

Lesson 2-4: Formatting a spreadsheet

Quick calculations

Formula

Data representation



Goals:

To build a data set in a spreadsheet

- I can choose an appropriate format for a cell
- I can apply an appropriate format to a cell
- Use basic formulas with cell references for calculations in a spreadsheet (+, -, *, /)
- Use the autofill tool to replicate cell data
- I can create a formula which includes a range of cells
- Use the functions SUM, MAX, MIN, and COUNTA in a spreadsheet
- Create appropriate charts in a spreadsheet

What is a data item?

Have a look at this part of a spreadsheet.

	A	B	C
1	Product	Quantity	Cost
2	Apples	3	£1.59
3	Bananas	4	£1.10
4	Oranges	1	£0.60
5	Lemons	6	£1.80

What is in cell A2?

What is in cell B5?

What is in cell C3?

What is in cell B1?

What do you notice?

Each cell contains one item of data.
There can be many types of data items.

Which format?

- The common formats for spreadsheets are shown here.

- Which formats have been used on the table below.

	A	B	C	D	E	F	G	H
1	Date of survey	19/10/2021		Name	Method of travel	Distance in miles	Duration of journey	Cost of journey
2				Reina	Car	4.4	0:24:00	£2.60
3				David	Bus	6.2	0:30:00	£1.40
4				Yiannis	Bike	2.3	0:15:00	£0.00
5				Bob	Walking	0.8	0:21:00	£0.00
6				Amin	Bus	6.2	0:24:00	£1.40

Automatic	
Plain text	
Number	1,000.12
Percent	10.12%
Scientific	1.01E+03
Accounting	£ (1,000.12)
Financial	(1,000.12)
Currency	£1,000.12
Currency (rounded)	£1,000
Date	26/09/2008
Time	15:59:00
Date time	26/09/2008 15:59:00
Duration	24:01:00

Which format?

Number

Date

Currency

Duration

Plain text

	A	B	C	D	E	F	G	H
1	Date of survey	19/10/2021		Name	Method of travel	Distance in miles	Duration of journey	Cost of journey
2				Reina	Car	4.4	0:24:00	£2.60
3				David	Bus	6.2	0:30:00	£1.40
4				Yiannis	Bike	2.3	0:15:00	£0.00
5				Bob	Walking	0.8	0:21:00	£0.00
6				Amin	Bus	6.2	0:24:00	£1.40

Which format?

Plain text Date

Plain text

Number

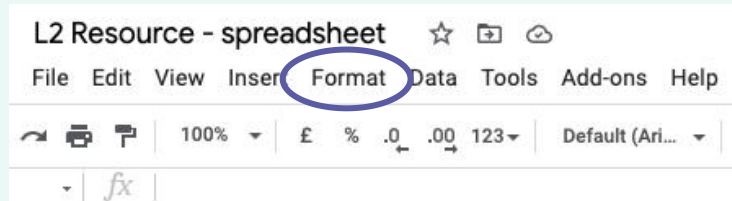
Duration

Currency

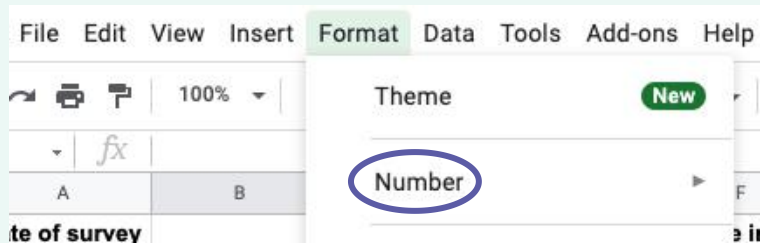
	A	B	C	D	E	F	G	H
1	Date of survey	19/10/2021		Name	Method of travel	Distance in miles	Duration of journey	Cost of journey
2				Reina	Car	4.4	0:24:00	£2.60
3				David	Bus	6.2	0:30:00	£1.40
4				Yiannis	Bike	2.3	0:15:00	£0.00
5				Bob	Walking	0.8	0:21:00	£0.00
6				Amin	Bus	6.2	0:24:00	£1.40

Applying number formats

1 Click on 'format'



2 Hover over 'Number'



3 Choose a format from the list

Automatic	
Plain text	
Number	1,000.12
Percent	10.12%
Scientific	1.01E+03
Accounting	£ (1,000.12)
Financial	(1,000.12)
Currency	£1,000.12
Currency (rounded)	£1,000
Date	26/09/2008
Time	15:59:00
Date time	26/09/2008 15:59:00
Duration	24:01:00

Why apply formatting?

Think, pair, share: Why is it a good idea to apply formatting to cells in spreadsheets?

It makes
them easier
to use

It makes
them easier
to read

It shows
you what
each cell
contains

Formulas and functions

Formulas can be used to perform calculations, using:

- Multiplication
- Subtraction
- Division
- Addition

Functions can be used to complete more complex processes such as:

- Calculating average
- Finding the sum of multiple cells
- Counting a number of objects

Calculations in spreadsheets

You can perform common mathematical operations in a spreadsheet using the symbols below:



Add



Subtract



Multiply



Divide

Calculations in spreadsheets

Fruit	Quantity	Price	Total price
Apple	5	3	= B2 * C2
Banana	3	4	
Mango	2	15	
Pear	10	5	

drag down to apply this formula to the other items

	A	B	C	D
1	Fruit	Quantity	Price	Total price
2	Apple	5	3	15
3	Banana	3	4	12
4	Mango	2	15	30
5	Pear	10	5	50

The SUM function

Superpower: superfast totals!



The SUM function

Superpower: superfast totals!

`=SUM(D2:D5)`

	A	B	C	D	E
1	Fruit	Quantity	Price	Total price	
2	Apple	5	3	15	
3	Banana	3	4	12	
4	Mango	2	15	30	
5	Pear	10	5	50	
6					
7				=sum(D2:D5	
8					
9				SUM (Number1 ,...)	



The MAX function

Superpower: find the largest value
with your eyes closed!



The MAX function

Superpower: find the largest value
with your eyes closed!

`=MAX(D2:D5)`

	A	B	C	D	E
1	Fruit	Quantity	Price	Total price	
2	Apple	5	3	15	
3	Banana	3	4	12	
4	Mango	2	15	30	
5	Pear	10	5	50	
6					
7				<code>=MAX(D2:D5</code>	
8					
9					

MAX (Number1 ,...)



The MIN function

Superpower: ???



The MIN function

Superpower: find the smallest value without looking!



The MIN function

Superpower: find the smallest value without looking!

`=MIN(D2:D5)`

	A	B	C	D	E
1	Fruit	Quantity	Price	Total price	
2	Apple	5	3	15	
3	Banana	3	4	12	
4	Mango	2	15	30	
5	Pear	10	5	50	
6					
7				<code>=MIN(D2:D5)</code>	
8					
9					

MIN (Number1 ,...)



The AVERAGE function

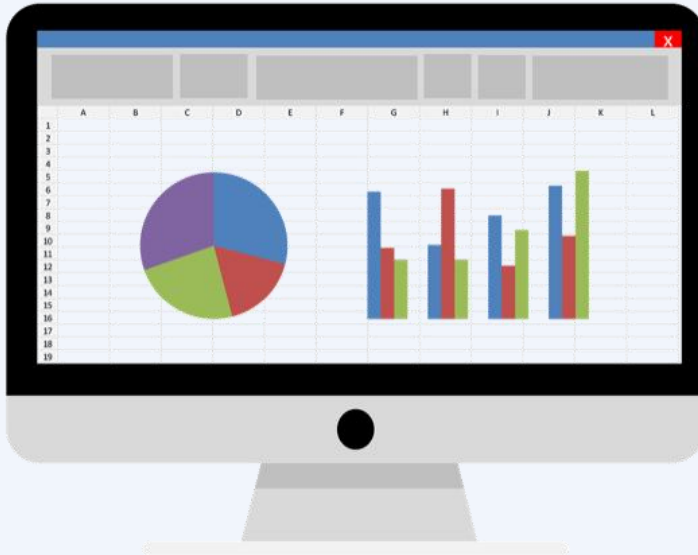
Superpower: calculate an average

	A	B	C	D	E
1	Fruit	Quantity	Price	Total price	
2	Apple	5	3	15	
3	Banana	3	4	12	
4	Mango	2	15	30	
5	Pear	10	5	50	
6					
7			=AVERAGE(C2:C5)		
8					
9					
10					



Visualising data

- A **chart** represents data visually.
- With spreadsheets, you can create all kinds of charts in just a few clicks!



Task (duration: 1 lesson)

The following task will help you prepare for the last Test in our course. Therefore, you have to understand how to complete it. DON'T get distracted. First, listen to instructions! Read instructions carefully, ask questions - if not clear what to do.

以下任务将帮助你准备我们课程的最后一个测试。因此，你必须了解如何完成它。切勿分心。首先，听从指示！仔细阅读指示，如果不清楚该怎么做，请提出问题。

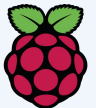
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
1	Read instructions:																			
2	1. Convert "Rotten Tomatoes Rating" to percentage																			
3	2. Convert "Box office" and "Budget" to currency format (USD).																			
4	3. Create a new column "Profit" which is equal to Box office - Budget																			
5	4. Create a new column named "Number of Prestigious Awards." This column should contain the sum of Academy Awards (Oscars), Golden Globe Awards, and BAFTA Awards for each movie.																			
6	5. Sort the dataset in ascending order based on the "Release Date" column. This will help you see the chronological order of movie releases.																			
7	6. Find the movie with highest number of awards. Highlight with green																			
8	7. Find the movie with the lowest number of awards. Highlight with red																			
9	8. Go to "Bar chart" sheet. Create a bar chart with Box Office and Budget numbers for each movie. Discuss findings regarding which movies were the most profitable.																			
10	9. Go to "Scatter Plot" sheet. Create a scatter plot with given modified on teh same scale data. Discuss which movie has the biggest discrepancy between critics and audience evaluation.																			
11	questions 8 and 9 - discuss with a partner, try to recreate these graphs by yourself																			
12																				
13	阅读说明：																			
14	1. 将“烂番茄评分”转换为百分比																			
15	2. 将“票房”和“预算”转换为货币格式（美元）。																			
16	3. 创建一个新列“利润”，其值为“票房-预算”。																			
17	4. 创建一个名为“重要奖项数量”的新列。此列应包含每部电影获得的奥斯卡金像奖、金球奖和英国电影学院奖的总和。																			
18	5. 根据“上映日期”列按升序对数据集进行排序。这将帮助您查看电影上映的时间顺序。																			
19																				
20	6. 找到获奖数量最多的电影。用绿色突出显示																			
21	7. 找到获奖数量最少的电影。用红色突出显示																			
22	8. 转到“条形图”工作表。创建一个包含每部电影票房和预算数据的条形图。讨论哪些电影最赚钱的发现。																			
23	9. 转到“散点图”工作表。使用给定的修改后的同尺度数据创建散点图。讨论哪部电影的影评人和观众的评价差异最大。																			
24	问题8和9 - 与同伴讨论，尝试自己重新绘制这些图表																			
25																				
26																				
27																				
28																				
29																				
30																				
31																				
32																				
33																				
34																				

< > Instructions Data Bar chart Scatter plot +

5 minutes to read and ask questions

How to convert format? Q1-Q2

Movie	Category	IMDb Rating	Rotten Tomatoes Rating	Release Date	Duration	Box Office	Budget
Titanic	Drama/Romance	7.9	0.88	19/12/1997	195 min	2.202E+09	2000000
Avatar	Sci-Fi/Adventure	7.9					3700000
The Lord of the Rings: The Return of the King	Fantasy/Adventure	9					9400000
Twilight	Fantasy/Romance	5.3					3700000
Nezha	Animation/Action	7.5					2000000
Interstellar	Sci-Fi/Drama	8.6					6500000
Parasite	Drama/Thriller	8.5					1100000
Spirited Away	Animation/Fantasy	8.6					900000
Amélie	Romance/Comedy	8.3					1000000
Inception	Sci-Fi/Thriller	8.8					800000
Pulp Fiction	Crime/Drama	8.9					850000
The Godfather	Crime/Drama	9.2					600000



How to convert format? Q1-Q2

WPS Office Account Workspace Window Help

WPS Office L2-L4.pptx Grades report ...actice grade 7 Book3

Menu Home Insert Page Layout Formulas Data Review View Special features

Not saved to the cloud

Calibri 10.5 A+ A- B I U Bold Italic Underline

General % 000 0.00 0.00 Conditional Cell Style AutoSum AutoFilter Sort Fill Format Rows and Columns

D2 fx 0.88

	A	B	C	D	E
1	Movie	Category	IMDb Rating	Rotten Tomatoes Rating	Release Date
2	Titanic	Drama/Romance	7.9	0.88	19/12/1997
3	Avatar	Sci-Fi/Adventure	7.9	0.82	18/12/2009
4	The Lord of the Rings: The Return of the King	Fantasy/Adventure	9	0.93	17/12/2003
5	Twilight	Fantasy/Romance	5.3	0.49	21/11/2008
6	Nezha	Animation/Action	7.5	0.88	26/07/2019
7	Interstellar	Sci-Fi/Drama	8.6	0.72	07/11/2014
8	Parasite	Drama/Thriller	8.5	0.99	30/05/2019
9	Spirited Away	Animation/Fantasy	8.6	0.97	20/07/2001
10	Amélie	Romance/Comedy	8.3	0.89	25/04/2001
11	Inception	Sci-Fi/Thriller	8.8	0.87	16/07/2010
12	Pulp Fiction	Crime/Drama	8.9	0.92	14/10/1994
13	The Godfather	Crime/Drama	9.2	0.97	24/03/1972
14	Forrest Gump	Drama/Comedy	8.8	0.71	06/07/1994

Format Cells

Number Alignment Font Border Patterns Protection

Category:

- General
- Number
- Currency
- Accounting
- Date
- Time
- Percentage
- Fraction
- Scientific
- Text
- Special
- Custom

Sample: 88.00%

Decimal places: 2

Percentage formats multiply the cell value by 100 and displays the result with a percent symbol.

Cancel OK

Hand+Shift+C)

one place and

to apply the multiple places in

7.9 0.82 1

9 0.93 1

5.3 0.49 2

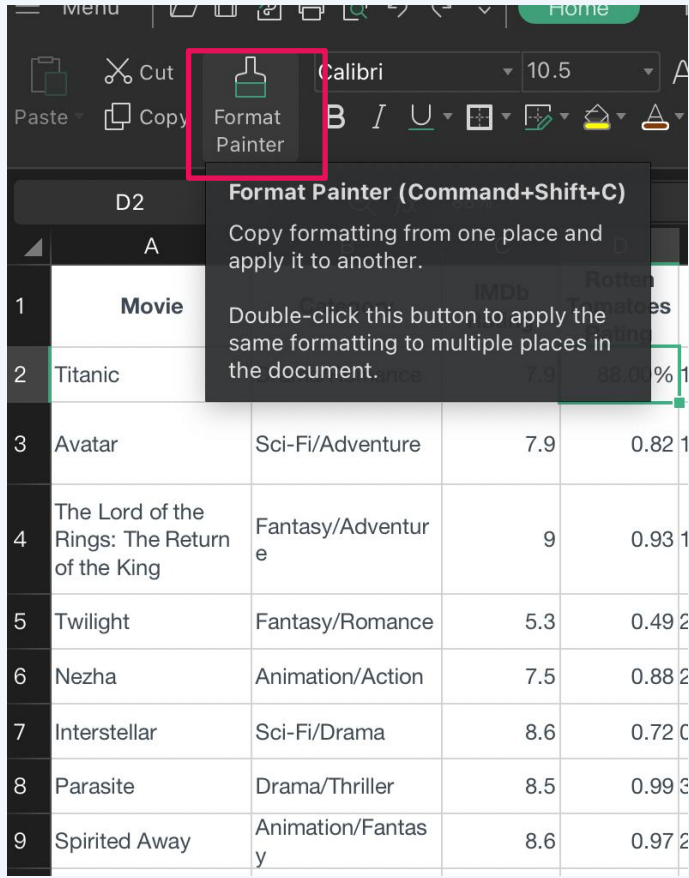
7.5 0.88 2

8.6 0.72 C

8.5 0.99 3

8.6 0.97 2

How to convert format? Q1-Q2



The screenshot shows the Microsoft Word ribbon with the 'Format Painter' button highlighted by a red box. A tooltip for the 'Format Painter' button is displayed, explaining its function: 'Format Painter (Command+Shift+C)' and 'Copy formatting from one place and apply it to another. Double-click this button to apply the same formatting to multiple places in the document.'

Below the ribbon, a table of movie data is visible. The table has columns for Rank, Title, Genre, Rating, and Box Office. The data is as follows:

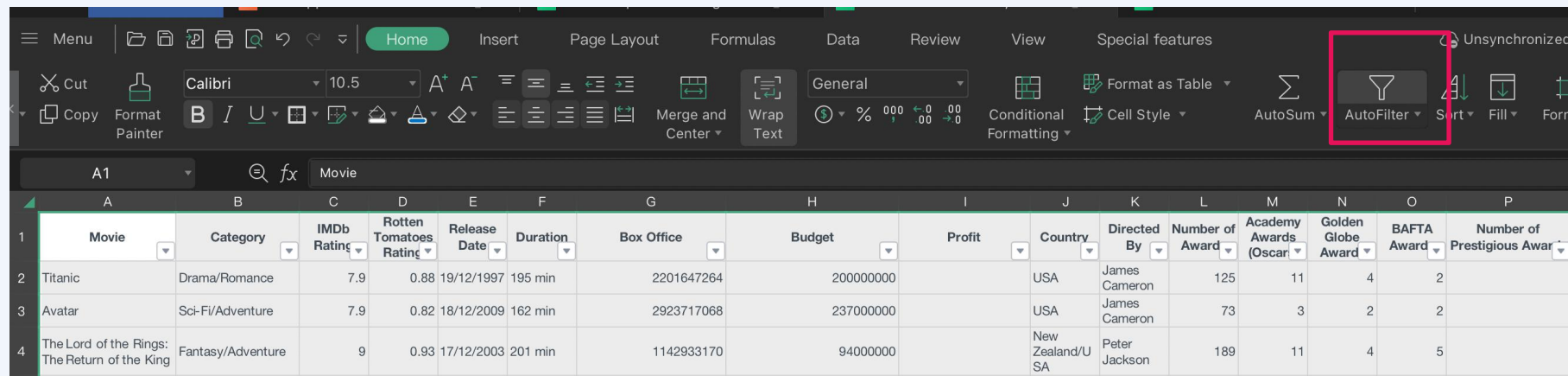
Rank	Title	Genre	Rating	Box Office
1	Movie			
2	Titanic		7.9	88.00%
3	Avatar	Sci-Fi/Adventure	7.9	0.821
4	The Lord of the Rings: The Return of the King	Fantasy/Adventure	9	0.931
5	Twilight	Fantasy/Romance	5.3	0.492
6	Nezha	Animation/Action	7.5	0.882
7	Interstellar	Sci-Fi/Drama	8.6	0.720
8	Parasite	Drama/Thriller	8.5	0.993
9	Spirited Away	Animation/Fantasy	8.6	0.972

How to calculate profit? How to calculate number of prestigious awards?

G	H	I
Box Office	Budget	Profit
2201647264	200000000	=G2 - H2

M	N	O	P	Q
Academy Awards (Oscars)	Golden Globe Awards	BAFTA Awards	Number of Prestigious Awards	
11	4	2	=sum(M2:O2)	
3	2	2	SUM (Number1 ,...)	

How to create a filter? How to sort?



The screenshot shows the Microsoft Excel interface with the 'AutoFilter' button highlighted in the 'Data' tab ribbon. The 'AutoFilter' button is represented by a funnel icon and is located next to the 'Sort' button. The spreadsheet below contains a table of movie data with columns for Movie, Category, IMDb Rating, Rotten Tomatoes Rating, Release Date, Duration, Box Office, Budget, Profit, Country, Directed By, Number of Award, Academy Awards (Oscar), Golden Globe Award, BAFTA Award, and Number of Prestigious Award.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	Movie	Category	IMDb Rating	Rotten Tomatoes Rating	Release Date	Duration	Box Office	Budget	Profit	Country	Directed By	Number of Award	Academy Awards (Oscar)	Golden Globe Award	BAFTA Award	Number of Prestigious Award
1																
2	Titanic	Drama/Romance	7.9	0.88	19/12/1997	195 min	2201647264	200000000		USA	James Cameron	125	11	4	2	
3	Avatar	Sci-Fi/Adventure	7.9	0.82	18/12/2009	162 min	2923717068	237000000		USA	James Cameron	73	3	2	2	
4	The Lord of the Rings: The Return of the King	Fantasy/Adventure	9	0.93	17/12/2003	201 min	1142933170	94000000		New Zealand/USA	Peter Jackson	189	11	4	5	

How to create a filter? How to sort?

	A	B	C	D	E	F
1	Movie	Category	IMDb Rating	Rotten Tomatoes Rating	Release Date	Duration

A↓ Ascending

Z↓ Descending

Color Sort

Advance Mode

Filter by

Ascending

Filter by Color

Date Filter

Clear

(Support multi-condition filtering)

Label

Options

☒ (Select all) (21)

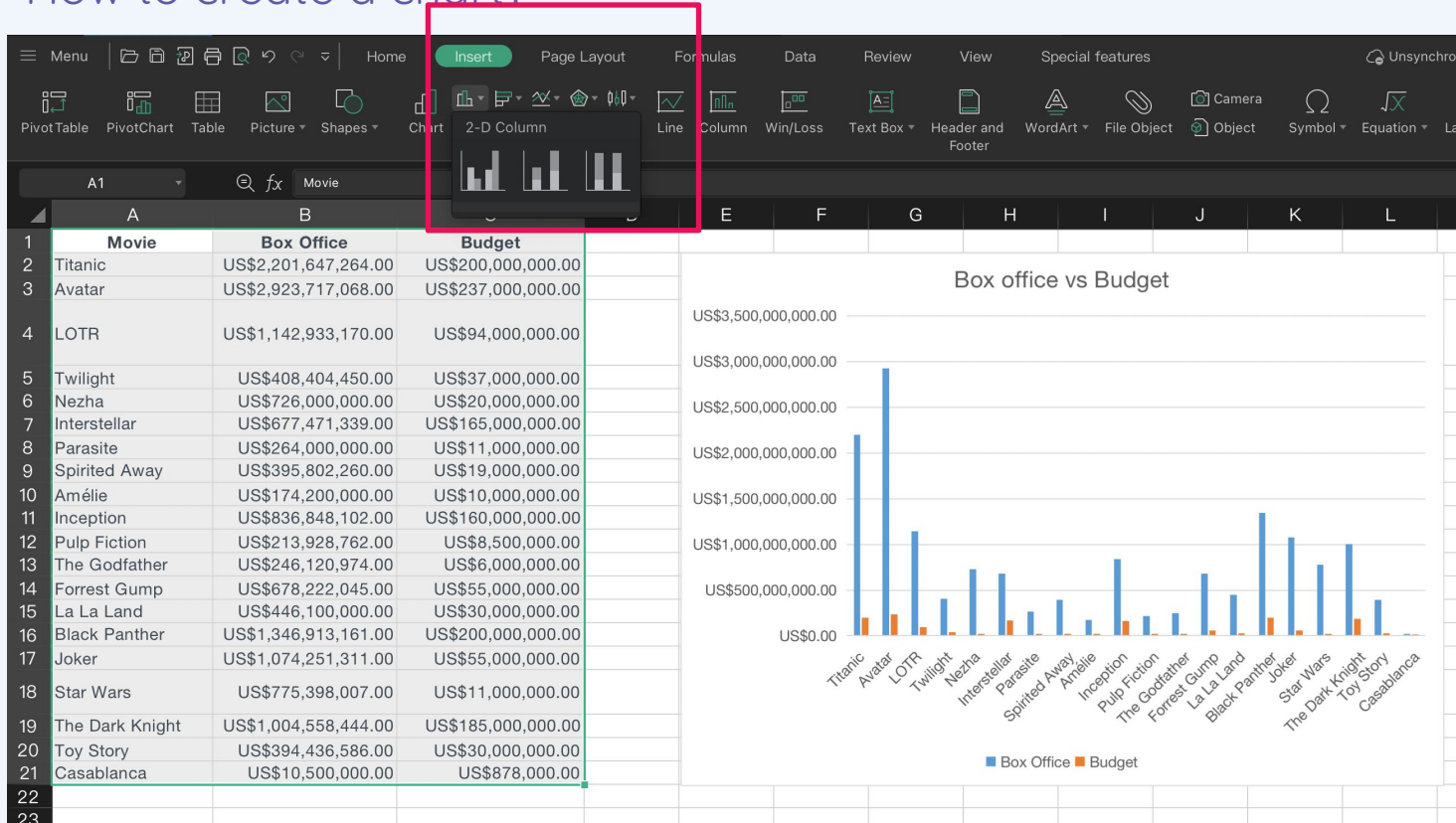
☒ (Blanks) (1)

☒ 2019 (3)

How to find maximum (=MAX()) or minimum (=MIN())?

ppola	52	5
bert meckis	50	6
amien azelle	179	6
ran ogler	139	3
dd illips	122	2
orge icas	63	7
ristophe olan	159	2
hn sseter	23	0
chael rtiz	37	3
=MAX(L2:L21)		
MAX (Number1 ,...)		

How to create a chart?



How to create a scatter plot?

