				
11				
12				



Data Cleaning and Manipulation

- Sorting data (A–Z, largest to smallest)
- Filtering by conditions
- Removing duplicates
- Conditional formatting → highlight insights with colors/bars

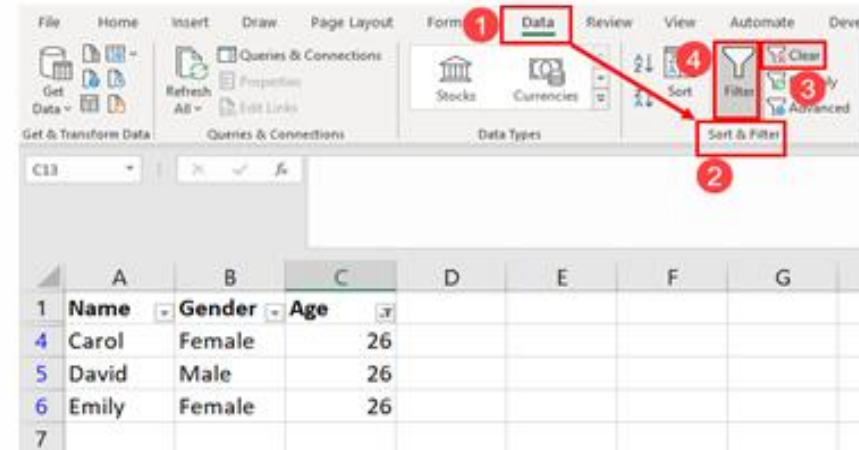
Example of Sort in Excel



The screenshot shows the Excel ribbon with the 'Sort & Filter' button highlighted. The dropdown menu is open, displaying various sorting and filtering options. A blue arrow points from the 'Order date' column header in the data table to the 'Sort Oldest to Newest' option in the menu.

Name	Qty.	Order date
Apples	10	5/1/2020
Grapes	15	5/12/2020
Lemons	20	6/2/2020
Oranges	12	4/18/2020
Pears	18	4/8/2020

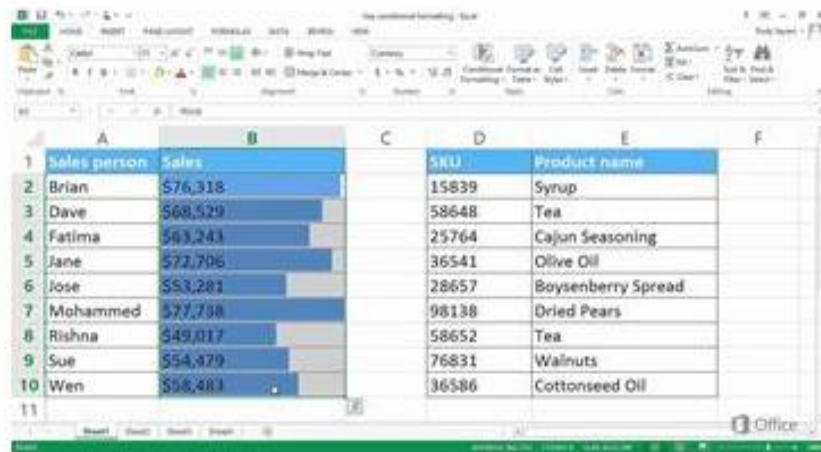
Example of Filter in Excel



The screenshot shows the Excel ribbon with the 'Data' tab selected. The 'Filter' button is highlighted with a red circle. A red arrow points from the 'Filter' button to the 'Sort & Filter' dropdown menu, which is also highlighted with a red circle. Another red circle highlights the 'Filter' button in the 'Sort & Filter' menu.

	A	B	C	D	E	F	G
1	Name	Gender	Age				
4	Carol	Female	26				
5	David	Male	26				
6	Emily	Female	26				
7							

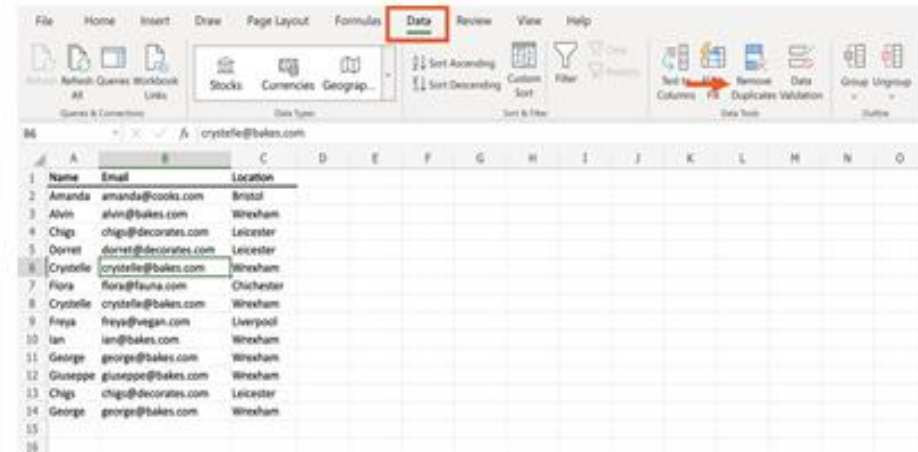
Example of Conditional Formatting in Excel



The screenshot shows the Excel ribbon with the 'Conditional Formatting' button highlighted. The dropdown menu is open, displaying various conditional formatting options. A blue arrow points from the 'Sales' column header in the data table to the 'Conditional Formatting' option in the menu.

Sales person	Sales	SKU	Product name
Brian	\$76,318	15839	Syrup
Dave	\$68,529	58648	Tea
Fatima	\$63,243	25764	Cajun Seasoning
Jane	\$72,706	36541	Olive Oil
Jose	\$53,281	28657	Boysenberry Spread
Mohammed	\$77,738	98138	Dried Pears
Rishna	\$49,017	58652	Tea
Sue	\$54,879	76831	Walnuts
Wen	\$58,483	36586	Cottonseed Oil

Example of Functions in Excel

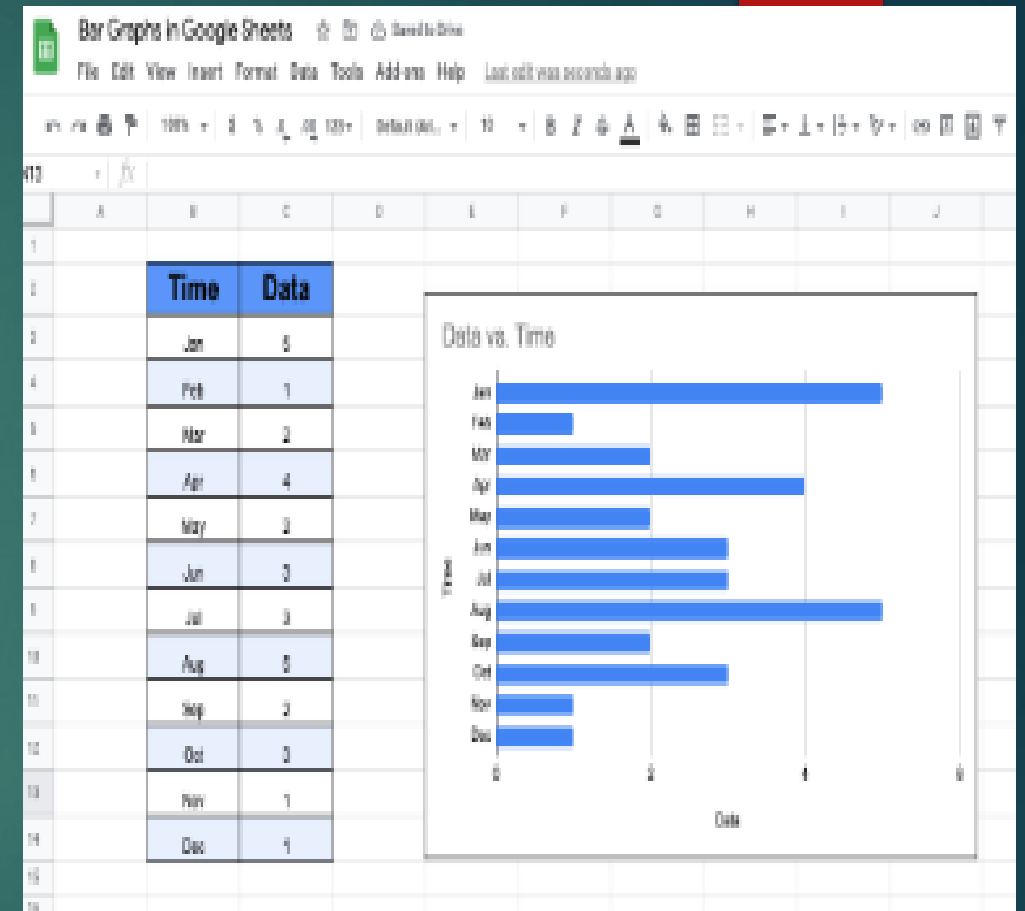


The screenshot shows the Excel ribbon with the 'Data' tab selected. The 'Sort' button is highlighted with a red circle. A red arrow points from the 'Sort' button to the 'Filter' button, which is also highlighted with a red circle. Another red circle highlights the 'Filter' button in the 'Sort & Filter' dropdown menu.

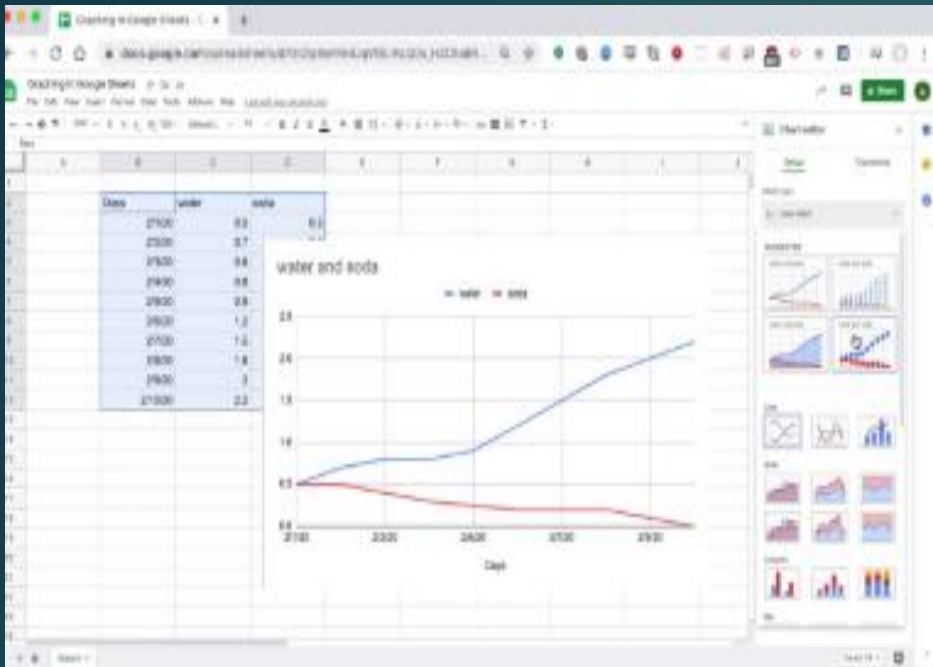
Name	Email	Location
Amanda	amanda@cooks.com	Bristol
Alvin	alvin@bakes.com	Winchester
Chips	chips@decorates.com	Leicester
Dorset	dorset@decorates.com	Leicester
Crystal	crystal@bakes.com	Winchester
Flora	flora@bakes.com	Chichester
Crystal	crystal@bakes.com	Winchester
Frya	frya@vegan.com	Liverpool
Ian	ian@bakes.com	Winchester
George	george@bakes.com	Winchester
Giuseppe	giuseppe@bakes.com	Winchester
Chips	chips@decorates.com	Leicester
George	george@bakes.com	Winchester

Visualising data

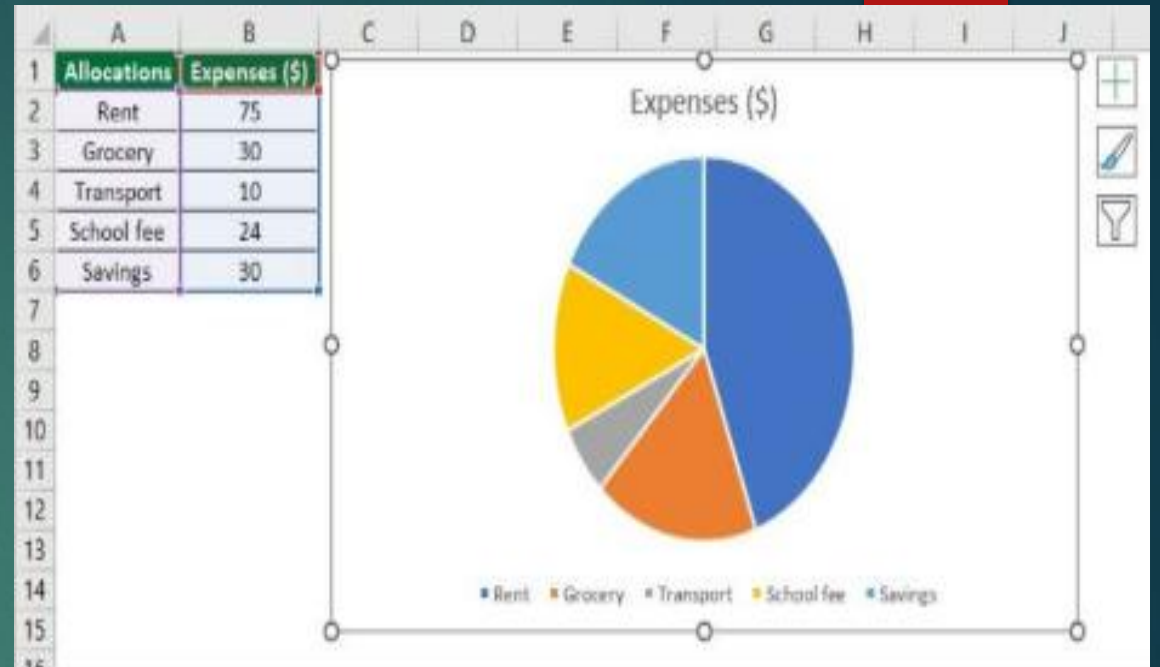
- ▶ Charts:
 - ▶ Bar → compare categories
 - ▶ Line → show trends
 - ▶ Pie → show proportions
- ▶ Conditional formatting: heatmaps & data bars
- ▶ Sparklines → small trend lines inside cells



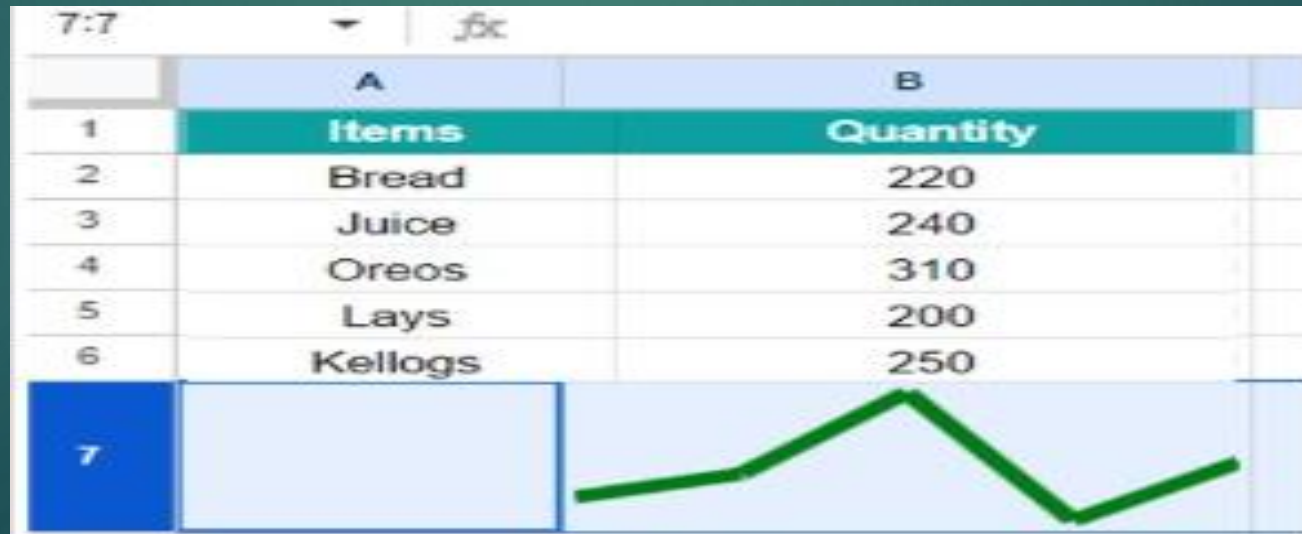
Bar chart



Line chart



Pie chart



Sparkline in a cell

Pivot tables

- ▶ Helps summarize, analyse and group large datasets without writing formulas.
- ▶ Drag and drop fields to create instant reports

Steps:

- *Select the data range
- *Insert → Pivot Table
- *Choose New Worksheet (recommended) or existing worksheet
- *Drag and drop fields to Rows, Values, filters, Columns
- *Analyse the output

A4

✕

✓

*f*x

Row Labels

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2													
3													
4	Row Labels	Sum of HOURLY RATE											
5	D	\$60.05											
6	DH	\$103.10											
7	DR	\$226.67											
8	DRH	\$21.50											
9	H	\$48.00											
0	R	\$110.20											
1	RH	\$90.82											
2	(blank)	\$103.00											
3	Grand Total	\$763.34											
4													
5													
6													
7													
8													
9													
0													
1													
2													
3													
4													
5													
6													
7													
8													
9													
0													
1													
2													
3													
4													
5													
6													
7													

PivotTable Fields

Choose fields to add to report:

⚙

Search

🔍

☐ FIRST

☐ LAST

☐ DATE of HIRE

☒ DEPT

☐ HRS

☒ HOURLY RATE

☐ GROSS PAY

More Tables...

Drag fields between areas below:

🔿 Filters

📊 Columns

☰ Rows

DEPT

Σ Values

Sum of HOURLY RATE

☐ Defer Layout Update

Update

◀ ▶ ...

Extracting Data 2

Data Set 1

Data Set 2

Sheet1

Data Set3 ...

+

:

◀ ▶

Data Analysis tools

- **Goal Seek:** find input needed for a target output
- **Data Tables:** compare scenarios easily
- **Solver (Excel):** optimize with constraints
- **Data Validation:** dropdown lists & input rules

	A	B	C	D	E
1	Goal Seek				
2	Item price	\$5			
3	Qty.	100			
4	Commission	10%			
5	Revenue	\$450			
6					
7					
8					

Goal Seek		?	X
Set cell:	\$B\$5	↑	← Formula cell
To value:	1000	←	← Desired value
By changing cell:	\$B\$3	↑	← Input cell (variable)
OK		Cancel	

Goal seek

	A	B	C	D	E
1	Compound Interest Calculator			Investment	Balance
2				(current)	\$2,566.72
3	Initial investment	\$2,000		\$1,000	
4	Annual interest rate	5%		\$2,000	
5	Compounding periods per year	12		\$3,000	
6	Years	5		\$4,000	
7				\$5,000	
8	Balance	\$2,566.72		\$6,000	
9					
10					
11					
12					
13					
14					
15					

Data Table		?	X
Row input cell:		↑	
Column input cell:	\$B\$3	↑	
OK		Cancel	

Data table

Basic sheet shortcuts

- ▶ **Ctrl + Arrow Keys** → Jump to edge of data (up/down/left/right)
- ▶ **Shift + Space** → Select entire row
- ▶ **Ctrl + Space** → Select entire column
- ▶ **Ctrl + A** → Select all
- ▶ **Ctrl + C** → Copy
- ▶ **Ctrl + X** → Cut
- ▶ **Ctrl + V** → Paste
- ▶ **Ctrl + Z** → Undo
- ▶ **Ctrl + Y** → Redo
- ▶ **Ctrl + Enter** → Fill selected cells with same value
- ▶ **Ctrl + B** → Bold
- ▶ **Ctrl + I** → Italic
- ▶ **Ctrl + U** → Underline
- ▶ **Ctrl + /** → View all shortcuts
- ▶ **Ctrl + Shift + V** → Paste values only (no formatting)

Google Sheet Superpower

- ▶ Real-time collaboration & comments
- ▶ Version history (no more lost files)
- ▶ Special formulas:
 - ▶ IMPORTRANGE (pull data from another sheet)
 - ▶ GOOGLEFINANCE (fetch stock/crypto data)
 - ▶ IMPORTDATA (load from a web URL)



Google Sheets

VS



Microsoft Excel

- Google Sheets offers real-time collaboration from any device
- Google Sheets offers basic functionalities with add-ons
- Google Sheets saves files in the cloud
- Google Sheets is free with a Google account

- Excel requires software installation
- Excel provides advanced features and complex data analysis tool
- Excel files are stored locally unless saved to OneDrive
- Excel typically requires a paid Microsoft Office subscription

Productivity hacks

- Shortcuts:**

- Excel: Ctrl+T (Table), Ctrl+Shift+L (Filter), Alt+= (AutoSum)
- Sheets: Ctrl+/ to view all shortcuts
- Named Ranges → cleaner formulas
- Freeze Panes → lock headers while scrolling
- Macros → record repetitive steps (Excel mainly)

Macros (For advanced learner)

- A **Macro** is a recorded sequence of steps that automates repetitive tasks in Excel/Google Sheets.
- Example: Formatting a report (bold headers, resize columns, apply colors) with one click

Why use Macros?

Save time on tasks you repeat often
Reduce human error
Make processes consistent

How to Create a Macro (Excel):

Go to **View** → **Macros** → **Record Macro**

Perform the actions you want automated (e.g., apply formatting, insert formulas)

Stop Recording → Macro is saved

Next time, just run the macro → Excel repeats everything automatically