

Anticipate what stakeholders need to know

Prepare metrics and insights to share

Video: Prepare data in spreadsheets: sorting and filtering  
5 min

Reading: Data analysis in spreadsheets: sort, filter, and compare  
20 min

Practice Quiz: Activity: Sort and filter spreadsheet data  
5 questions

Video: Prepare data in spreadsheets: pivot tables  
3 min

Reading: Data analysis in spreadsheets: pivot tables  
20 min

Practice Quiz: Activity: Analyze data using pivot tables  
1 question

Reading: Activity Exemplar: Analyze data using pivot tables  
10 min

Practice Quiz: Test your knowledge: Spreadsheet features  
5 questions

Prepare data visualizations

Present insights to stakeholders

Review: Share metrics and insights with stakeholders

Course review: Assess for success: marketing analytics and measurement

## Data analysis in spreadsheets: pivot tables

A **pivot table** enables you to calculate, summarize, and analyze data for comparisons, patterns, and trends. A video about pivot tables in this course reviews the steps to create a pivot table. You can replay the video, if needed.

Another reading in this course that covers sorting and filtering in spreadsheets offers two examples of how sorting and filtering enables certain insights. This reading uses the same examples from the sorting and filtering reading. The examples are repeated to show how pivot tables enable the same insights more quickly.

### Description of spreadsheet

Suppose you have a spreadsheet that contains online sales data, like the one shown in the image below. Recall from the video that a cell in a spreadsheet holds the data. Columns are vertical and are labeled alphabetically. Rows are horizontal and are labeled numerically. People refer to cell positions by combining the column and row designation, like cell **A2**. In the sample online sales data below, cell A2 contains the data, Alexander City.

	A	B	C	D	E	F
1	City	State	Customer	Auto Parts	Quantity	Code
2	Alexander City	Alabama	Hallam Gardner	Tires	4	EZ3043
3	Troy	Alabama	Dwayne Barnett	Tires	2	EZ3043
4	Globe	Arizona	Ieuan Little	Rims	2	EZ3043
5	Phoenix	Arizona	Joe Workman	Rims	2	EZ3043
6	Prescott	Arizona	Menachem Barclay	Spoiler	1	EZ3043
7	Scottsdale	Arizona	Morwenna Figueroa	Roof rack	1	EZ3043
8	Sierra Vista	Arizona	Finlay Chen	Sunroof	1	EZ3043
9	El Dorado	Arkansas	Sheila Lucas	Sunroof Glass	2	EZ3043
10	Hope	Arkansas	Rea Baxler	Trim package	3	EZ3043
11	Stuttgart	Arkansas	Tonisha Osborn	Trim package	2	EZ3043
12	Anaheim	California	Tom Burge	Rims	1	EZ3043
13	Calistoga	California	Marianna Woodard	Outer door handle	1	EZ3043
14	La Habra	California	Jayce Browning	Rims	4	EZ3043
15	Merced	California	Kishan Hills	Radiator	3	EZ3043
16	Pacific Grove	California	Jonathan Gibbons	Roof rack	2	
17	Palmer	Alaska	Jethro Stein	Grille	1	
18	Glendale	Arizona	Mattie Tanner	Quarter panel	2	
19	Kingman	Arizona	Vladimir Griffin	Grille	1	
20	Crabli	Arizona	Jazmine Ward	Rims	1	
21	Yempe	Arizona	Rehaan Gamble	Rims	5	
22	Walpi	Arizona	Alastair Truong	Rims	1	
23	Fresno	California	Jordyn Metcalfe	Sunroof	2	
24	Inglewood	California	Juniper Wheatley	Tires	1	
25	San Rafael	California	Cienna Monrosh	Outer door handle	3	
26	Athens	Alabama	Lenny Reyes	Sunroof Glass	1	

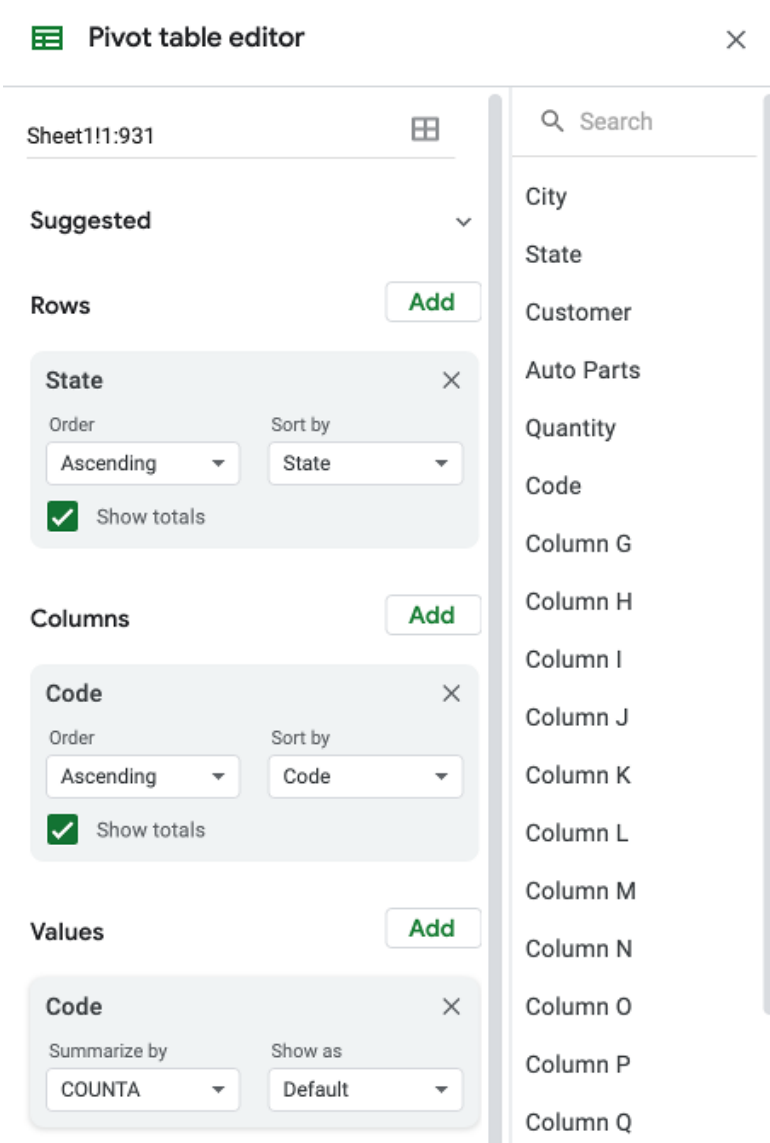
A pivot table in this spreadsheet enables you to gather insights like these:

- Number and percentage of purchases made from each campaign (by campaign codes)
- Campaign-related purchases (overall and by state)

### Example 1: Purchases made from each campaign

With sorting and filtering, you determine the number of purchases per campaign code by filtering for one code at a time. With a pivot table, you can view the number of purchases per campaign code all at once. This can save you time when working with a large amount of data.

1. Create the pivot table with Code as the Columns and State as the Rows, and then add Code as a Value summarized by COUNTA.



The resulting pivot table is similar to the one shown below, where the number of purchases for each campaign is shown in the row labeled **Grand Total**.

**Note:** Some rows (states) in the pivot table have been hidden to save space and show the counts at the bottom of the table.

2. You can then insert a formula to calculate the percentage of total purchases by dividing each grand total by 563. The formula in cell C53 is **=C53/563** which takes the value in cell C52, or 28, and divides it by 563. The resulting percentage is 4.97% for Campaign 39343E. Copy this formula to cells D53 and E53 to calculate the percentages for the other two campaigns.

### Insights to share with stakeholders

Using the the pivot table and subsequent calculations, you could share the following information with stakeholders:

- 4.97% of all purchases resulted from Campaign 39343E
- 2.84% of all purchases resulted from Campaign CGRWAT
- 2.66% of all purchases resulted from Campaign EZ3043

### Conclusion

The pivot table returned the same results as sorting and filtering the Code column and manually counting instances for each code.

### Example 2: Campaign-related purchases (overall and by state)

Instead of filtering for each state one at a time to get the counts per code, each state's count is already summarized in Column G (grand total) in the pivot table. But now you need a count of the non-campaign related purchases. If you insert None in the data as the campaign code for non-campaign purchases, the pivot table automatically adds another count for None in Column G.

	A	D	E	F	G	H
2	State	39343E	CGRWAT	EZ3043	None	Grand Total
4	Alabama				2	7
5	Alaska				8	8
6	Arizona	1	1	5	11	18
7	Arkansas			3	9	12
8	California			4	10	14
9	Colorado	2	2		23	27
10	Connecticut		1		5	6
11	Delaware				2	2
12	Florida				6	6
13	Georgia		1		2	3
14	Hawaii				2	2
15	Idaho				13	13
16	Illinois				9	9
17	Indiana	1			1	2
18	Iowa	1	1		16	18
19	Kansas		1		4	5
20	Kentucky		1		12	13
21	Louisiana	1			7	8
22	Maine				2	2
23	Maryland	1			5	6
24	Massachusetts		1		14	15
25	Michigan		3	1	22	26
26	Minnesota				12	12
27	Mississippi		3	2	39	44
28	Missouri	1			27	28
29	Montana				2	2

Finally, you can insert a formula in Column I to calculate the percentage of campaign-related purchases for each state. In cell I4, enter **=D4+E4+F4)/H4**. Next, copy and paste the contents of cell I4 into all remaining cells in Column I.

	A	D	E	F	G	H	I
2	State	39343E	CGRWAT	EZ3043	None	Grand Total	% Campaign Related Purchases
4	Alabama				2	7	22.22%
5	Alaska				8	8	0.00%
6	Arizona	1	1	5	11	18	38.89%
7	Arkansas			3	9	12	25.00%
8	California			4	10	14	28.57%
9	Colorado	2	2		23	27	14.81%
10	Connecticut		1		5	6	16.67%
11	Delaware				2	2	0.00%
12	Florida				6	6	0.00%
13	Georgia		1		2	3	33.33%
14	Hawaii				2	2	0.00%
15	Idaho				13	13	0.00%
16	Illinois				9	9	0.00%
17	Indiana	1			1	2	50.00%
18	Iowa	1	1		16	18	11.11%
19	Kansas		1		4	5	20.00%
20	Kentucky		1		12	13	7.69%
21	Louisiana	1			7	8	12.50%
22	Maine				2	2	0.00%
23	Maryland	1			5	6	16.67%
24	Massachusetts		1		14	15	6.67%
25	Michigan		3	1	22	26	15.38%
26	Minnesota				12	12	0.00%
27	Mississippi		3	2	39	44	11.36%
28	Missouri	1			27	28	3.57%
29	Montana				2	2	0.00%

For example, after copying and pasting the contents from cell I4 to cell I6, the formula in cell I6 for Arizona becomes **=(D6+E6+F6)/H6** which adds the values from the three campaigns and divides that sum by the grand total of purchases in Arizona.

**Calculation in cell I6:** =(1+1+5)/18 = 0.38, or 38%

### Insights to share with stakeholders

Using the calculations for campaign-related purchases, you could share the following information with stakeholders:

- 22% of purchases in Alabama were campaign-related
- 0% of purchases in Alaska were campaign-related
- 38% of purchases in Arizona were campaign-related
- (and so on for each subsequent state in the U.S.)

### Conclusion

The pivot table returned the same results as filtering the State column state by state to get a breakdown of the data by state. However, using the pivot table saved some time!

### Resources for more information

You can refer to the following resources for more information about working with pivot tables:

- [Create and edit pivot tables](#) <sup>1</sup>: Instructions to create pivot tables in Google Sheets
- [Create a PivotTable to analyze worksheet data](#) <sup>2</sup>: Help creating pivot tables in Microsoft Excel

Mark as completed

