Excel: Calculate Average and Exclude Highest & Lowest Values

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Excel is an indispensable and powerful tool for modern data analysis and visualization. When calculating descriptive statistics, achieving an accurate representation of the central tendency is often crucial. However, raw averages can be severely distorted by extreme values, commonly referred to as outliers. This tutorial focuses on a highly effective method within Excel to calculate the average while intentionally excluding the highest and lowest data points. Mastering this technique ensures a more robust and reliable summary statistic, free from the skewing effects of anomalies.

The Essential Formula for Trimmed Averaging

To calculate the average of a dataset within Excel while automatically discarding the highest and lowest values--a technique often employed in statistical reporting to reduce variance--you can utilize the robust combination of the **TRIMMEAN** and **COUNT** functions. The standard formula structure designed to trim exactly one value from each extreme is presented below:

=TRIMMEAN(A2:A11,2/COUNT(A2:A11))

This powerful configuration specifically targets the data within the defined range (in this case, **A2:A11**). It instructs Excel to identify and exclude the single largest value and the single smallest value, subsequently calculating the arithmetic mean of the remaining intermediate data points. Understanding this formula is the first step toward performing advanced data analysis without the interference of statistical outliers.

Practical Example: Trimming Extremes from a Data Set

To illustrate the application of the trimmed mean formula, consider a hypothetical column of numerical values, perhaps representing scores, measurements, or financial readings, as displayed in the image below. We aim to determine the central tendency of this data set while consciously removing any influence from the highest and lowest scores.

Suppose we have the following column of values in Excel:

	A	B	C	D	E
1	**Values**				
2	14				
3	19				
4	22				
5	24				
6	30				
7	44				
8	28				
9	17				
10	14				
11	10				
12					
13					
14					
15					

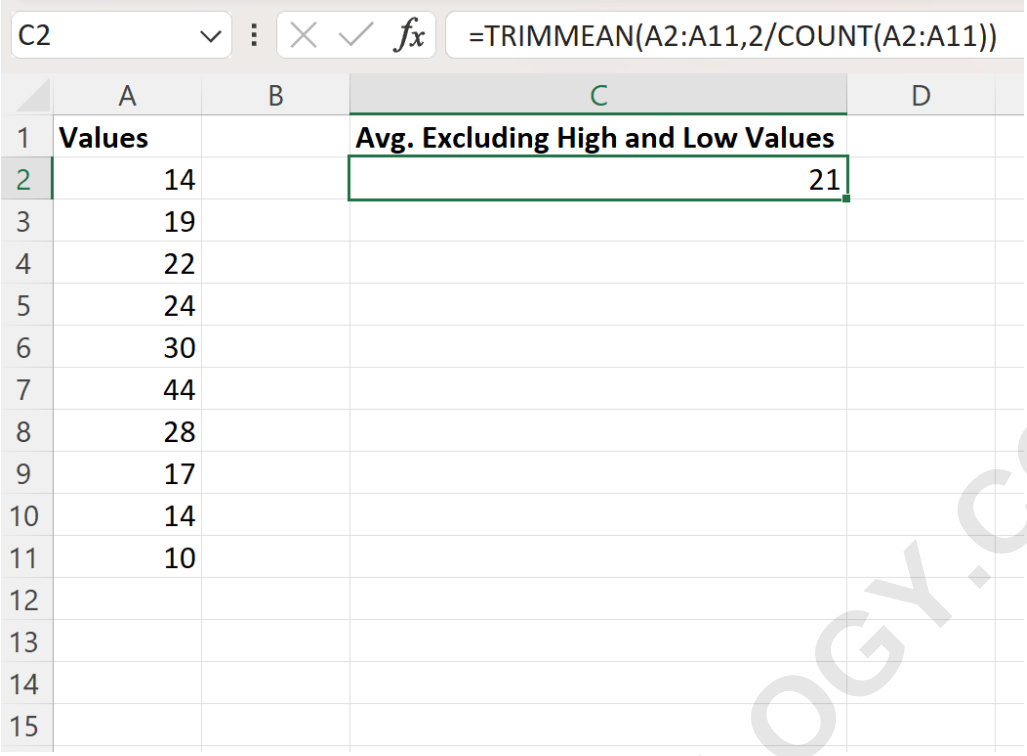
Our objective is clear: calculate the average of the range **A2:A11**, but only after excluding the single highest and single lowest value present in that array.

Applying the Formula in Practice

Since we are working with the range **A2:A11**, we will input the necessary formula into an empty cell, such as cell **C2**, to execute the calculation. This simple step initiates the precise statistical trimming required:

=TRIMMEAN(A2:A11,2/COUNT(A2:A11))

Once entered, Excel processes the formula, yielding the trimmed mean instantly. The following screenshot visually confirms the result of applying this formula to our sample data:



As demonstrated, the resulting average value for the range **A2:A11**, after the automatic exclusion of the highest and lowest values, is calculated precisely as **21**.

Verification: Manual Calculation of the Trimmed Mean

To ensure the formula is functioning correctly and to deepen our understanding of the process, we can manually verify the result. First, we must identify the extreme outliers within the set **A2:A11**:

The lowest value in the dataset is **10**.
The highest value in the dataset is **44**.

The visual representation below clearly highlights these two excluded values, demonstrating what the **TRIMMEAN** function effectively ignores before calculating the mean:

	A	B	C	D
1	**Values**		**Avg. Excluding High and Low Values**	
2	14		21	
3	19			
4	22			
5	24			
6	30			
7	**44**	**Highest**		
8	28			
9	17			
10	14			
11	**10**	**Lowest**		
12				
13				
14				
15				
16				
17				

By removing 10 and 44, eight values remain: 14, 19, 22, 24, 30, 28, 17, and 14. The average of these remaining values is calculated as follows:

Average = (14 + 19 + 22 + 24 + 30 + 28 + 17 + 14) / 8 = **21**

Deconstructing the TRIMMEAN Function Syntax

To fully leverage this technique in future data analysis projects, it is essential to understand the underlying mechanics of the function used. Let us recall the powerful formula used to calculate the average while precisely controlling the exclusion of extreme data points:

=TRIMMEAN(A2:A11,2/COUNT(A2:A11))

This calculation relies entirely on the **TRIMMEAN** function, which is designed to compute the mean of a data set after a specified percentage of data points are removed from the top and bottom tails of the distribution. Its fundamental syntax is straightforward:

TRIMMEAN(array, percent)

The arguments are defined as follows:

array: This argument specifies the range of values that Excel should analyze, trim, and ultimately calculate the average for (e.g., **A2:A11**).
percent: This is the crucial variable, representing the fractional or percentage quantity of data points to be excluded from both the lowest and highest ends of the range before the average is computed.

Calculating the Exclusion Percentage

In our specific example, we employed the expression **2/COUNT(A2:A11)** to dynamically determine the necessary percentage for trimming. Since the range **A2:A11** contains exactly 10 values, the **COUNT** function returns 10. Therefore, the resulting percentage calculation becomes 2/10, or 0.2, which is equivalent to 20%.

When **TRIMMEAN** receives a 20% instruction, it interprets this as removing 10% of the total values from the bottom (lowest) end and 10% of the total values from the top (highest) end.

Given that 10% of 10 total values is exactly one value, this setup successfully trims (removes) the single lowest value and the single highest value before proceeding with the calculation of the average. This clever use of the **COUNT** function ensures that the trimming is based on the number of observations rather than a fixed percentage that might not correspond to whole numbers of data points.

Adapting the Formula for Variable Range Sizes

A significant advantage of embedding the **COUNT** function within the percentage argument is the formula's inherent flexibility; it operates seamlessly regardless of the size of the input range.

Consider, for instance, a situation where our dataset spanned 20 values instead, covering the range **A2:A21**. The formula would dynamically adjust to **2/COUNT(A2:A21)**. Since **COUNT** would return 20, the calculated percentage is 2/20, or 10%.

In this scenario, **TRIMMEAN** trims 5% from the lowest end and 5% from the highest end. Since 5% of 20 values is exactly one value, the result remains the same: the lowest value and the highest value are removed before the mean is calculated. This dynamic proportionality makes the construction **2/COUNT(range)** the ideal standard for single-value outlier exclusion in Excel.

For comprehensive documentation and additional details on advanced uses, please refer to the official resource for the **TRIMMEAN** function.

In summary, the sophisticated combination of the **TRIMMEAN** and **COUNT** functions provides a powerful, universally applicable method within Excel for calculating a robust average. By using the

dynamic percentage **2/COUNT(range)**, analysts can reliably exclude single extreme outliers (the highest and lowest values) regardless of the dataset size. Implementing this formula ensures that your statistical summaries are more representative of the core data, significantly enhancing the quality and trustworthiness of your data analysis.