Google News Initiative

LESSON 16 : Part 02 of 04 in the Visualizing Data module

Google Sheets: Cleaning data

Prepare your data for analysis and visualization.

Lesson overview

Learn to clean data in preparation for visualization.

In the previous lesson, Google Sheets: Scraping data from the internet, we learned how to import a table from the Web using importHTML. In this lesson, we'll learn how to clean the data so it's ready for analysis and visualization.

5	*Frozen*	\$1,290,000,0	00 2013		
10	*Beauty and the	\$1,263,521,1	26 2017		
15	*Incredibles 2*	\$1,242,786,0	14 2018		
11	*The Fate of the	\$1,238,764,7	65 2017		
5	*Iron Man 3*	\$1,214,811,2	52 2013		
10	*Minions*	\$1,159,398,3	97 2015		
12	*Captain Americ	\$1,153,304,4	95 2016		
4	*Transforme				
2	*The Lord o	Find and	replace		
7	*Skyfall*				
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2	*Star Wars:		Match entire cell	contents	
5	*Alice in We			contento	
24	*Zootopia*		Search using reg	ular expressions	Help
14	*The Hobbit				10
4	*The Dark k		Also search within	in formulas	
2	*Harry Potte				

- 1 Making data editable.
- 2 Editing the data.
- 3 Batch editing with **Find and replace**.

For more Data Journalism lessons, visit:

newsinitiative.withgoogle.com/training/course/data-journalism

Making data editable.

"Cleaning data" means making it usable to work with: ensuring a table has integrity, is free from inconsistencies and is structured in a way that computers will understand. That means we will remove duplicate rows, delete undesired characters and ensure that columns hold only one type of data, for example numbers or text, but not both. First, we need to make the data editable.

STEP 1 OF 3

This table shows the result of importHTML. In this form, any changes to the data source (the Wikipedia page) will automatically be reflected here, and are updated at least once an hour. However, we can't edit the values in the cells to remove undesired characters. We will use **paste special** in Google Sheets to create a static snapshot of the data. With this, we will lose the ability to update the table automatically via importHTML, but we will be able to edit it.

	A						
1	Rank	Peak	Title	Worldwide gross	Year	Reference(s)	
	1	1	*Avatar*	\$2,787,965,087	2009	[# 1][# 2]	
	2	1	*Titanic*	\$2,187,463,944	1997	[# 3][# 4]	
	3	3	*Star Wars: The	\$2,068,223,624	2015	[# 5][# 6]	
	4	4	*Avengers: Infini	\$2,048,359,754	2018	[# 7][# 8]	
	5	3	*Jurassic World*	\$1,671,713,208	2015	[# 9][# 10]	
	6	3	*The Avengers*	\$1,518,812,988	2012	[# 11][# 12]	
	7	4	*Furious 7*	\$1,516,045,911	2015	[# 13][# 14]	
	8	5	*Avengers: Age	\$1,405,403,694	2015	[# 15][# 14]	
	9	9	*Black Panther*	\$1,346,913,161	2018	[# 16][# 17]	
	10	3	*Harry Potter and	\$1,341,511,219	2011	[# 18][# 19]	
	11	9	*Star Wars: The	\$1,332,539,889	2017	[# 20][# 21]	
	12	12	*Jurassic World:	\$1,309,484,461	2018	[# 22][# 8]	
14	13F	5	*Frozen*	\$1,290,000,000	2013	[# 23][# 24]	
15	14	10	*Beauty and the	\$1,263,521,126	2017	[# 25][# 26]	
16	15	15	*Incredibles 2*	\$1,242,786,014	2018	[# 27][# 8]	
	16	11	*The Fate of the	F8\$1,238,764,76	2017	[# 28][# 26]	
	17	5	*Iron Man 3*	\$1,214,811,252	2013	[# 29][# 30]	
	18	10	*Minions*	\$1,159,398,397	2015	[# 31][# 10]	
	19	12	*Captain America	\$1,153,304,495	2016	[# 32][# 33]	
	20	4	*Transformers: D	\$1,123,794,079	2011	[# 34][# 19]	
	21	2	*The Lord of the	\$1,120,237,002	2003	[# 35][# 36]	
23	22	7	*Skyfall*	\$1,108,561,013	2012	[# 37][# 38]	
	23	10	*Transformers: A	\$1,104,054,072	2014	[# 39][# 40]	
	24	7	*The Dark Knight	\$1,084,939,099	2012	[# 41][# 42]	
	25	25	*Aquaman*	\$1,074,516,462	2018	[# 43]	
	26	4TS3	*Toy Story 3*	\$1,066,969,703	2010	[# 44][# 45]	
28	27	3	*Pirates of the C	\$1,066,179,725	2006	[# 46][# 47]	
29	28	20	*Rogue One: A S	\$1,056,057,273	2016	[# 48][# 49]	
	29	6	*Pirates of the C	\$1.045.713.802	2011	[# 50][# 51]	

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15	13F Remove checkboxes			Paste data valie	ation only	1					
16		15	15 *Incredibles 2*	Paste condition	al formati	ing only					
17		16	11 "The Fate of the	Paste as text							
10		17	5 *Iron Man 3*	Paole do text							
19		18	10 *Minions*	Paste comma-s	eparated	text (CS	V) as c	olumns			
20		19	12 *Captain Americ	Paste transpos							
21		20	4 *Transformers: [iu ii						
22		21	2 *The Lord of the			[# 35][#					
23		22	7 *Skyfall*	\$1,108,561,013	2012	[# 37][#	38]				
24		23	10 *Transformers: A			[# 39][#					
25		24	7 *The Dark Knigh			[# 41][#	42]				
26		25	25 *Aquaman*	\$1,074,516,462	2018	[# 43]					
27		26 4TS3	*Toy Story 3*	\$1,066,969,703	2010	[# 44][#	45)				
28		27	3 *Pirates of the C	\$1,066,179,725	2006	[# 46][#	47)				
29		28	20 *Rogue One: A :	\$1,056,057,273	2016	[# 48][#	49]				
30		29	6 *Pirates of the C	\$1,045,713,802	2011	[# 50][#	51]				
\$1		30	24 *Despicable Me	\$1,034,799,409	2017	[# 52][#	26]				
32		31	1 *Jurassic Park*	\$1,029,939,903	1993	[# 53][#	54)				
33		32	22 *Finding Dory*	\$1,028,570,889	2016	[# 55][#	56)				
34		33	2 *Star Wars: Epis	\$1,027,044,677	1999	[# 57][A	4]				
25		34	5 *Alice in Wonde	\$1,025,467,110	2010	[# 58][#	59]				
20		35	24 "Zootopia"	\$1,023,784,195	2016	[# 60][#	33]				

STEP 2 OF 3

Select all of the data by left-clicking in the top left rectangle in your sheet.

Once all cells are highlighted, click **Edit** > **Copy**.

Select **Edit** > **Paste special** > **Paste values only**. We're now able to edit the table.

STEP 3 OF 3

To make editing easier, we'll freeze the row with the names of the columns.

Hover the mouse cursor to the line just above row 1 over the gray bar. You will notice the cursor turns into a glove. Drag the bar to the bottom of row 1 and leave it there.

Now the top row is frozen.

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	Rank	Peak	Title	Worldwide gross	Year	Reference(s)			
0	1	1	"Avatar"	\$2,787,965,087	2009	[# 1][# 2]			
3	2	1	*Titanic*	\$2,187,463,944	1997	[# 3][# 4]			
4	3	3	*Star Wars: The	\$2,068,223,624	2015	[# 5][# 6]			
s	4	4	*Avengers: Infini	\$2,048,359,754	2018	[# 7][# 8]			
6	5	3	"Jurassic World"	\$1,671,713,208		[# 9][# 10]			
7	6	3	"The Avengers"	\$1,518,812,988	2012	[# 11][# 12]			
5	7	4	*Furious 7*	\$1,516,045,911	2015	[# 13][# 14]			
9	8	5	*Avengers: Age	\$1,405,403,694	2015	[# 15][# 14]			
0	9	9	*Black Panther*	\$1,346,913,161	2018	[# 16][# 17]			
1	10	3	*Harry Potter and	\$1,341,511,219	2011	[# 18][# 19]			
2	11	9	*Star Wars: The	\$1,332,539,889	2017	[# 20][# 21]			
3	12	12	*Jurassic World:	\$1,309,484,461	2018	[# 22][# 8]			
4	13F	5	*Frozen*	\$1,290,000,000	2013	[# 23][# 24]			
5	14	10	*Beauty and the	\$1,263,521,126	2017	[# 25][# 26]			
6	15	15	*Incredibles 2*	\$1,242,786,014	2018	[# 27][# 8]			
7	16	11	*The Fate of the	F8\$1,238,764,76	2017	[# 28][# 26]			
8	17	5	*Iron Man 3*	\$1,214,811,252	2013	[# 29][# 30]			
9	18	10	*Minions*	\$1,159,398,397	2015	[# 31][# 10]			
50	19	12	*Captain America	\$1,153,304,495	2016	[# 32][# 33]			
:1	20	4	*Transformers: D	\$1,123,794,079	2011	[# 34][# 19]			
2	21	2	*The Lord of the	\$1,120,237,002	2003	[# 35][# 36]			
3	22	7	"Skyfal"	\$1,108,561,013	2012	[# 37][# 38]			
54	23	10	*Transformers: A	\$1,104,054,072	2014	[# 39][# 40]			
5	24	7	*The Dark Knight	\$1,084,939,099	2012	[# 41][# 42]			
16	25	25	"Aquaman"	\$1,074,516,462	2018	[# 43]			
7	26	4TS3	*Toy Story 3*	\$1,066,969,703	2010	[# 44][# 45]			
8	27	3	*Pirates of the C	\$1,066,179,725	2006	[# 46][# 47]			
19	28	20	*Rogue One: A S	\$1,056,057,273	2016	[# 48][# 49]			
10	29	6	*Pirates of the C	\$1,045,713,802	2011	[# 50][# 51]			
11	30	24	*Despicable Me	\$1,034,799,409	2017	[# 52][# 26]			
12	31	1	*Jurassic Park*	\$1,029,939,903	1993	[# 53][# 54]			
13	32	22	*Finding Dory*	\$1,028,570,889	2016	[# 55][# 56]			
4	33	2	*Star Wars: Epis	\$1,027,044,677	1999	[# 57][# 4]			
IS I	34	5	*Alice in Wonder	\$1,025,467,110	2010	[# 58][# 59]			

Editing the data.

importHTML will import leftover characters from the Wikipedia table that are useful for humans, but not computers. Let's remove them and make our table cleaner!

STEP 1 OF 3

Since we don't need column F for this exercise, right-click on the letter F at the top of the column and select **Delete**.

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1	Rank	Peak	Title	Worldwide gross	Year	Ref	×	Cu	ıt			Ctr	1+X					
2	1	1	*Avatar*	\$2,787,965,087	2009	[# 1												
3	2	1	*Titanic*	\$2,187,463,944	1997	[# 3		Co	ру			Ctr	1+C					
4	3	3	*Star Wars: The	\$2,068,223,624	2015	[# 5	m	Pa	ste			Ctr	I+V					
5	4	4	*Avengers: Infini	\$2,048,359,754	2018	1= 7	-											
6	5	3	*Jurassic World*	\$1,671,713,208	2015	[# 9		Pa	ste :	specia	al		٠					
7	6	3	*The Avengers*	\$1,518,812,988	2012	[# 1												
8	7	4	*Furious 7*	\$1,516,045,911	2015	[# 1		Ins	sert	1 left								
9	8	5	*Avengers: Age	\$1,405,403,694	2015	[# 1												
10	9	9	*Black Panther*	\$1,346,913,161	2018	[# 1		ins	sert	1 righ	it							
11	10	3	*Harry Potter and	\$1,341,511,219	2011	[# 1		De	lete	colur	nn							
12	11	9	*Star Wars: The	\$1,332,539,889	2017	[# 2					5	50						
13	12	12	*Jurassic World:	\$1,309,484,461	2018	[# 2		CIE	ear c	olum	in							
14	13F	5	*Frozen*	\$1,290,000,000	2013	[# 2		Hic	de ci	olumr	n							
15	14	10	*Beauty and the	\$1,263,521,126	2017	[# 2												
16	15	15	*Incredibles 2*	\$1,242,786,014	2018	[# 2		Re	size	colur	mn							
17	16	11	*The Fate of the	F8\$1,238,764,76	2017	[# 2												
18	17	5	*Iron Man 3*	\$1,214,811,252	2013	[# 2		Gro	oup	colun	nn							
19	18	10	*Minions*	\$1,159,398,397	2015	[# 3												
20	19	12	*Captain America	\$1,153,304,495	2016	[# 3		UD	grou	ip coi								
21	20	4	*Transformers: D	\$1,123,794,079	2011	[# 3												
22	21	2	*The Lord of the	\$1,120,237,002	2003	[# 3		So	et sh	eet A	\ - Z							
23	22		*Skyfall*	\$1,108,561,013	2012			So	rt oh	ieet 7								
24	23	10	*Transformers: A	\$1,104,054,072	2014	[# 3		30	41.51	eet Z								
25	24	7	*The Dark Knight	\$1,084,939,099	2012	[# 4		Rai	ndoi	nize	range	£						
26	25	25	*Aquaman*	\$1,074,516,462	2018	[# 4												
27	26	4TS3	*Toy Story 3*	\$1,066,969,703	2010	[# 4		Ge	rt lini	k to ti	his ra	nae						
28	27	3	*Pirates of the C	\$1,066,179,725	2006	[# 4												
29	28	20	*Rogue One: A S	\$1,056,057,273	2016	[# 4		De	fine	name	ed rar	nge						
30	29	6	*Pirates of the C	\$1,045,713,802	2011	(# 5		Dre	oter	t ranc	10							
31	30	24	*Despicable Me	\$1,034,799,409	2017	(# 5		210	orec	ang								
22	31	1	*Jurassic Park*	\$1,029,939,903	1993	[# 5												
23	32	22	*Finding Dory*	\$1,028,570,889	2016	[# 5		Co	ndit	ional	form	attin	ıg					
34	33	2	*Star Wars: Epis	\$1,027,044,677	1999	[# 5		Data validation										
35	34	5	*Alice in Wonder	\$1,025,467,110	2010	[#5												
26	35	24	*Zootopia*	\$1.023,784,195	2016	1# 60	lif# 5	120										

STEP 2 OF 3

There is a letter "F" next to number 13 in row A14, and a "TS3" next to number 4 in cell B27. We will remove these characters so that only the numbers 13 and 4 remain.

5	4	4	*Avengers: Infini	\$2,048,359,754	201
6	5	3	*Jurassic World*	\$1,671,713,208	201
7	6	3	*The Avengers*	\$1,518,812,988	201
8	7	4	*Furious 7*	\$1,516,045,911	201
9	8	5	*Avengers: Age	\$1,405,403,694	201
	9	9	*Black Panther*	\$1,346,913,161	201
	10	3	*Harry Potter and	\$1,341,511,219	201
	11	9	*Star Wars: The	\$1,332,539,889	201
13	12	12	*Jurassic World:	\$1,309,484,461	201
14	13F	5	*Frozen*	\$1,290,000,000	201
15	14	10	*Beauty and the	\$1,263,521,126	201
16	15	15	*Incredibles 2*	\$1,242,786,014	201
17	16	11	*The Fate of the	F8\$1,238,764,76	201
18	17	5	*Iron Man 3*	\$1,214,811,252	201
19	18	10	*Minions*	\$1,159,398,397	201
20	19	12	*Captain America	\$1,153,304,495	201
21	20	4	*Transformers: D	\$1,123,794,079	201
	21	2	*The Lord of the	\$1,120,237,002	200
23	22	7	*Skyfall*	\$1,108,561,013	201
24	23	10	*Transformers: A	\$1,104,054,072	201
25	24	7	*The Dark Knight	\$1,084,939,099	201
26	25	25	*Aquaman*	\$1,074,516,462	201
	26	4TS3	*Toy Story 3*	\$1,066,969,703	201
28	27	3	*Pirates of the C	\$1,066,179,725	200
29	28	20	*Rogue One: A S	\$1,056,057,273	201
	0.0	0	+Dissess of the O	A4 045 740 000	001

STEP 3 OF 3

Remove the extra letters in cells B40 and B48, so that only 19 and 8 remain. Do the same in D17 to remove the leading "F8".

В		С	D
19DM2		*Despicable Me 2	\$970,761,885
	2	*The Lion King*	\$968,483,777
3	0	*The Jungle Boo	\$966,550,600
	5	*Pirates of the Ca	\$963,420,425
4	0	*Jumanji: Welcor	\$962,126,927
1	0	*Harry Potter and	\$960,431,568
2	4	*The Hobbit: The	\$958,366,855
2	6	*The Hobbit: The	\$956,019,788
8FN		*Finding Nemo*	\$940,335,536
	6	*Harry Potter and	\$940,018,451
	8	*Harry Potter and	\$934,546,568

Batch editing with Find and replace.

Now, take a look at column C. Let's remove the leading and trailing * characters in a batch, rather than row by row, using the **Find and replace** feature.

STEP 1 OF 5

Select column C by left-clicking on the letter C at the top of the column. Select **Edit** > **Find and replace**.

		ile Ec				Tools Add-ons								
5	2	ē •		Undo	Ctrl+Z	3 v Arial	*	10	٠	В	I	сþ	А	è
x	Title		N I	Redo	Ctrl+Y									
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2				0	Ctrl+C	\$2,787,965,087		20	09					
3		1		Сору	CtrI+C	\$2,187,463,944		19	97					
4		10	<u>۱</u>	Paste	Ctrl+V	\$2,068,223,624		20						
5				Paste special		\$2,048,359,754		20	18					
5						\$1,671,713,208		20	15					
,						\$1,518,812,988		20	12					
			1	Move column lef	t	\$1,516,045,911		20	15					
			1	Move column right		\$1,405,403,694		20	15					
0						\$1,346,913,161		20	18					
1					0.1.11	\$1,341,511,219		20	11					
2				Find and replace.	- Am ^{Ctrl+H}	\$1,332,539,889		20	17					
3					\W	\$1,309,484,461		20	18					
4			1	Delete values		\$1,290,000,000		20	13					
5				Delete column C		\$1,263,521,126		20	17					
6				Delete column c		\$1,242,786,014		20	18					
7						\$1,238,764,765		20	17					
8				Clear notes		\$1,214,811,252		20						
9			1	Remove checkbo	xes	\$1,159,398,397		20						
0						\$1,153,304,495		20						
1			20		*Transformers: D			20						
2			21		*The Lord of the			20						
3			22		*Skyfall*	\$1,108,561,013		20						
4			23 10 *Transformers: A				20							
5			24		*The Dark Knight			20						
6			25		*Aquaman* *Toy Story 3*	\$1,074,516,462 \$1,066,969,703		20						

STEP 2 OF 5

In the first text box type the asterisk symbol: * (that's the character we want to find in column C). Leave the **Replace with** text box empty so that the asterisks get replaced with nothing, which means they will be deleted.

я	э	зыаск маллет	\$1,340,913,10	1 2018			
10	3	*Harry Potter and	\$1,341,511,21	9 2011			
11	9	*Star Wars: The	\$1,332,539,88	9 2017			
12	12	*Jurassic World:	\$1,309,484,46	1 2018			
.3	5	*Frozen*	\$1,290,000,00	0 2013			
.4	10	*Beauty and the	\$1,263,521,12	6 2017			
.5	15	*Incredibles 2*	\$1,242,786,01	4 2018			
.6	11	*The Fate of the	\$1,238,764,76	5 2017			
.7	5	*Iron Man 3*	\$1,214,811,25	2 2013			
.8	10	*Minions*	\$1,159,398,39	7 2015			
9	12	*Captain America	\$1,153,304,49	5 2016			
0	4	*Transforme					
1	2	*The Lord o	ind and r	eplace			×
2	7	*Skyfall*	and and i	00.000			
:3	10	*Transforme					
4	7	*The Dark 🕴 🕴	ind	*			
5	25	*Aquaman*					
6	4	*Toy Story :					
7	3	*Pirates of I	Replace with				
8	20	*Rogue One					
9	6	*Pirates of 1	Search	Specific range -	Sheet1!C:C	=	
0	24	*Despicable		opeonie funge	0.000010.0	ш	
1	1	*Jurassic P					
2	22	*Finding Do	1	Match case			
3	2	*Star Wars:	1	Match entire ce	Il contents		
4	5	*Alice in We			a comento		
5	24	*Zootopia*	1	Search using re	gular expression	s Help	
6	14	*The Hobbit		_		111	
7	4	*The Dark F	1	Also search with	hin formulas		
18	2	*Harry Potte					
19	19	*Despicable					
10	2	*The Lion K	Find	Replace	Replace	all	Done
1	30	*The Jungle					
2	5	*Pirates of L					
13	40	*Jumanji: Welco	\$962,126,92	7 2017			
14	10	*Harry Potter and	\$960,283,30	5 2010			

STEP 3 OF 5

Make sure the **Search** option says **Specific range** and the range reflects the column you just selected. Leave the checkboxes unchecked.



Select Replace all.

Notice Google Sheets will tell you it **Replaced 100 instances of * with** (nothing). That means you successfully removed 100 characters in 50 rows with just a few clicks!

STEP 5 OF 5

Select **Done**. Our table is now clean and ready for us to work with. In the next lesson, we will produce visualizations and get insights from the data.

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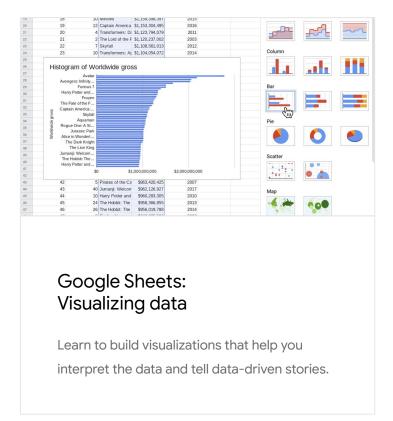
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Congratulations!

You completed "Google Sheets: Cleaning data."

To continue building your digital journalism skills and work toward Google News Initiative certification, go to our Training Center website and take another lesson:



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