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About the Tutorial

Power View enables interactive data exploration, visualization, and presentation that encourages intuitive ad-hoc reporting. Large data sets can be analyzed on the fly using versatile visualizations in Power View. The data visualizations are dynamic, thus facilitating ease of presentation of the data with a single Power View report.

Audience

This guide targets professionals with hands-on experience in Excel, to perform the highend data analysis and decision making in a matter of few minutes.

Prerequisites

Power View is based on the Data Model in your workbook. Either you can start with a Data Model that is already available in Power Pivot or you can create a Data Model from Power View itself. In this tutorial, we assume that you are aware of the Data Model concepts in Power Pivot. Otherwise, we suggest you to go through our Excel Power Pivot tutorial first.

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1. Power View – Overview

Power View enables interactive data exploration, visualization, and presentation that encourages intuitive ad-hoc reporting. Large data sets can be analyzed on the fly using versatile visualizations in Power View. The data visualizations are dynamic, thus facilitating ease of presentation of the data with a single Power View report.

Power View is based on the Data Model in your workbook. Either you can start with a Data Model that is already available in Power Pivot or you can create a Data Model from Power View itself. In this tutorial, we assume that you are aware of the Data Model concepts in Power Pivot. Otherwise, we suggest you to go through the Excel Power Pivot tutorial first.

Creating Power View

To create a Power View, first you need to make sure that the Power View add-in is enabled in your Excel. You can then create a Power View sheet that contains Power View, which can hold several different data visualizations based on your Data Model. You will learn how to create a Power View sheet and Power View in the chapter - Creating a Power View.

Understanding Power View Sheet

The Power View sheet has several components such as Power View canvas, Filters area, Power View Fields list, Power View Layout areas and Power View tabs on the Ribbon. You will learn about these components in the chapter – Understanding Power View Sheet.

Power View Visualizations

The core of the Power View is in its various types of data visualizations that will enable you to portray the data, visualize, and explore, all in a dynamic mode. You can handle large data sets spanning several thousands of data on the fly switching from one visualization to another, drilling up and drilling down the data displaying the essence of the data.

The different Power View visualizations that you can have are the following-

- Table
- Matrix
- Card
- Charts
 - Line Chart
 - o Bar Chart
 - o Column Chart



- Scatter Chart
- Bubble Chart
- Map

You will learn about these visualizations in different chapters in this tutorial. You will also learn about combination of visualizations on a Power View and their interactive nature.

Visualization with Multiples

Another domain of Power View is its facility to visualize the Chart visualizations in Multiples. You can have a grid of Charts in Power View with the same axis. You can have Horizontal Multiples or Vertical Multiples. You will learn Multiples in Power View with different types of charts in the chapter - Visualization with Multiples.

Visualization with Tiles

When you have large data to display at a time, browsing up and down could take time. Power View makes this task very easy for you with Tiles. Tiles are containers on a navigation strip that is based on a field in your data. Clicking on a Tile is equivalent to selecting that value of the field and your visualization is filtered accordingly. You can have data bound images such as sport images for Tiles that will give a visual cue to your navigation strip. You will learn about Tiles in the chapter – Visualization with Tiles.

Advanced Features in Power View

Whenever you have to create a visualization, you need to first create a Table and then switch visualization to the required one. This would make you create the Tables several times during data exploration and reporting. Even after you decide on what fields to portray in your visualizations, you have to repeatedly select all these fields every time. Power View provides you with an advanced feature to define a default field set that enable you to select all the fields with a single click on the table name in the Power View Fields list.

You can set table behavior, filter all the visualizations together with the VIEW tab in filters, change the sort order of a field, filter visualizations with Slicers, add data labels and add a title to the Power View. You will learn about these and more in the chapter – Advanced Features in Power View.

Power View and Data Model

We said Power View is based on the Data Model. You can either work on the Data Model that is already present, as is the case in all the previous chapters, or create one from the Power View sheet. You will learn about adding data tables to Data Model, creating relationships between tables and modifying Data Model from Power View sheet in the chapter – Power View and Data Model.



Hierarchies in Power View

If you data has nested fields you can define a hierarchy so that you can treat all the nested fields as one field. You can have a defined hierarchy in the Data Model that you can visualize from Power View or you can create a hierarchy in Power View and use it for visualization. You can drill p and drill down the hierarchy in Matrix, Bar Chart, Column Chart and Pie Chart visualizations. You can filter hierarchy in Pie Chart with Column Chart. You will learn all these in the chapter – Hierarchies in Power View.

Key Performance Indicators (KPIs) in Power View

Key Performance Indicators (KPIs) enable you to track the progress against the set goals. You can create KPIs in the Data Model from Power View. You can then create appealing Power View visualizations that depict the KPIs and produce aesthetic reports. You can also edit the KPIs from Power View as it is possible that the KPIs might have to be modified as the time progresses. You will learn about KPIs in the chapter - Key Performance Indicators (KPIs) in Power View.

The chapter also has a brief introduction on KPIs, KPI parameters and how to identify KPIs. But, note that this is not exhaustive as KPIs depend on the field you have chosen to track the progress – for e.g. business performance, sales, HR, etc.

Formatting a Power View Report

The Power View visualizations as you learn throughout the tutorial are ready to present any time, as they are all appealing and presentable. Because of the dynamic nature of the visualizations, it is easy to display the required results on the sport without much effort or time. As everything is visual, there will not be any need to preview the results. Hence, in Power View reporting is not the final step and can be at any point of time with your Power View and visualizations.

In the chapter – Formatting a Power View Report, you will learn some more features that can change the look and feel of your already appealing Power View reports. These include changing Theme, setting background image, changing background colors, font and text size, formatting numbers and changing number aggregates.

Sharing Your Work

You can share your work with the concerned as the Power View sheets in your Excel workbook itself on server / cloud by giving appropriate permissions to read /edit. As Power View is also available on SharePoint, you can share your Power View reports as SharePoint reports. You can print Power View sheets, but as they are static, it would not make much sense to print them because of their innate powerful features of interactivity and dynamic nature. You can publish Power View sheets to Power BI.



Data Acknowledgements

The data that is used to the maximum extent is the Olympics results data for the years 1900 – 2014. The data table has around 35,000 rows of data that could reveal the power features of the optimistic Data Model and Power View visualizations.

Sincere thanks to all those involved in providing this data onsite -

- Olympics Official Results https://www.olympic.org/olympic-games
- Olympics Sport Images http://upload.wikimedia.org/wikipedia

Last but not the least Microsoft Office Support that gave the idea of choosing Olympics data to render the power of Power View Visualizations.

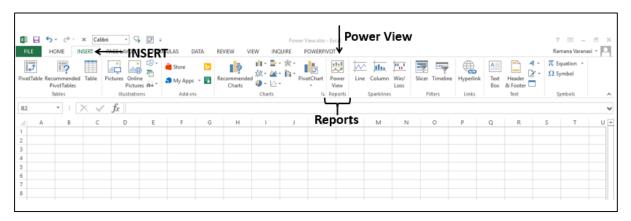


2. Power View – Creation

Power View is like a canvas on which you can have any number of visualizations based on your Data Model. You need to start with creating a Power View sheet and then add fields from the data tables to Power View to visualize and explore data.

Before you start your data exploration with Power View, make sure that the Power View addin enabled and available on the Ribbon.

Click the INSERT tab on the Ribbon. Power View should be visible on the Ribbon in the Reports group.

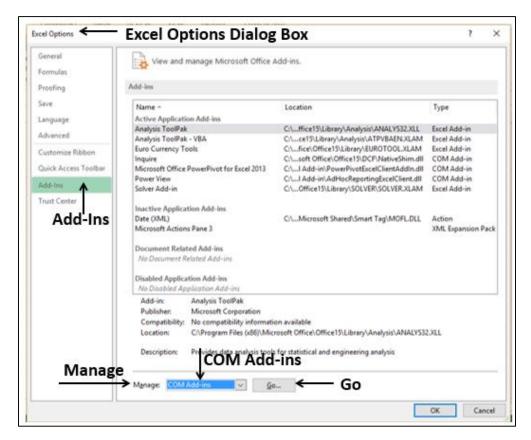


Enabling Power View Add-in

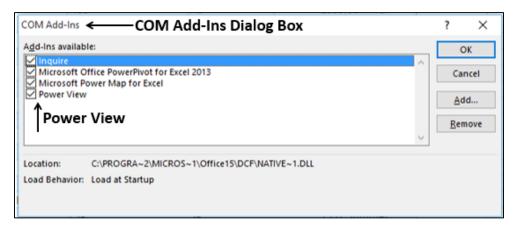
If you do not find Power View on the Ribbon, you need to enable the Power View add-in.

- Click the File tab on the Ribbon.
- Click Options.
- Click Add-Ins in the Excel Options dialog box.
- Click the drop-down arrow in the Manage box.
- Select **COM Add-ins** from the dropdown list and click **Go**.





The COM Add-ins dialog box appears. Check the box Power View and click OK.



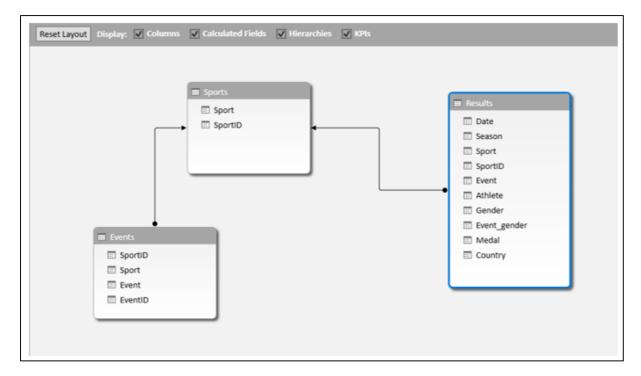
Power View will be visible on the Ribbon.

Creating a Power View Sheet

You can create a Power View from the data tables in the Data Model.

Suppose you have the following Data Model in your workbook.

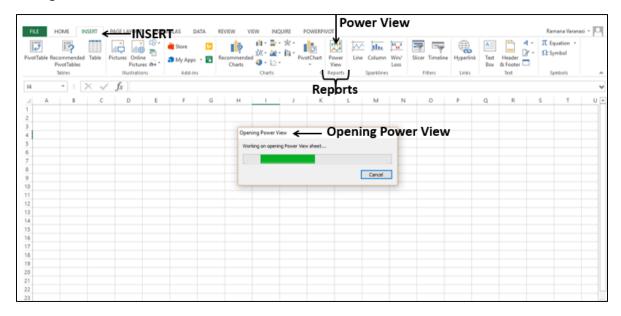




To create a Power View sheet, do the following -

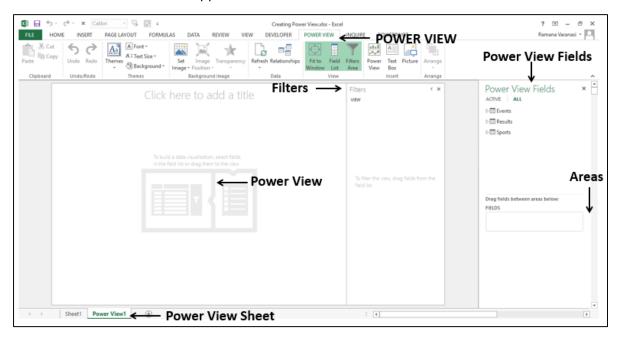
- Click the INSERT tab on the Ribbon in Excel window.
- Click Power View in the Reports group.

Opening Power View message box appears with a horizontally scrolling green status bar. This might take a little while.





The **Power View** sheet is created as a worksheet in your Excel workbook. It contains an empty Power View area, Filters area and the Power View Fields list displaying the tables in the Data Model. Power View appears as a tab on the Ribbon in the Power View sheet.



You will understand these different parts of the Power View sheet in the next chapter.

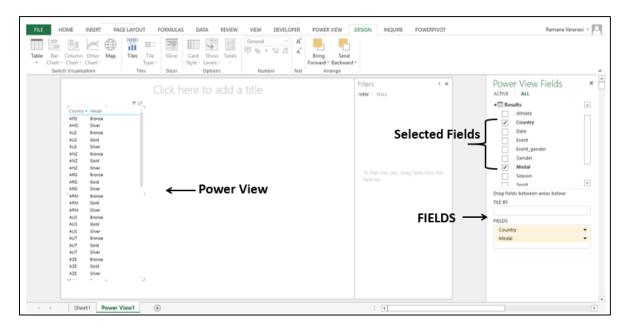
Creating a Power View

In this section, you will understand how to create a Power View in the Power View sheet.

Suppose you want to display the medals that each country has won.

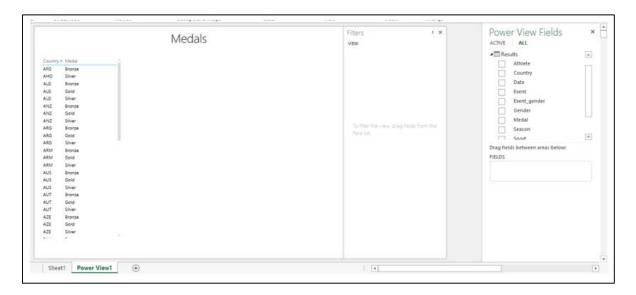
Select the fields Country and Medal from the Results table. These two fields appear under **FIELDS** in the Areas. Power View will be displayed as a Table with the two selected fields as columns.





As you can see, Power View is displaying which medals each country has won.

- Click the Title of the Power View sheet.
- Type Medals.



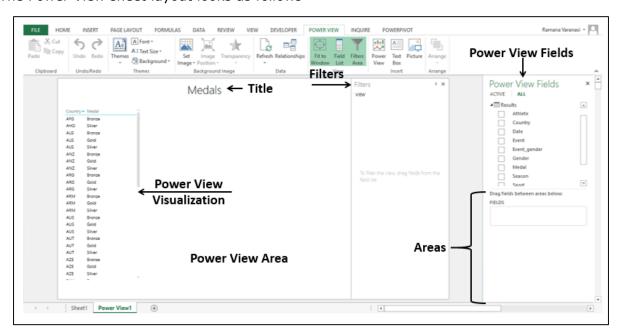


3. Power View – Sheet

In the previous chapter, you have created a Power View sheet and a Power View on the Power View sheet. Note that you can create multiple Power Views on a Power View sheet. They are called Visualizations. You will learn about the various different visualizations that you can create on a Power View sheet in the subsequent chapters. Before you learn about the different visualizations, you need to understand the various parts of the Power View sheet.

Power View Sheet Layout

The Power View sheet layout looks as follows -



You can find the following different parts on the Power View sheet.

- Power View Area.
- Power View Visualizations.
- Power View Title.
- Power View Fields List.
- Filters.



Power View Area

Power View area is like a canvas on which you can create multiple different visualizations based on the data in the Data Model. You can have multiple visualizations in the Power View area and work on them either collectively or separately. To create a new visualization, you need to click on an empty part of the Power View area, and select the fields that you want to display in the visualization.

Power View Visualizations

The variety of visualizations that Power View provides is the strength of Power View. You can have any number of visualizations on the Power View area and each with different size and different layout. For example, you can have a Table visualization, a Chart visualization and a Map visualization on a single Power View. The fields that are displayed in the visualizations can be individually chosen.

The sizes of the visualizations can be different.

To resize a visualization, do the following -

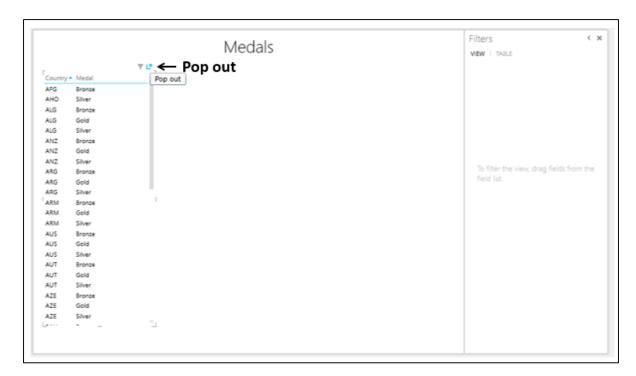
- Click on the symbol in the top right corner, or
- Click on the symbol in the bottom right corner and pull the arrow that appears

Pop out and Pop in

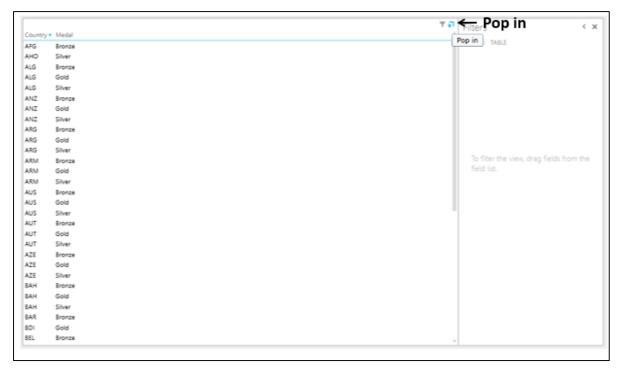
You can make a visualization to occupy the entire Power View area with the Pop out button that appears on the top right corner of the visualization.

- Move the cursor to the Table visualization.
- Move to the top right corner of the Table visualization. The Pop out button is highlighted.





- Click the Pop out button. The Table visualization pops out to the entire Power View area.
- The Pop out button changes to Pop in button.
- Click the Pop in button.





The Table visualization reverts to the original size.

Power View Fields List

The Power View Fields list displays all the tables in the Data Model and the corresponding fields. By selecting the fields, you can display the required data in a visualization. Note that you can choose different fields for the different visualizations on a Power View sheet. This makes Power View a versatile and collective tool to visualize the different aspects of the data in the Data Model.

While the selected fields in the Power View Fields list determine what data is to be displayed in a visualization, the areas below the Fields list determine how the data is to be displayed. For example, you might choose to display the fields - Country, Sport, Gender, and Medal Count in the visualization. While placing these fields in the Areas, you can opt to display Gender as a Legend. You will learn the different types of Areas and the way they can change the layout of a visualization in the subsequent chapters.

Title

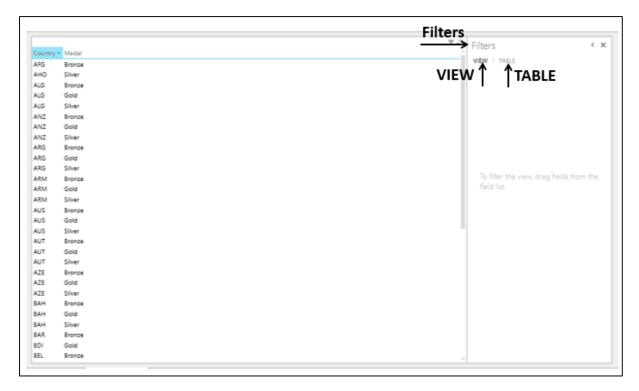
The Title in a Power View sheet is for the entire sheet. Therefore, while giving a Title, see to that it meets the objective of the entire Power View report.

Filters

The Filters area allows you to filter the fields for specific data that is to be displayed. You can choose to apply a filter to the entire View, i.e. all the visualizations or only the selected visualization.

Click Table visualization.





As you can observe, the Filters area has two tabs - VIEW and TABLE.

- If you click the tab **TABLE** and apply the filters to fields, only the data in the selected **TABLE** visualization will be filtered.
- If you click on the tab **VIEW** and apply the filters to fields, the data in all the visualizations in the Power View sheet will be filtered.

If the visualization is other than Table, say Matrix, then the tabs in the Filters area will be **VIEW** and **MATRIX**.

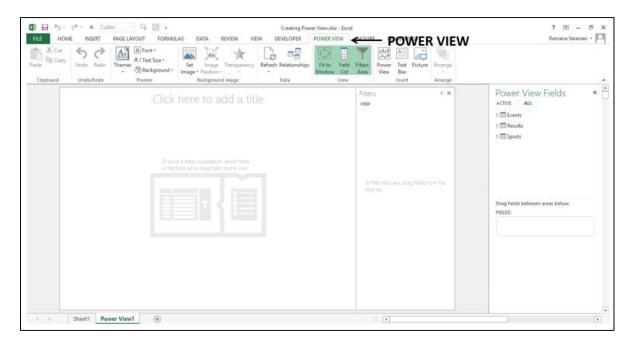
You will learn about Filters in detail in the chapter - Combination of Power View Visualizations.

Power View Tabs on the Ribbon

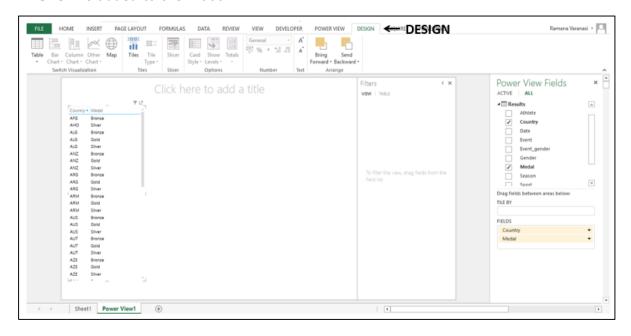
Power View has three tabs on the Ribbon - Power View, Design, and Layout.

When you create a Power View Sheet, the tab - POWER VIEW is added to the Ribbon.



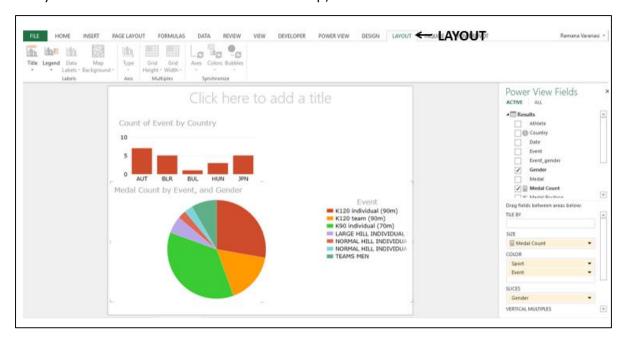


When you create a Power View (visualization) such as Table visualization and click it, the tab – **DESIGN** is added to the Ribbon.





When you switch visualization to a Chart or Map, the tab - LAYOUT is added to the Ribbon.





4. Power View – Visualizations

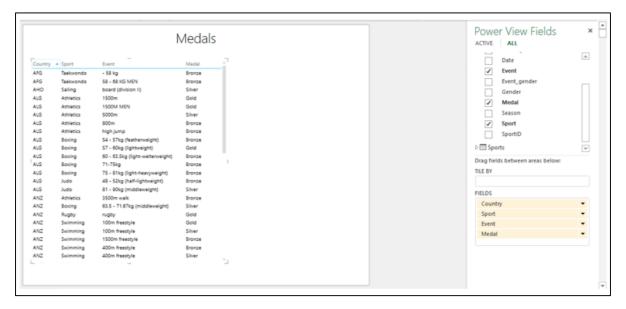
Power View is an interactive data exploration and visualization tool in Excel. Power View supports various visualizations such as Tables, Matrices, Cards, Charts such as Bar, Column, Scatter, Line, Pie and Bubble Charts and Maps. You can also create sets of multiple charts (charts with same axis) in Power View.

In this chapter, you will understand each Power View visualization briefly. You will understand the details in the subsequent chapters.

Table Visualization

For every visualization that you want to create on a Power View sheet, you have to start by creating a Table first. You can then quickly switch among the visualizations to find the one that best suits your data.

The Table looks like any other data table with columns representing fields and rows representing data values. You can select and deselect fields in the Power View Fields list to choose the fields that are to be displayed in the Table.

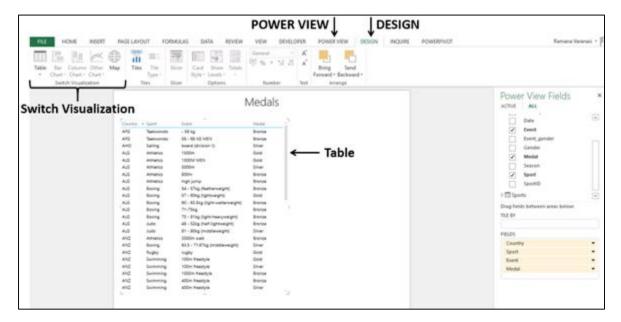


Switch Visualization

Once you create a Table visualization that is default, you can convert it into any other visualization as follows-



- Click on Table visualization. Two tabs, POWER VIEW and DESIGN appear on the Ribbon.
- Click the **DESIGN** tab.

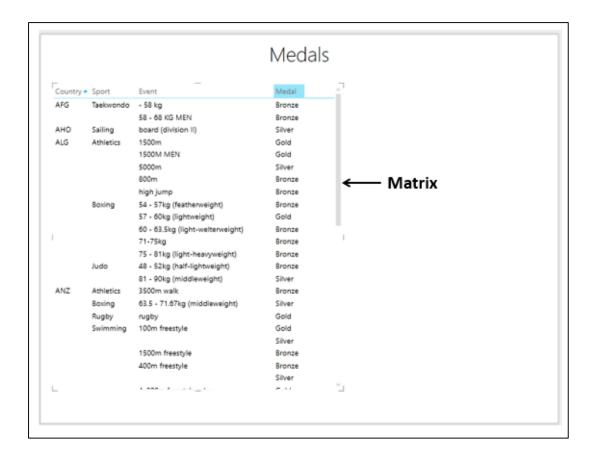


There are several visualization options in the Switch Visualization group on the Ribbon. You can choose any of these options.

Matrix Visualization

Matrix Visualization is similar to a Table Visualization as it also contains rows and columns of data. However, a matrix has some additional features such as displaying the data without repeating values, displaying totals and subtotals by columns and/or rows, drill down/drill up a hierarchy, etc.





Card Visualization

In a card visualization, you will have a series of snapshots that display the data from each row in the table, laid out like an index card.



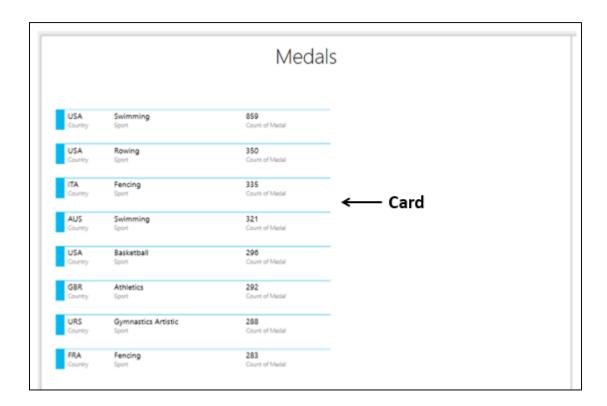


Chart Visualizations

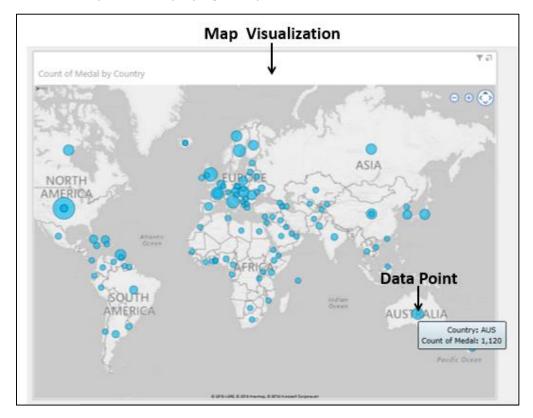
In Power View, you have a number of Chart options: Bar, Column, Line, Scatter, Bubble, and Pie.





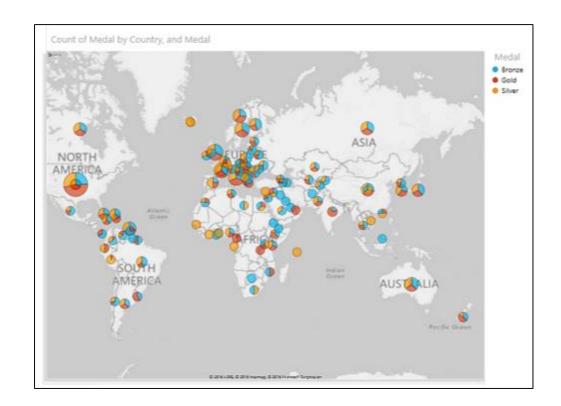
Map Visualization

If your data has fields pertaining to geography, you can use Maps in Power View to display the values. Maps in Power View use Bing map tiles and hence you need to make sure that you are online when you are displaying a Map visualization.



You can use Pie Charts for data points in a Map Visualization.







5. Power View – Table Visualization

In Power View, for every visualization you want to create, you start by creating a Table, which is the default and then convert the Table to other visualizations easily.

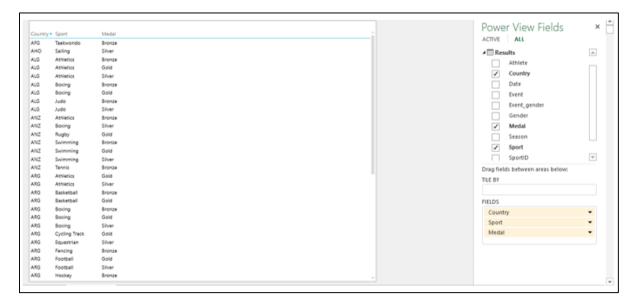
The Table looks like any other data table with columns representing fields and rows representing data values. You can select and deselect fields in the Power View Fields list to choose the fields that are to be displayed in the Table. The fields can be from the same data table or from different related data tables.

Creating a Table

To create a Table in Power View, do the following-

- Click on the Power View area.
- Click on the table Results in the Power View Fields list.
- Select the fields Country, Sport, and Medal.

A Table will be displayed on Power View with selected fields as columns, containing the actual values.





Understanding Table Visualization

You can see that the selected fields appear in the FIELDS area under the Power View Fields list. The columns are formatted according to their data type, as defined in the data model that the report is based on.

The order of the fields in the FIELDS area represents the order of the columns in the Table. You can change the order by dragging the fields in the FIELDS area. You can sort the Table by any column by clicking on the column name. The sort order can be ascending or descending by values.

You can filter the data in the Table by choosing the filtering options in the Filters area, under the **Table** tab. You can add fields to the **Table** by dragging the field either to the Table in Power View or to the **FIELDS** area. If you drag a field to the Power View area and not to the Table, a new Table is displayed.

Adding a Field to Table as Count

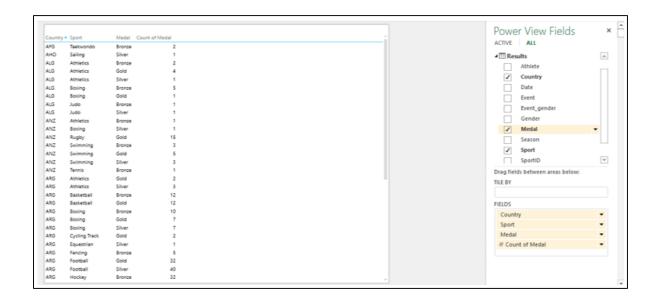
Suppose you want to display the Medal Count as a column. You can do it by adding the field Medal to the Table as Count.

- Click the arrow next to the field, Medal, in the Power View Fields list.
- Select Add to Table as Count from the dropdown list.



A new column Count of Medal will be added to the Table, displaying the Medal Count values.





Adding a Count Field to Table

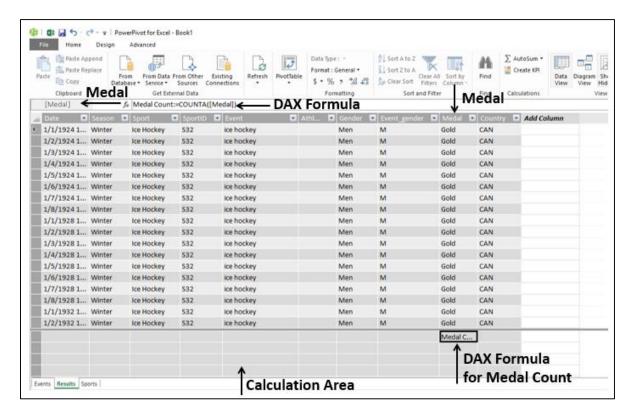
As your data has more than 34000 rows, adding the field Medal as Count to the Table is not an efficient approach, as Power View has to do the calculation whenever you change the layout of the Table.

The more effective way is to add a calculated field to the Medals data table in the Data Model.

- Click on the PowerPivot tab on the Ribbon.
- Click on Manage in the Data Model group. The tables in the Data Model will be displayed.
- Click on the Results tab.
- In the Results table, in the calculation area, in the cell below the Medal column, type the following DAX formula -

Medal Count:=COUNTA([Medal])





You can see that the medal count formula appears in the formula bar and to the left of the formula bar, the column name Medal is displayed.

In the Power View sheet, you will get a Power View message that the Data Model is changed and if you click OK, the changes will be reflected in your Power View. Click OK.



In the Power View Fields list, you can observe the following-

- A new field Medal Count is added in the Results table.
- A calculator icon appears adjacent to the field Medal Count, indicating that it is a calculated field.
- Select the fields Country, Sport, and Medal Count.



Power View Fields ACTIVE ALL **⊿** Results Athlete Country Date Medal Newly added ➤ 🗸 🗐 Medal Count Calculated Field Season Cycling Tra 1 Sport – Table SportID D I Sports Drag fields between areas below: TILE BY FIELDS Country ARG ARG Sport Medal Count

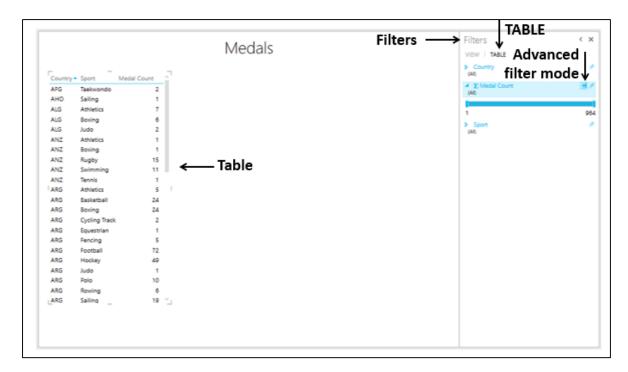
Your Power View Table displays the medal count country wise and sport wise.

Filtering Table in Power View

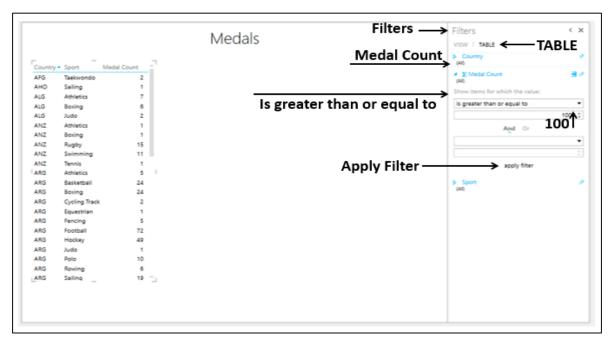
You can filter the values displayed in the Table by defining the filter criteria.

- Click the TABLE tab in the Filters area.
- Click Medal Count.
- Click the icon **Advanced filter mode** to the right of Medal Count.



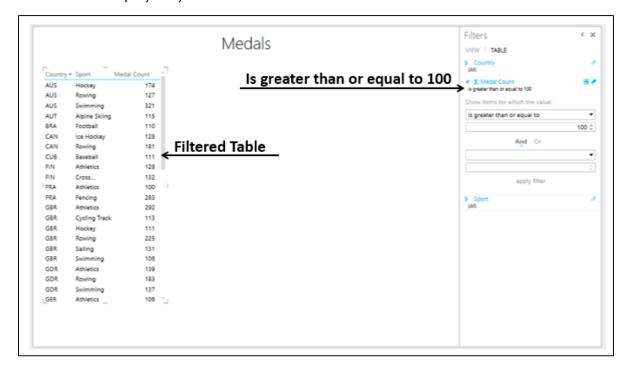


- Select is greater than or equal to from the dropdown list under Show items for which the value.
- Type 100 in the box below that and then click Apply Filter.











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