

How to Count Distinct Values in a Power BI Column

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Introduction: Counting Distinct Values in Power BI

Analyzing unique entries within a dataset is a fundamental task in business intelligence. When working with Power BI, users frequently need to determine how many unique values exist within a specific column--be it unique customers, distinct product IDs, or unique transaction types. This operation is crucial for accurate reporting and key performance indicator (KPI) calculations, as simple row counts often skew results by including duplicates.

While Power BI offers several ways to achieve this, the most powerful and scalable approach involves leveraging Data Analysis Expressions (DAX). Specifically, the DISTINCTCOUNT function provides a robust, context-aware method for calculating uniqueness. Understanding how to correctly implement this function is essential for anyone serious about mastering advanced data modeling within the Power BI environment.

Initial explorations might lead users to features like the "Count Rows" function under the "Add Column" tab, or perhaps the "Distinct Count" option within the "Quick Measures" interface. While these tools offer surface-level functionality, they often lack the flexibility required for complex filtering and cross-table calculations. For reliable, dynamic results that respond correctly to visualization filters, creating a dedicated Measure using DAX is the recommended best practice. This tutorial focuses on using the powerful DISTINCTCOUNT function to solve this common analytical challenge.

Understanding the DISTINCTCOUNT Function in DAX

The DISTINCTCOUNT function is a key aggregation tool in DAX, designed explicitly to count the number of unique non-blank values in a specified column. Unlike standard row counts, this function automatically ignores duplicate entries, providing a true assessment of cardinality within that column. This is vital when analyzing transactional data where the same ID or value might appear multiple times.

The basic syntax for utilizing this function is remarkably straightforward. When creating a new Measure in Power BI, you define the calculation using the following structure:

You can use the following syntax in DAX to count the number of distinct values in a column of a table:

Distinct Points = DISTINCTCOUNT('my_data')

This particular example creates a new measure named **Distinct Points** that counts the distinct number of values in the **Points** column of the table named **my_data**.

It is important to understand the components of this formula. **Distinct Points** is the name assigned to the new Measure, allowing it to be easily referenced in visualizations. `DISTINCTCOUNT` is the function itself. `'my_data'` refers to the name of the table containing the relevant data, and ```` is the column within that table where the unique values are to be counted. Using single quotes around the table name is standard DAX practice, particularly when table names contain spaces or special characters.

By placing this calculation within a Measure, we ensure that the count is dynamic. This means if you place the measure in a visual (like a table or a matrix) and filter the data by Team or Player, the **Distinct Points** measure will automatically recalculate, showing the distinct points relevant only to that filtered context. This dynamic responsiveness is what makes DAX measures superior to simple calculated columns for aggregation tasks.

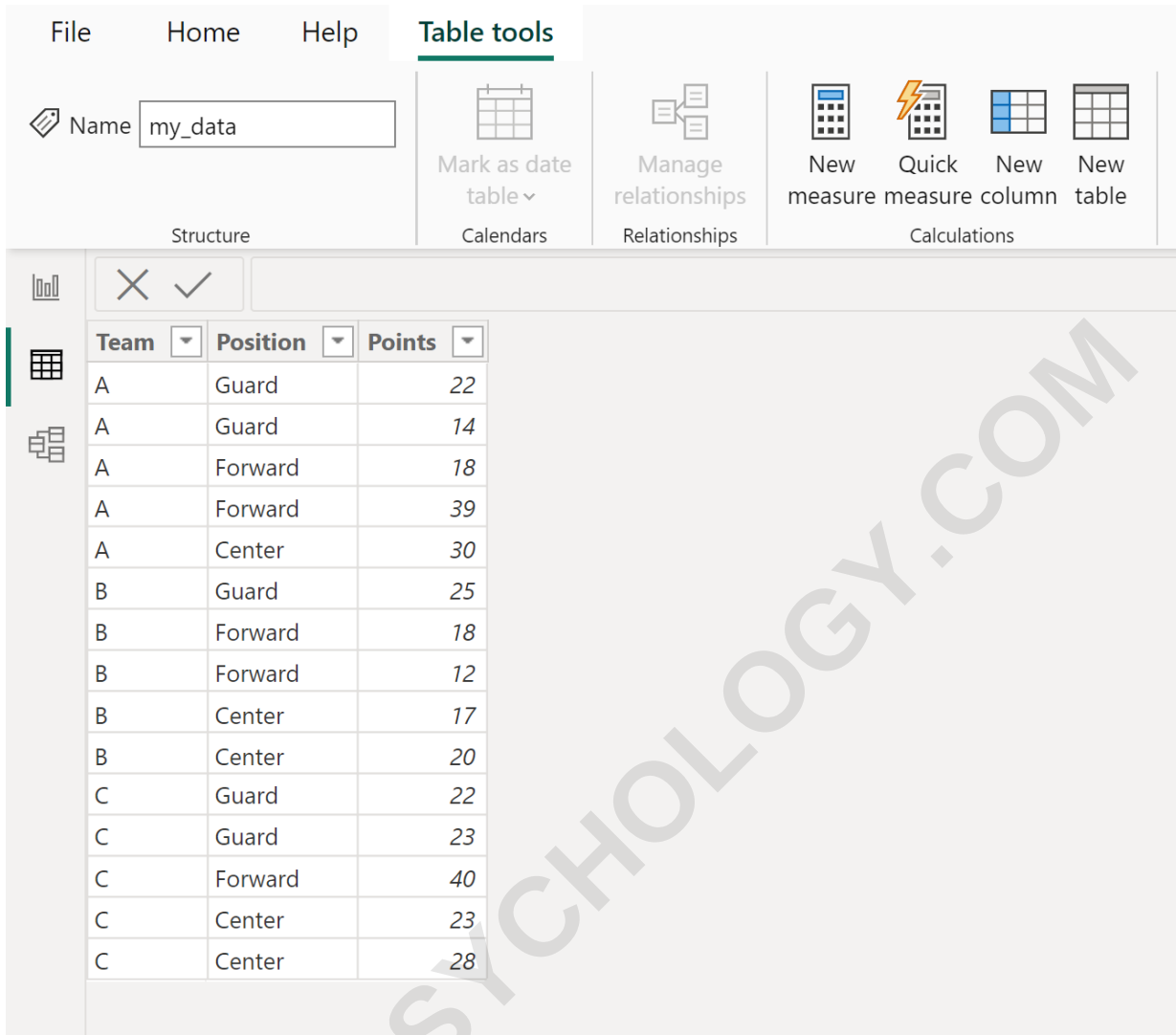
Step-by-Step Example: Preparing the Data Model

The following example shows how to use this formula in practice.

Example: How to Count Distinct Values in Column in Power BI

To demonstrate the utility of the `DISTINCTCOUNT` function, we will work with a sample dataset. Suppose we have imported the following table into Power BI Desktop. This table, named **my_data**, contains comprehensive information regarding points scored by various basketball players across different teams and games. Notice that some point values are repeated across different players or entries.

Suppose we have the following table in Power BI named **my_data** that contains information about points scored by basketball players on various teams:



The screenshot shows the Power BI Desktop interface. The 'Table tools' ribbon is active, displaying options like 'Mark as date table', 'Manage relationships', and 'New measure'. Below the ribbon, a table named 'my_data' is visible in the Data pane. The table has three columns: 'Team', 'Position', and 'Points'. The data is as follows:

Team	Position	Points
A	Guard	22
A	Guard	14
A	Forward	18
A	Forward	39
A	Center	30
B	Guard	25
B	Forward	18
B	Forward	12
B	Center	17
B	Center	20
C	Guard	22
C	Guard	23
C	Forward	40
C	Center	23
C	Center	28

Our objective is simple yet crucial: we want to determine the total number of **distinct** point values present in the **Points** column of the **my_data** table, irrespective of how many times those values appear. This might be used, for example, to understand the variety of scores achieved.

Before proceeding with the measure creation, always ensure your data model is correctly loaded and the table is visible in the Data pane. Since we are creating a measure that aggregates data, we must start from the Model View or Data View in Power BI Desktop, though the process begins by clicking the appropriate ribbon command.

Creating a New Measure Using Power BI Desktop

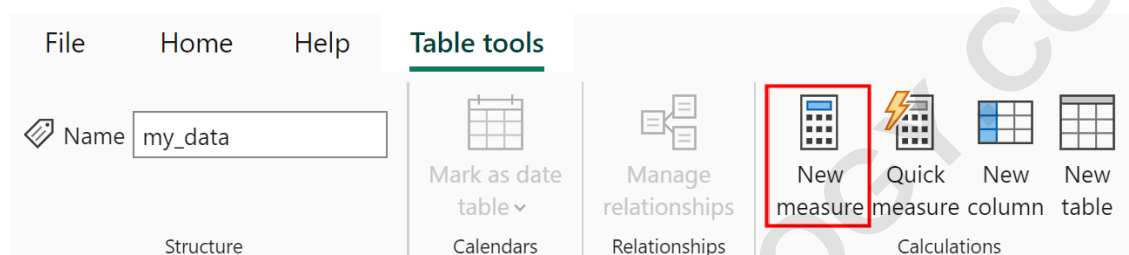
The preferred method for any dynamic aggregation in Power BI is the creation of a Measure. Measures calculate results on the fly based on the current context of a report or visualization. To begin the process of defining our distinct count calculation, we must navigate to the command area.

The process starts by ensuring you are within the editing environment that allows for data modeling adjustments.

Suppose that we would like to count the number of distinct values in the **Points** column of the table.

To do so, click the **Table tools** tab along the top ribbon, then click the **New measure** icon:

The **Table tools** ribbon appears when a table or data model element is selected. Clicking **New measure** opens the formula bar, prompting you to define the calculation. This is where we will input our DAX code.



Once the formula bar is active, Power BI is ready to accept the DAX definition. It is good practice to name your measures clearly and descriptively at the very beginning of the formula. Naming conventions, such as preceding the measure name with an underscore or a specific prefix, can help organize complex data models.

Implementing the DISTINCTCOUNT Formula

With the formula bar open, we now input the DAX expression that utilizes the DISTINCTCOUNT function. This function requires only one argument: the column reference whose unique values we wish to tally. Since our table is named **my_data** and the column is **Points**, the reference is precisely defined.

Then type in the following formula into the formula bar:

Distinct Points = DISTINCTCOUNT('my_data')

After confirming the formula (by pressing Enter or clicking the checkmark icon), Power BI registers this definition as a new measure within your data model. You will observe the new measure, typically marked with a calculator icon, appear under the **my_data** table (or whichever table you chose to host the measure, though it is best practice to group related measures).

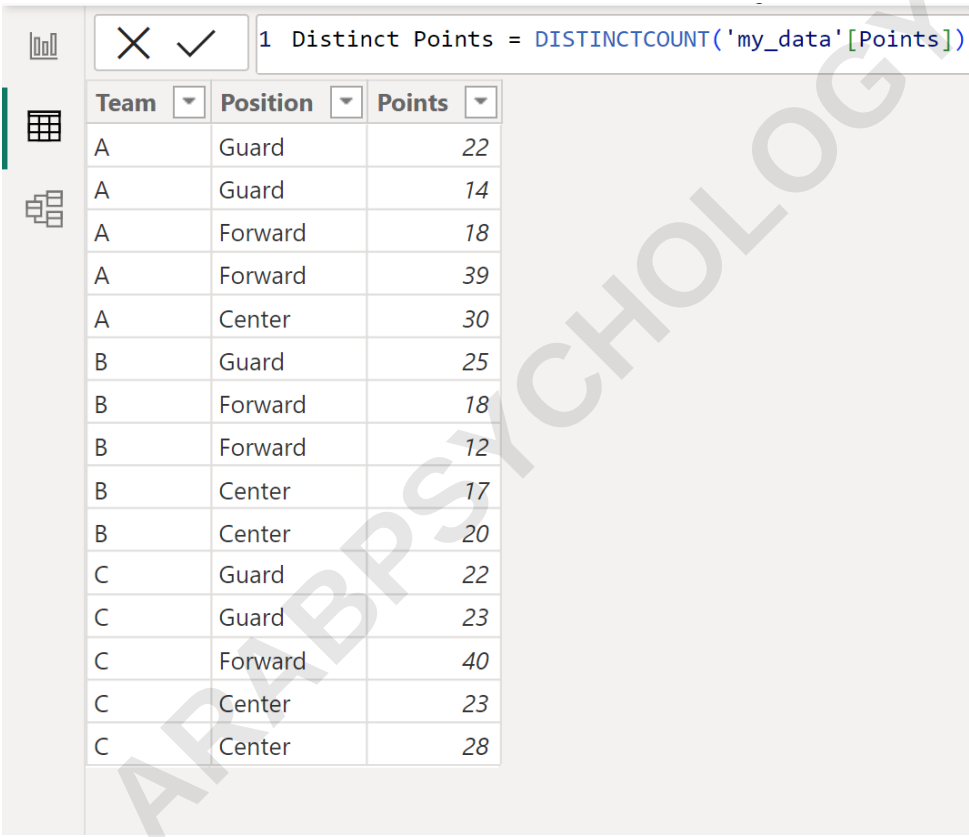
This will create a new measure named **Distinct Points** that contains the count of distinct values in

the **Points** column of the table:

This powerful yet concise calculation is now ready to be deployed across any report page. It acts as an aggregate value that is highly performant and responsive to filtering operations applied by slicers, visuals, or other report interactions.

Visualizing the Distinct Count Result

To make this newly calculated distinct count visible to end-users, we need to incorporate it into a visualization on the Report View page of Power BI Desktop. While the result can be displayed in various chart types, the most common and clearest way to show a single aggregate number, like a distinct count, is by using the Card visual.



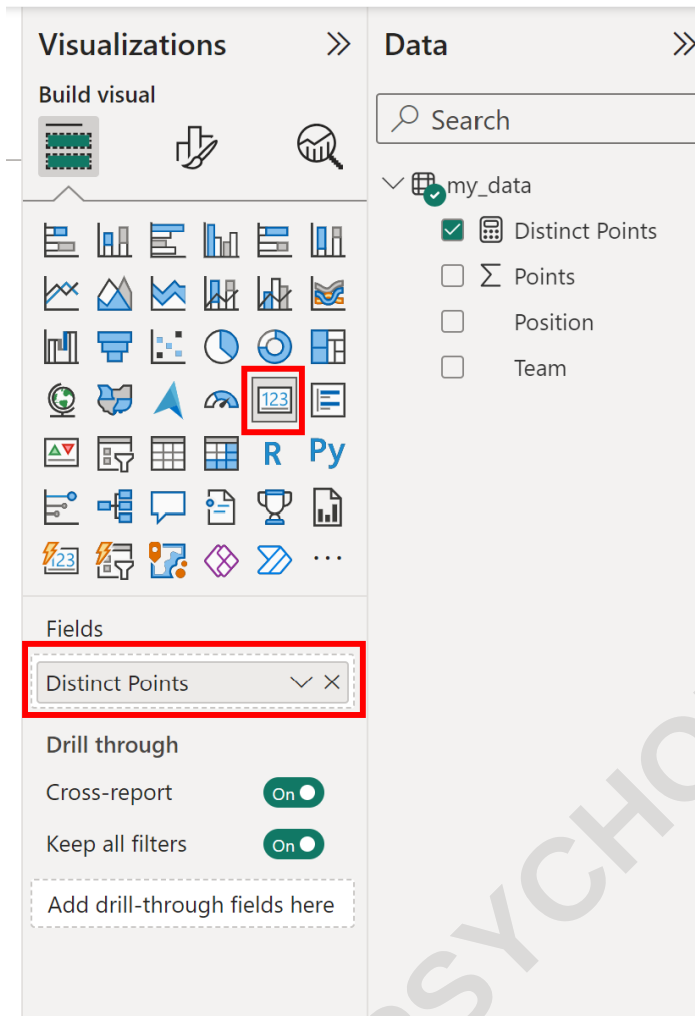
The screenshot shows the Power BI Desktop interface. At the top, a formula bar contains the measure: `1 Distinct Points = DISTINCTCOUNT('my_data'[Points])`. Below the formula bar is a table with three columns: Team, Position, and Points. The table contains 16 rows of data. A watermark 'ARABPSYCHOLOGY.COM' is visible diagonally across the table.

Team	Position	Points
A	Guard	22
A	Guard	14
A	Forward	18
A	Forward	39
A	Center	30
B	Guard	25
B	Forward	18
B	Forward	12
B	Center	17
B	Center	20
C	Guard	22
C	Guard	23
C	Forward	40
C	Center	23
C	Center	28

If we'd like, we can display this value by going to the **Report View** in Power BI, then by clicking the **Card** icon under the **Visualizations** tab, then by dragging the **Distinct Points** measure under the **Fields** label:

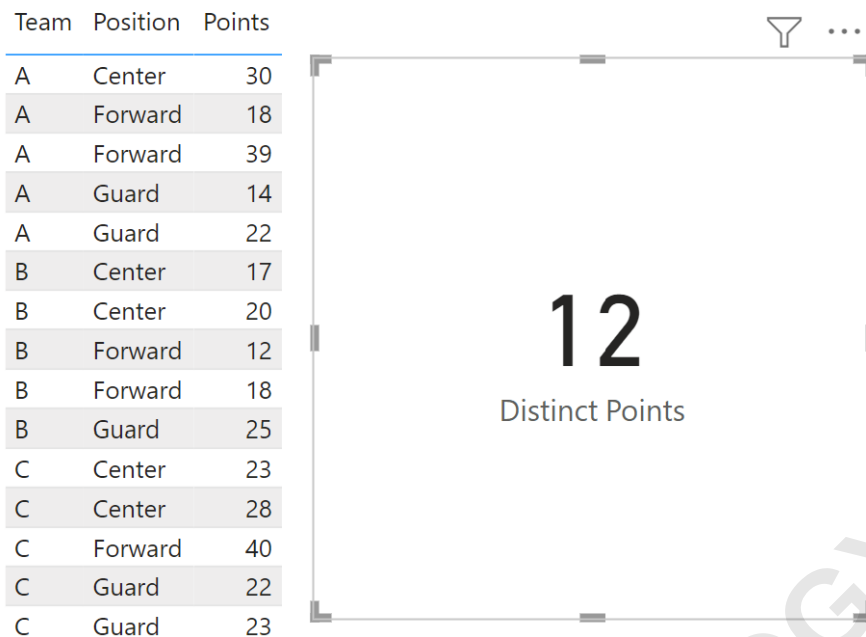
Once the Card visual is selected, you simply drag the **Distinct Points** measure from the Fields pane into the designated area of the visual. Power BI immediately renders the calculated result, showing the exact number of unique entries in the **Points** column across the entire dataset

context.



This will produce the following card that displays the count of distinct values in the **Points** column of the table:

As demonstrated in the final visualization, the total count of distinct values is readily available. This method provides immediate, unambiguous insight into the data's variety.



We can see that there are **12** distinct values in the **Points** column. This confirms that even though the original table contained many rows, only twelve unique point scores were achieved by the players in the dataset.

Alternative Methods for Counting Distinct Values

While using a DAX Measure with `DISTINCTCOUNT` is the most flexible approach, Power BI offers other, simpler methods suitable for quick analysis or specific contexts. Understanding these alternatives helps in choosing the right tool for the job.

One common alternative is utilizing the built-in summarization options within the Visualizations pane. When you drag a column (like 'Points') into a visual, you can click the dropdown arrow on that field and select "Count (Distinct)". This applies the distinct counting logic directly to the visual, bypassing the need for a manually created DAX measure. This is fast and efficient for visualization purposes but lacks the reusability and explicit definition of a dedicated measure.

Another option is using "Quick Measures." Power BI's Quick Measures feature provides templates for common calculations, including distinct counts. While Quick Measures automatically generate the underlying DAX code for you, the resulting code can sometimes be less efficient or harder to debug than manually written code. They serve as excellent starting points for users less familiar with DAX syntax.

Finally, for scenarios where you need to see the distinct count value **per row** in the table, you

might mistakenly try to use a calculated column. However, a calculated column based on `DISTINCTCOUNT` will typically return the total distinct count of the entire dataset for every row, as calculated columns do not naturally respect the visual filter context in the same way measures do. Therefore, calculated columns are generally unsuitable for reporting aggregate distinct counts.

When to Use Measures vs. Calculated Columns for Distinct Counts

A critical distinction in Power BI is the appropriate use of Measures versus Calculated Columns. For distinct counting, the choice directly impacts performance and report functionality.

A **Calculated Column** computes its value during data refresh and stores the result physically in the model. If you tried to create a calculated column using `DISTINCTCOUNT('my_data')`, every row in the `my_data` table would store the value '12'. This calculation is static and adds size to your data model, but it is useful for row-level categorization (e.g., flagging rows based on a calculation).

A **Measure** (like the one we created, **Distinct Points**) computes its value at the time the user interacts with the report. It does not store data in the model, making the file smaller and the model faster to load. More importantly, measures are designed to be dynamic; they automatically filter based on the slicers, filters, and relationships established in the report view. For any aggregation or KPI calculation like distinct counting, a Measure is the correct tool.

In summary, if the result must respond dynamically to user interaction (e.g., "How many distinct points were scored by Team A?"), always use a Measure. If the value needs to be static and visible alongside every row of data, consider whether the calculation truly requires a distinct count or if a simpler row-level calculation is needed.

Conclusion and Further Resources

Mastering the `DISTINCTCOUNT` function is a cornerstone of effective data analysis in Power BI. By encapsulating this logic within a DAX Measure, analysts ensure their reports are scalable, highly performant, and responsive to user interaction. This foundational technique allows for accurate cardinality assessment, which is vital for metrics such as unique visitors, unique products sold, or, as demonstrated here, the variety of scores recorded.

Always prioritize using DAX Measures for aggregations to maintain the integrity and dynamic nature of your data model. This approach minimizes model size while maximizing calculation flexibility, allowing your reports to accurately reflect complex business scenarios.

Note: You can find the complete documentation for the **DISTINCTCOUNT** function in DAX [here](#).

Related Power BI Tutorials

To further enhance your skills in data modeling and visualization, consider exploring tutorials on related topics.

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

Understanding and applying CALCULATE function in complex contexts.

How to use FILTER context modifiers in DAX.

Creating effective visuals using the Matrix and Table visuals in Power BI.

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