

DATA VISUALIZATION MADE SIMPLE: INSIGHTS INTO BECOMING VISUAL
KRISTEN SOSULSKI (2019).

In this tutorial we'll work with the data from the survey of technological skills available at: http://becomingvisual.com/datavislab/survey_technology_skills.xlsx and transform it format to summary table using Excel. This involves the following steps:

- Create summary data
- Create percentages
- Create a table from the percentages

Step 1: Create summary data

	Q1	Q2	Q3	Q4	Q5
n responses	68	68	68	68	68
No-responses	0	0	0	0	0
Total	68	68	68	68	68
Countif by response value					
	Q1	Q2	Q3	Q4	Q5
Very Good	29	5	2	33	0
Good	30	14	4	25	9
Average	8	28	11	10	19
Poor	1	17	20	0	5
Very Poor	0	4	3	0	2
No Knowledge	0	0	28	0	33
Total	68	68	68	68	68

Table1. A simple table with counts

It will be necessary to create summary data that counts the number of response categories per question. Specifically, how many people responded to Very Good, Good, Average, Poor, Very Poor, and No Knowledge for each question.

Create a table that has the following rows and column headers as shown in Table 1 in bold. Generating the data for this table is simple in Excel, but it requires creating a few simple calculations. Look at column 1. In this column, n refers to the total number of responses. Simply sum the number of responses from each question column. In Excel use =COUNTA(). In this case, responses were required so the number of responses is consistent from question to question. Next, create a field for "blanks" or missing data. This is done in Excel by using the =COUNTBLANK() function. Then, sum the number of responses by question and response value. This is done in Excel by using the COUNTIF() function. For example, =COUNTIF(B\$2:B\$69, \$A74). The condition (\$A74) is set by the value in the first column such as "Very Good", "Good", etc.

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Step 2: Convert to percentages

After creating the summary table, create a copy of that table to create another table. Then, convert each value to a percentage. Simple take the number of responses by subcategory (Q1: Very Good = 29) and divide by the total number of responses for that question (Q1: Total = 68) $29/68 = .4265$ and change the number format to a percentage by multiplying by 100.

For example, $=(B74/B\$80) * 100$. Then, round to one or two decimal places, see Table 2.

Percentages by subgroup	Q1	Q2	Q3	Q4	Q5
Very Good	42.6%	7.4%	2.9%	48.5%	0.0%
Good	44.1%	20.6%	5.9%	36.8%	13.2%
Average	11.8%	41.2%	16.2%	14.7%	27.9%
Poor	1.5%	25.0%	29.4%	0.0%	7.4%
Very Poor	0.0%	5.9%	4.4%	0.0%	2.9%
No Knowledge	0.0%	0.0%	41.2%	0.0%	48.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 2. Data converted to percentages

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Step 3: Create a table

Finally, create a table where the first column is the question and second through sixth columns are for the responses options for each question, see Table 3.

To fill in the data for each question, the data needs to be transposed. The values for each question are stored in columns rather than rows. Transposition can easily be done in Excel by selecting the values and using the PASTE SPECIAL > Select values > transpose. See screen shot in Figure 1.

Question	Very Good	Good	Average	Poor	Very Poor	No Knowledge	Total
Q1. Excel	42.65%	44.12%	11.76%	1.47 %	0.00%	0.00%	100.00 %
Q2. Tableau	7.35%	20.59%	41.18%	25.00 %	5.88%	0.00%	100.00 %
Q3. Photoshop	2.94%	5.88%	16.18%	29.41 %	4.41%	41.18%	100.00 %
Q4. PowerPoint	48.53%	36.76%	14.71%	0.00 %	0.00%	0.00%	100.00 %
Q5. Google Charts	0.00%	13.24%	27.94%	7.35 %	2.94%	48.53%	100.00 %
Q6. JavaScript	0.00%	2.94%	11.76%	16.18 %	11.76%	57.35%	100.00 %
Q7. HTML	1.47%	5.88%	20.59%	14.71 %	14.71%	42.65%	100.00 %
Q8. CSS	0.00%	5.88%	11.76%	19.12 %	7.35%	55.88%	100.00 %
Q9. R	1.47%	23.53%	64.71%	7.35 %	2.94%	0.00%	100.00 %
Q 10. Python	1.47%	8.82%	27.94%	38.24 %	23.53%	0.00%	100.00 %

Table 3. Transposed table

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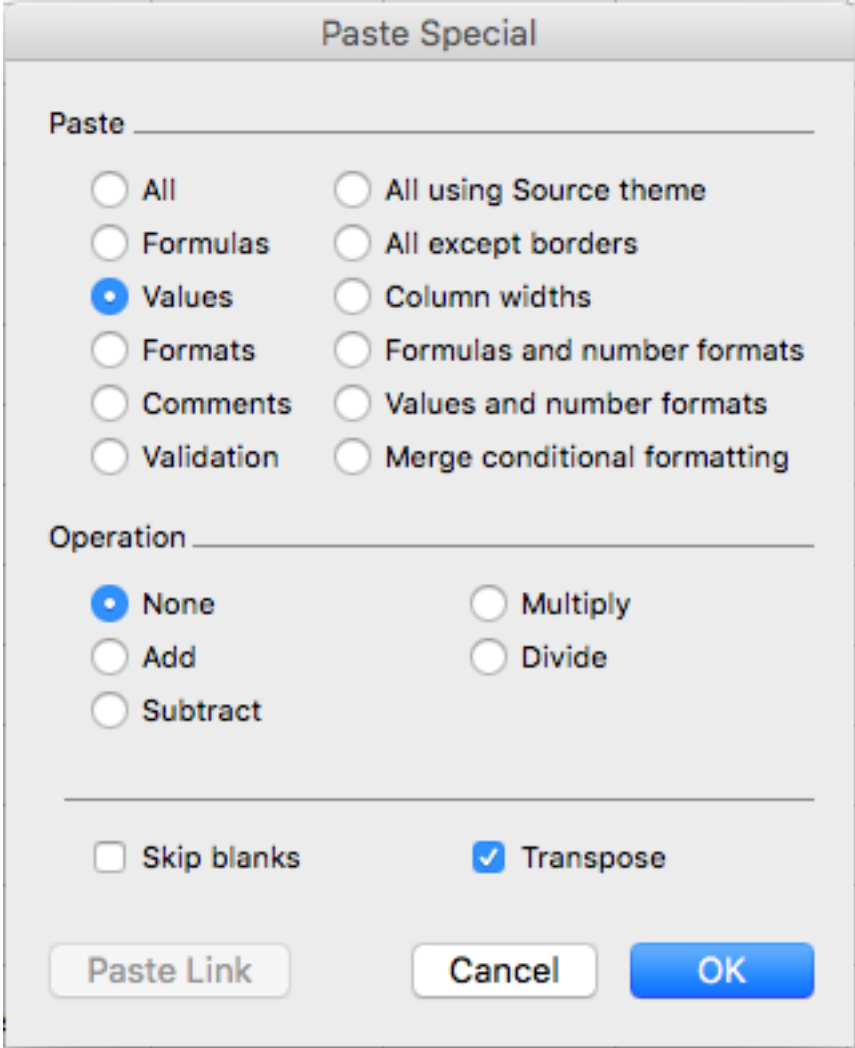


Figure 1. The paste special feature in Excel