

# Learn How to Calculate Percentage of Total by Category in Power BI Using DAX

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## RECOMMENDED CITATION

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## Understanding Percent of Total Calculations in Power BI

Calculating the percent of total is a fundamental requirement in data analysis, allowing analysts to quickly gauge the proportional contribution of individual items or categories to a grand total. In [Power BI](#), achieving this requires mastering [DAX](#) (Data Analysis Expressions), the powerful formula language used for calculations and querying data models. Standard division will only calculate a percentage based on the current row context, but to find the total across all categories, we must strategically manipulate the filter context using specific DAX functions.

The core challenge when calculating a percentage of the total by category lies in simultaneously retaining the filter context of the current row (e.g., Team A, Player X) while temporarily removing the category filter (e.g., Team A) to calculate the overall group total. Without proper context modification, a simple division calculation performed in a calculated column will incorrectly treat the category total as the individual row value. The formula provided below offers a robust and efficient solution for creating a calculated column that accurately displays the percentage contribution of a specific measure relative to its defined category total.

You can utilize the following structured syntax in [DAX](#) to create a new calculated column that efficiently displays the proportional contribution of a specific column's value against its respective category total:

```
Percent of Team Total =  
'my_data'  
/ CALCULATE (  
SUM ( 'my_data' ),  
ALLEXCEPT ( 'my_data', 'my_data' )  
)
```

This particular [DAX](#) expression generates a new column named **Percent of Team Total**. It computes the percentage contribution of the **Points** column values relative to the total points scored, specifically grouped and calculated based on the distinct values found in the **Team** column. Understanding the mechanics of the functions used here is key to applying this pattern successfully in various reporting scenarios. The following steps detail how this powerful syntax is used in practice.

## The Essential DAX Formula for Categorical Analysis

To fully appreciate why this formula works, we must analyze its components. The expression leverages two critical [DAX](#) functions: **CALCULATE** and **ALLEXCEPT**. The numerator, `'my_data'`, simply retrieves the value of the current row under its existing row context. The complexity, and the

power, reside in the denominator, which is specifically designed to override standard filters and derive the category total.

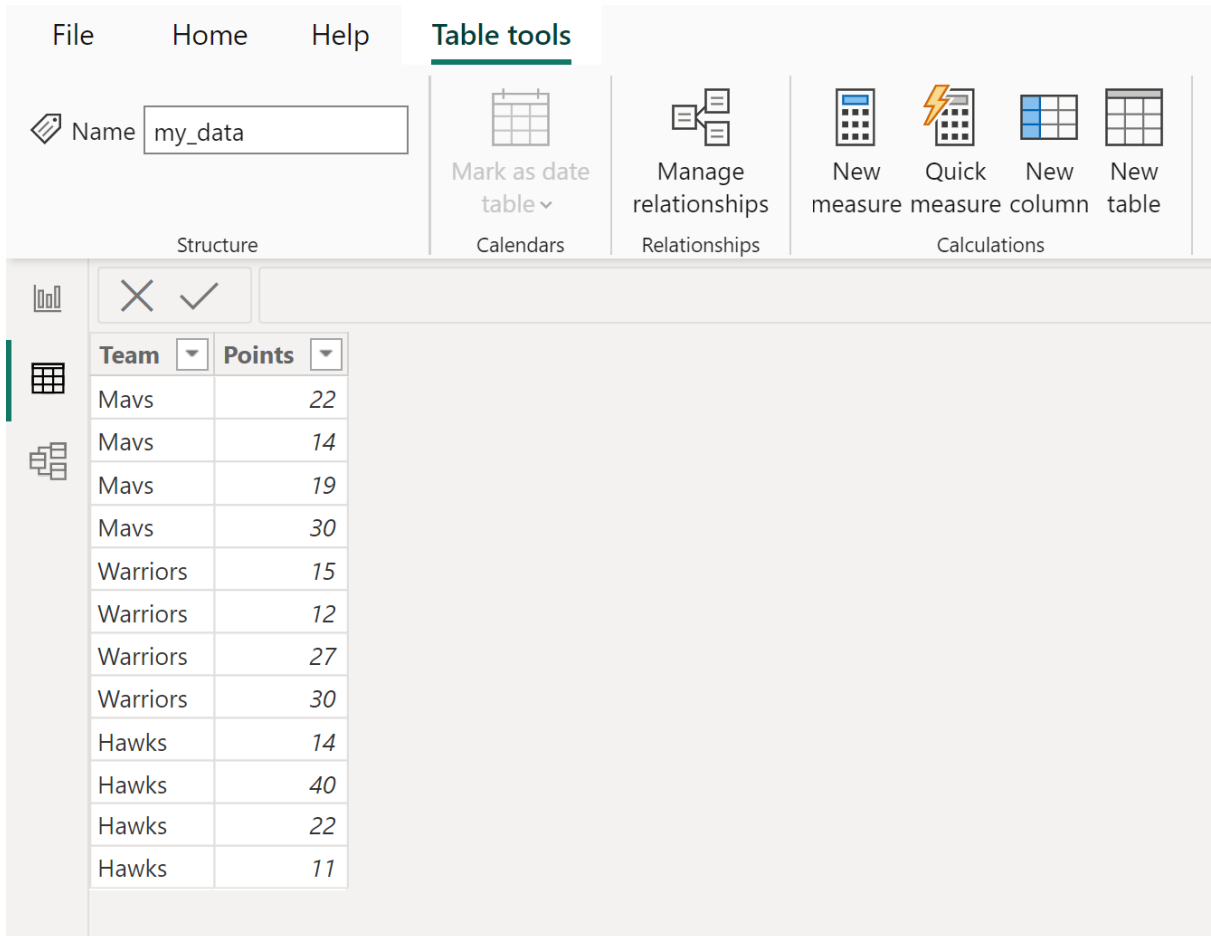
The **CALCULATE** function is arguably the most important function in DAX, as it modifies the filter context in which an expression is evaluated. Here, it is used to evaluate the `SUM( 'my_data' )`. Without modifying the context, this sum would simply return the value of the current row (due to row context transition when using a calculated column). However, we introduce the crucial filter argument: `ALLEXCEPT ( 'my_data', 'my_data' )`. The **ALLEXCEPT** function is a powerful filter modifier. It returns all rows in the specified table, **my\_data**, except for the filters that have been applied to the columns specified in the second argument. In this context, it effectively removes any external filters applied to the **my\_data** table, except for the filters applied to the **Team** column. This action isolates the calculation to sum the points only within the scope of the current team, ignoring individual player filters that might otherwise be active.

In practice, when [Power BI](#) evaluates this formula for a specific player on the "Mavs" team, **ALLEXCEPT** ensures that the denominator correctly calculates the total points for **all** "Mavs" players. It ignores the individual player filter (which would normally restrict the sum to just that player's points) but respects the filter for the team itself. This targeted contextual manipulation is what allows us to define the correct categorical denominator needed for the percentage calculation, ensuring that each individual contribution is measured against its proper group total.

## Practical Example: Implementing the Calculation in Power BI Desktop

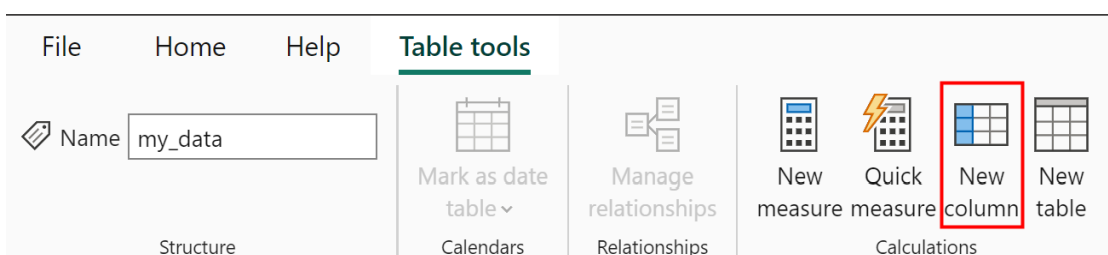
Let us walk through a practical scenario using [Power BI](#) Desktop. We start with a foundational data table, aptly named **my\_data**, which tracks the performance of basketball players. This table includes essential dimensions such as the player's name, their corresponding **Team** affiliation, and the total **Points** they have scored. Our objective is to generate clear performance metrics by calculating each player's contribution as a percentage of their specific team's total points.

The initial data structure, showing the raw points for each player categorized by team, is displayed below. We observe that the data is ready for transformation, but lacks the crucial relative performance metric we seek:



Our goal is straightforward: we need a new column that quantifies how much each individual **Points** entry contributes relative to the summed total of all **Points** within that specific **Team** category. This requires the creation of a calculated column within the data model. To begin this process, navigate to the **Table tools** tab located on the top ribbon interface of [Power BI Desktop](#). Once there, locate and click the **New column** icon. This action opens the formula bar, allowing us to input our custom DAX logic.

The interface change, highlighting the necessary step to initiate a new calculation, is shown here:



Upon activating the new column feature, the formula bar becomes active. This is where we input

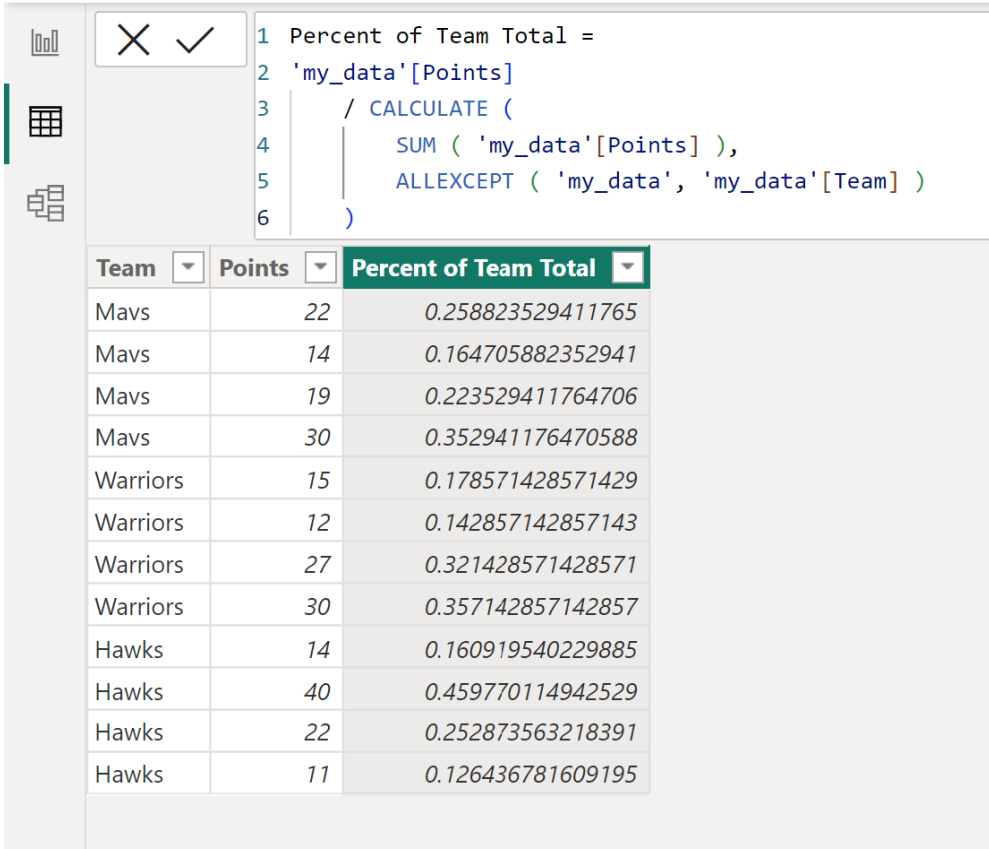
the precise [DAX](#) expression we previously analyzed. Carefully enter the following formula, ensuring column and table names exactly match those in your data model:

```
Percent of Team Total =  
'my_data'  
/ CALCULATE (  
SUM ( 'my_data' ),  
ALLEXCEPT ( 'my_data', 'my_data' )  
)
```

## Reviewing the Calculated Column Output

Executing the DAX formula generates the new column, **Percent of Team Total**. Initially, the output might appear as a series of decimal fractions (e.g., 0.2588, 0.1647), representing the calculated ratios. This column successfully fulfills our requirement: it shows the individual contribution of each player's **Points** relative to the aggregate total of points scored by their specific team. Notice how the calculation correctly resets for each new team, demonstrating the effectiveness of the **ALLEXCEPT** filter modification.

The resulting table structure, displaying the calculated ratios alongside the original data, is shown below:



```

1 Percent of Team Total =
2 'my_data'[Points]
3 / CALCULATE (
4     SUM ( 'my_data'[Points] ),
5     ALLEXCEPT ( 'my_data', 'my_data'[Team] )
6 )

```

| Team     | Points | Percent of Team Total |
|----------|--------|-----------------------|
| Mavs     | 22     | 0.258823529411765     |
| Mavs     | 14     | 0.164705882352941     |
| Mavs     | 19     | 0.223529411764706     |
| Mavs     | 30     | 0.352941176470588     |
| Warriors | 15     | 0.178571428571429     |
| Warriors | 12     | 0.142857142857143     |
| Warriors | 27     | 0.321428571428571     |
| Warriors | 30     | 0.357142857142857     |
| Hawks    | 14     | 0.160919540229885     |
| Hawks    | 40     | 0.459770114942529     |
| Hawks    | 22     | 0.252873563218391     |
| Hawks    | 11     | 0.126436781609195     |

While the calculation is mathematically sound, decimal fractions are not the most intuitive way to present percentages to an audience. To enhance readability and presentation quality, it is essential to adjust the data type format. With the new column selected, look to the **Column tools** tab (which replaces Table tools when a column is active) on the top ribbon. Click the dropdown menu next to the **Format** option and select **Percentage**. This formatting change instantly transforms the decimal values into recognizable percentage figures.

Once formatted, the values in the **Percent of Team Total** column will be visually displayed as clear percentages, drastically improving the immediate interpretive value of the data:

File Home Help **Table tools** **Column tools**

Name Percent of Team To... Format Percentage

Data type Decimal number % .00 2

Structure Formatting

```

1 Percent of Team Total =
2 'my_data'[Points]
3 / CALCULATE (
4     SUM ( 'my_data'[Points] ),
5     ALLEXCEPT ( 'my_data', 'my_data'[Team] )
6 )

```

| Team     | Points | Percent of Team Total |
|----------|--------|-----------------------|
| Mavs     | 22     | 25.88%                |
| Mavs     | 14     | 16.47%                |
| Mavs     | 19     | 22.35%                |
| Mavs     | 30     | 35.29%                |
| Warriors | 15     | 17.86%                |
| Warriors | 12     | 14.29%                |
| Warriors | 27     | 32.14%                |
| Warriors | 30     | 35.71%                |
| Hawks    | 14     | 16.09%                |
| Hawks    | 40     | 45.98%                |
| Hawks    | 22     | 25.29%                |
| Hawks    | 11     | 12.64%                |

## Validating the Categorical Totals

A crucial step in any data transformation process is validating the results to ensure the DAX logic performed as expected. When calculating the percent of total by category, the sum of the percentages for all members within that specific category must equal 100%. If the sum exceeds or falls short of 100% (allowing for minor floating-point errors), the filter context manipulation was likely flawed or the data contains anomalies. This validation step confirms that the logic applied by **ALLEXCEPT** correctly partitioned the total.

Reviewing the results for the "Mavs" team confirms the accuracy of our calculation, demonstrating how each player contributes to the team's aggregate score:

The first Mavs player accounts for **25.88%** of all points scored by the Mavs.

The second Mavs player accounts for **16.47%** of all points scored by the Mavs.

The third Mavs player accounts for **22.35%** of all points scored by the Mavs.

The fourth Mavs player accounts for **35.29%** of all points scored by the Mavs.

When summing these individual percentages, we verify that the total contribution precisely equals 100%: Total Mavs Points: 25.88% + 16.47% + 22.35% + 35.29% = **100%**. This principle of summing to 100% holds true for every other team detailed in the table, confirming that the **ALLEXCEPT** function correctly constrained the total calculation to the category level defined by the **Team** column. Using this robust [DAX](#) pattern is essential for creating dynamic, self-correcting percentage calculations within your [Power BI](#) reports, ensuring that your categorical comparisons are always accurate and meaningful.

## Additional Resources for Power BI Mastery

To further enhance your skills in data modeling and advanced calculations using Power BI and DAX, consider exploring tutorials on related topics. Mastering filter context manipulation, calculated tables, and time intelligence functions will unlock the full analytical potential of the platform.

The following resources explain how to perform other common analytical tasks in Power BI: