How can I calculate frequencies in Google Sheets?

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Calculating frequencies in Google Sheets is a straightforward process that allows users to determine the number of times a specific value appears in a given dataset. To calculate frequencies, one can use the COUNTIF function in Google Sheets, which counts the number of cells within a range that meet a specific criteria. This function can be applied to a single cell or a range of cells, making it efficient for analyzing large datasets. Additionally, users can also use the Pivot Table feature to summarize and display the frequencies of different values in a dataset. By following these steps, users can easily calculate frequencies in Google Sheets to gain valuable insights from their data.

Calculate Frequencies in Google Sheets

Frequencies tell us how often different values occur in a dataset.

We can easily calculate frequencies in Google Sheets by using the FREQUENCY() function, which has the following syntax:

FREQUENCY(data, classes)

where:

data: Array containing data valuesclasses: Array containing a set of classes

The following examples show how to calculate frequencies and relative frequencies in Google Sheets.

Calculating Frequencies in Google Sheets

Suppose we have the following dataset with 15 values in Google Sheets:

	A	B	C	D
1	**Data values**			
2	12			
3	12			
4	13			
5	13			
6	13			
7	14			
8	14			
9	15			
10	15			
11	15			
12	15			
13	16			
14	17			
15	17			
16	17			
17				
18				
19				
20				
21				
22				

To calculate the frequency of each individual value (e.g. count how many 12's occur, how many 13's occur, etc.) we need to first define the classes in column B. We can easily do this by typing the following formula in cell B2:

=SORT(UNIQUE(A2:A16))

This produces the following results:

	A	B	C	D
1	**Data values**	**Classes**		
2	12	12		
3	12	13		
4	13	14		
5	13	15		
6	13	16		
7	14	17		
8	14			
9	15			
10	15			
11	15			
12	15			
13	16			
14	17			
15	17			
16	17			
17				
18				
19				
20				
21				
22				

Next, we can type the following formula into cell C2:

=FREQUENCY(A2:A16,B2:B7)

This produces the following results:

	A	B	C	D
1	**Data values**	**Classes**	**Frequency**	
2	12	12	2	
3	12	13	3	
4	13	14	2	
5	13	15	4	
6	13	16	1	
7	14	17	3	
8	14		0	
9	15			
10	15			
11	15			
12	15			
13	16			
14	17			
15	17			
16	17			
17				
18				
19				
20				
21				

The value 12 occurs in the original dataset 2 times.The value 13 occurs in the original dataset 3 times.The value 14 occurs in the original dataset 2 times.The value 15 occurs in the original dataset 4 times.The value 16 occurs in the original dataset 1 time.The value 17 occurs in the original dataset 3 times.

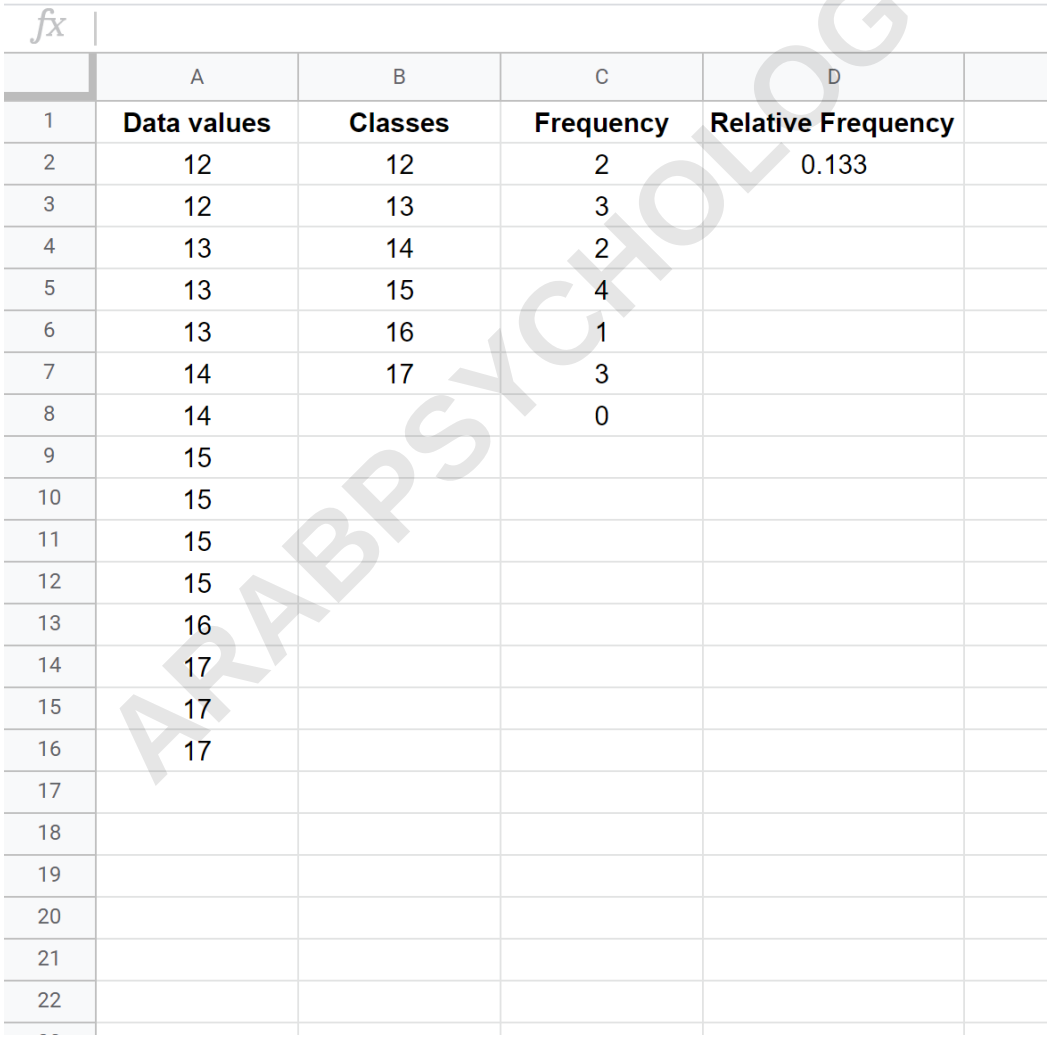
Calculating Relative Frequencies in Google Sheets

Once we have calculated the frequencies of each

individual data value, we can then calculate the relative frequencies of each value by typing the following formula into cell D2:

=C2/COUNT($A$2:$A$16)

This formula calculates the relative frequency of the value 12 in the original dataset:



	A	B	C	D
1	**Data values**	**Classes**	**Frequency**	**Relative Frequency**
2	12	12	2	0.133
3	12	13	3	
4	13	14	2	
5	13	15	4	
6	13	16	1	
7	14	17	3	
8	14		0	
9	15			
10	15			
11	15			
12	15			
13	16			
14	17			
15	17			
16	17			
17				
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Once we've calculated this relative frequency, we can hover the mouse over the bottom right corner of cell D2 until a small + appears. Double click the + to copy the formula down to the remaining cells:

	A	B	C	D
1	**Data values**	**Classes**	**Frequency**	**Relative Frequency**
2	12	12	2	0.133
3	12	13	3	0.200
4	13	14	2	0.133
5	13	15	4	0.267
6	13	16	1	0.067
7	14	17	3	0.200
8	14		0	0
9	15			
10	15			
11	15			
12	15			
13	16			
14	17			
15	17			
16	17			
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The way to interpret this output is as follows:

The value 12 accounts for 0.133 (or 13.3%) of all values in the dataset.The value 13 accounts for 0.200 (or 20.0%) of all values in the dataset.

And so on.

You'll notice that the sum of all of the relative frequencies is equal to 1 (or 100%).

Visualizing Relative Frequencies in Google Sheets

Lastly, we can visualize the relative frequencies by creating a histogram.

First, highlight the array of relative frequencies:

	A	B	C	D
1	**Data values**	**Classes**	**Frequency**	**Relative Frequency**
2	12	12	2	0.133
3	12	13	3	0.200
4	13	14	2	0.133
5	13	15	4	0.267
6	13	16	1	0.067
7	14	17	3	0.200
8	14		0	0
9	15			
10	15			
11	15			
12	15			
13	16			
14	17			
15	17			
16	17			
17				
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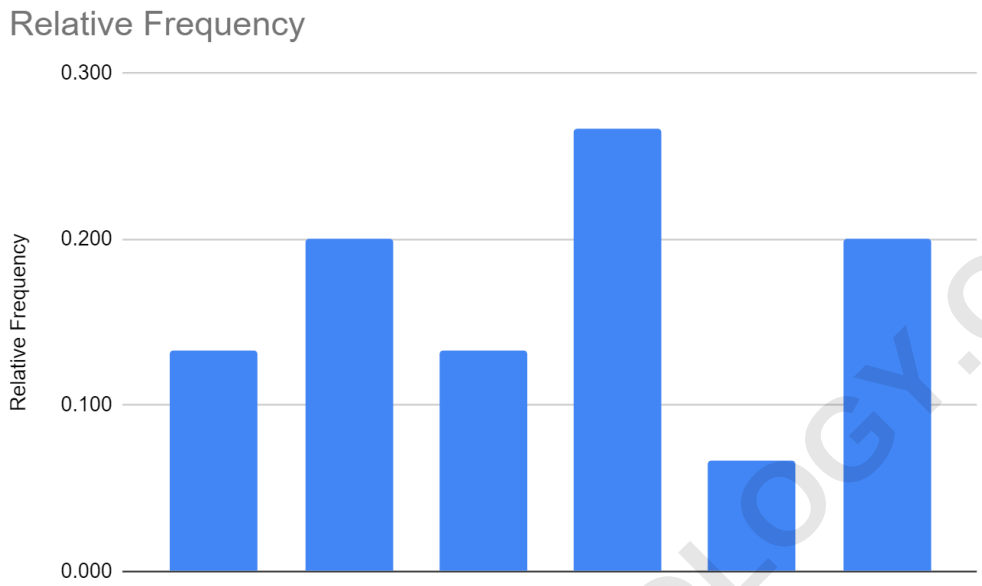
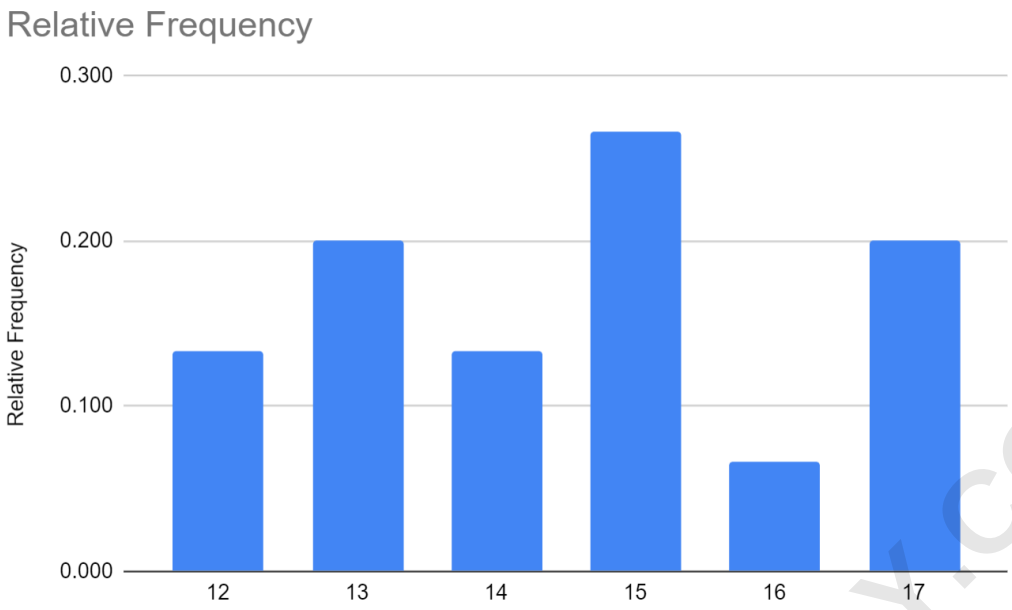
Next, click the Insert tab along the top ribbon, then click

Chart. Google Sheets will automatically produce the following histogram of relative frequencies:



We can easily add x-axis labels by clicking the X-axis input button within the Chart Editor and specifying cells B2:B7 as the labels. This produces the following results:



This simple chart helps us quickly understand how often each individual value occurs in the original dataset.