Power BI Assignment 5

1. Explain DAX.

   Data Analysis Expressions (DAX) is a programming language that is used throughout Microsoft Power BI for creating calculated columns, measures, and custom tables. It is a collection of functions, operators, and constants that can be used in a formula, or expression, to calculate and return one or more values. You can use DAX to solve a number of calculations and data analysis problems, which can help you create new information from data that is already in your model.

   DAX or Data Analysis Expressions drive all the calculations you can perform in Power BI. DAX formulas are versatile, dynamic, and very powerful – they allow you to create new fields and even new tables in your model. While DAX is most commonly associated with Power BI, you can also find DAX formulas in Power Pivot in Excel and SQL Server Analysis Services (SSAS).

   DAX formulas are made up of 3 core components and this tutorial will cover each of these:

   - Syntax – Proper DAX syntax is made up of a variety of elements, some of which are common to all formulas.
   - Functions – DAX functions are predefined formulas that take some parameters and perform a specific calculation.
   - Context – DAX uses context to determine which rows should be used to perform a calculation.

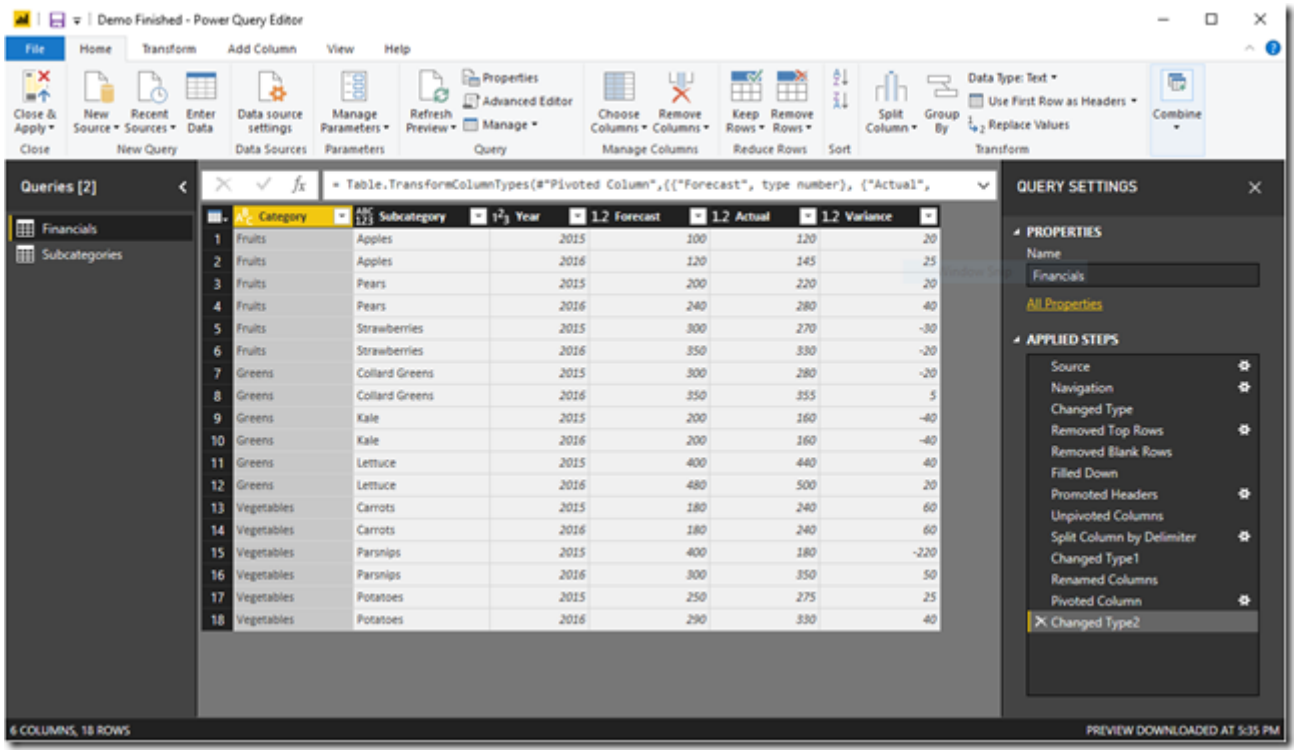
2. Explain datasets, reports, and dashboards and how they relate to each other?

   Datasets

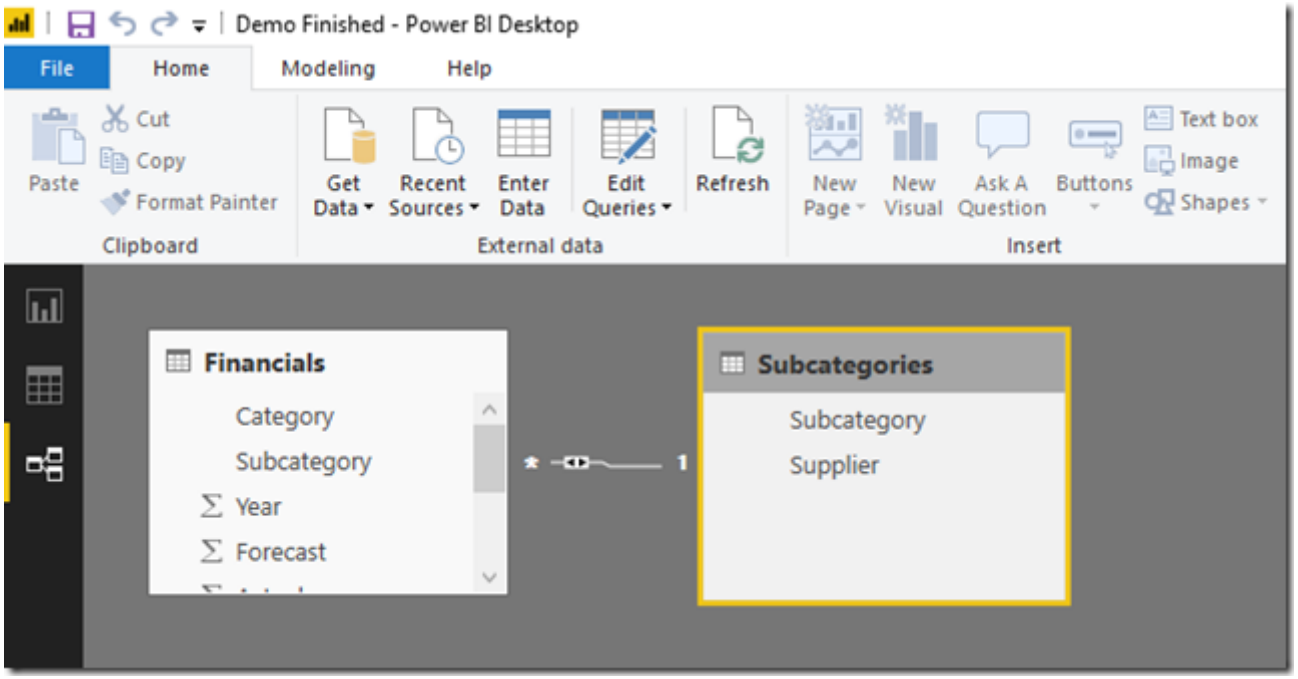
   A Power BI Dataset is a series of Power Query queries that have been shaped in a DAX model. Each dataset can combine different files, database tables and online services all into one tabular model. In our cookie analogy, these are all different “ingredients”.

   Unlike SSRS, a dataset in Power BI does not represent a single table or query of data. A dataset should be considered more like a “flavor” of data used to accomplish a specific type of reporting: financial, operational, HR, etc. So in our analogy, the dataset is the “raw dough”.

   So in Power Query, you are going to have a set of queries which each combine a data source with a usually linear set of transformations.



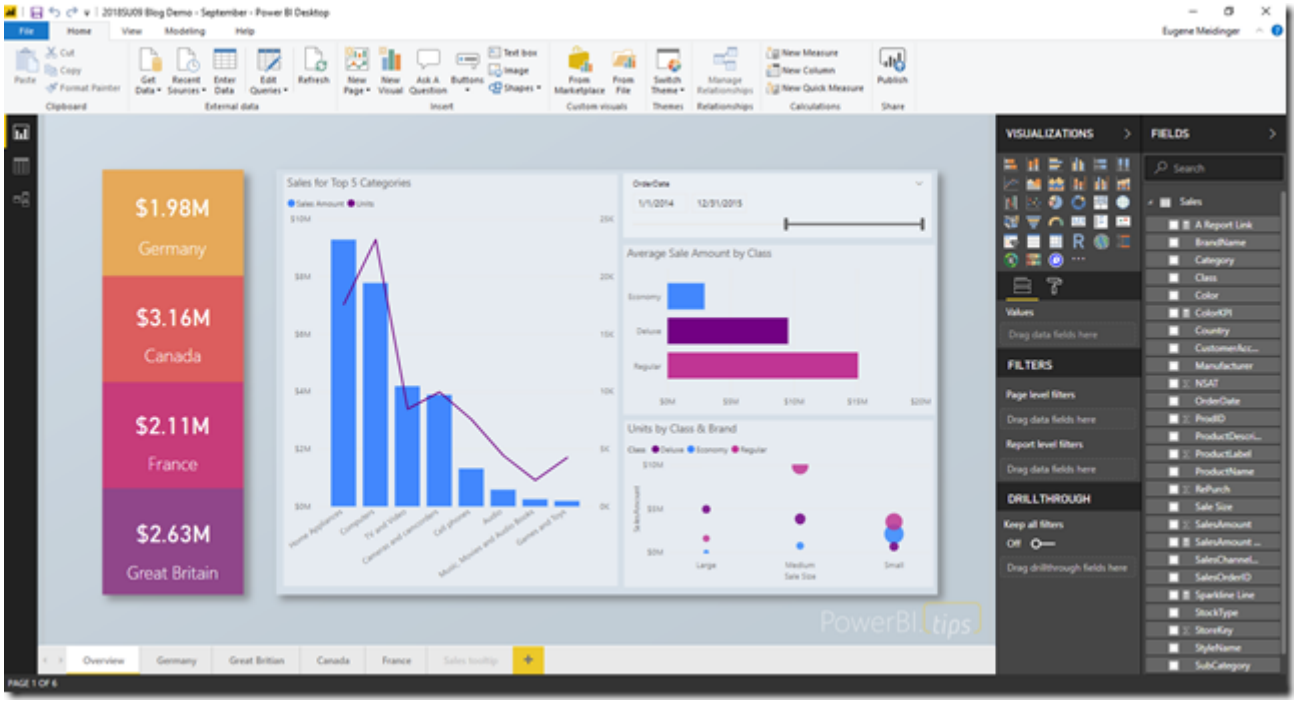
Then, in DAX, you are going to take each of those outputs and combine them into a model. This consists of defining relationships between the outputted tables and adding business logic via calculated columns and measures.



For more on the difference between Power Query and DAX, see our previous episode of SQLChefs.

Reports

A power BI report is a series of visualizations, filters and static elements on a canvas. Power BI reports are saved as a single PBIX file and connected to a single dataset. Remember, a Power BI dataset can have many data sources.



Each report can have multiple sheets, just like an Excel workbook. In our analogy, this is us placing our “cookies” on multiple “cookie sheets” making one big batch, all of the same “flavor”.

One report per dataset

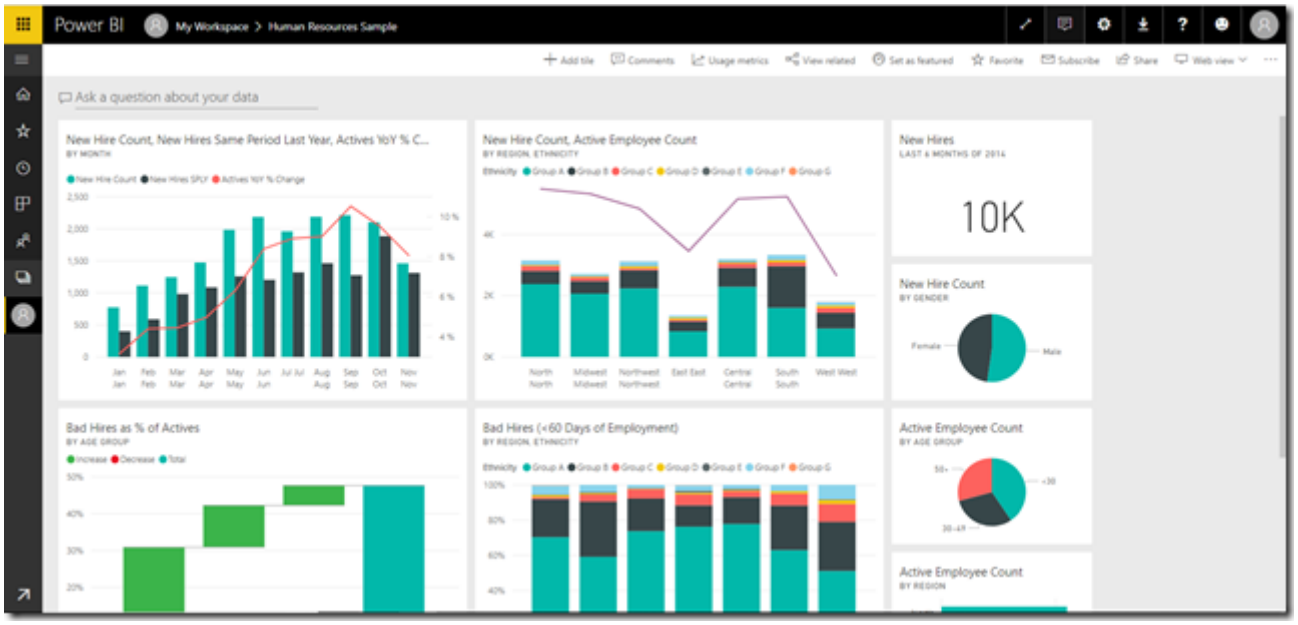
A quick aside to something that used to confuse me. In most cases, a report and a dataset are going to have a one to one relationship. A dataset can have one report and a report can have one data set. Recently this has changed, however. A while back, they added the ability to use an existing dataset as a data source for a report. and at Ignite they announced the ability to share datasets outside of the app workspace they were made in.

That being said, while you are still learning Power BI, it’s easier to remember that in many cases, your dataset and your report are going to have a one-to-one relationship and be tightly linked.

Dashboards

In Power BI, dashboards are a way of pulling together visualizations from various reports. When you think of a dashboard, you are probably thinking something like Microsoft’s definition: “A Power BI dashboard is a single page, often called a canvas, that uses visualizations to tell a story. Because it is limited to one page, a well-designed dashboard contains only the most-important elements of that story.”

However, if you look at the report example above, it probably fits that definition. It is not a Power BI Dashboard. In Power BI, a dashboard is a tool for pinning visuals from different reports and other sources of data.



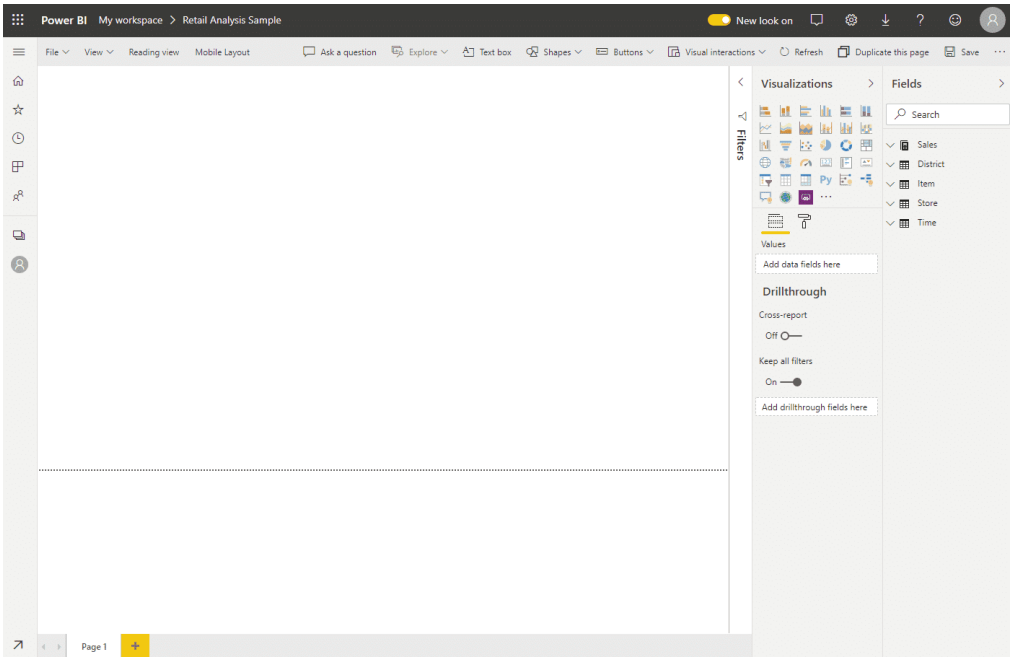
In my opinion, a Power BI Dashboard is as much a tool for organization and navigation, as it is for actual reporting. I think that's the real value add with Power BI dashboards.

3. How reports can be created in power BI, explain two ways with Navigation of each.

Before you can create any reports in Power BI, you need a dataset and a blank report canvas.

Once you have your dataset, go to the "Datasets" section in your workspace and click the 'Create report' icon.

The steps you took from the previous section will bring you to the reports builder:



There are three primary sections you have to know:

- Canvas

- Fields pane
- Visualizations pane

Obviously, the canvas is the empty white space at the center where the visuals will be made.

The fields pane contains the different fields of your dataset (think of it as the columns of your dataset).

The visualizations pane is where you can edit and modify your visualizations like the type of visualization, the format, and specific options for the values of your visual.

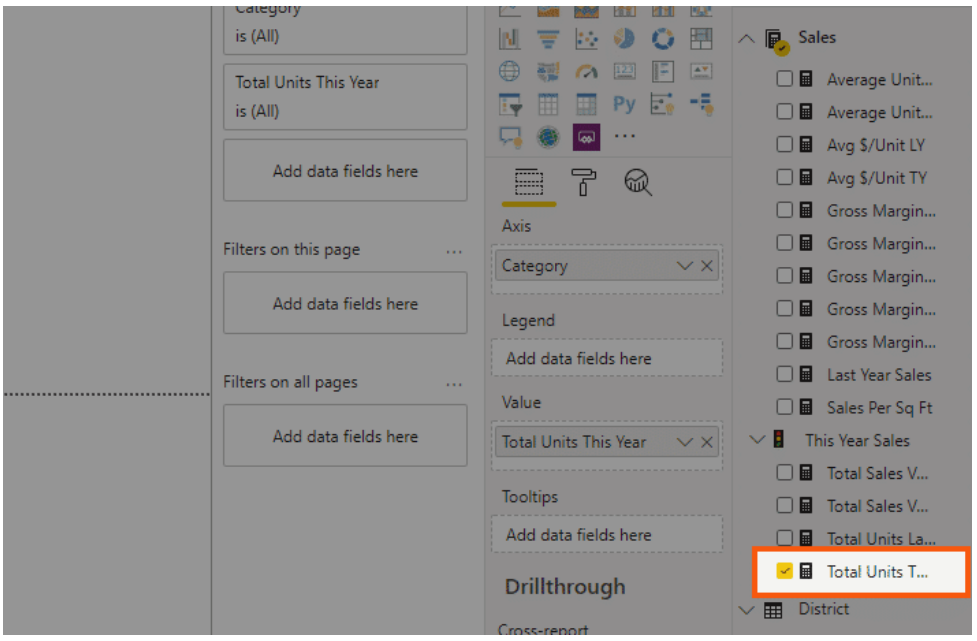
Now, there are 2 ways to achieve that. You can either:

- Select the fields first then visualizations after
- Or if you have the specific visualization in mind, select the type of visual first then the fields after

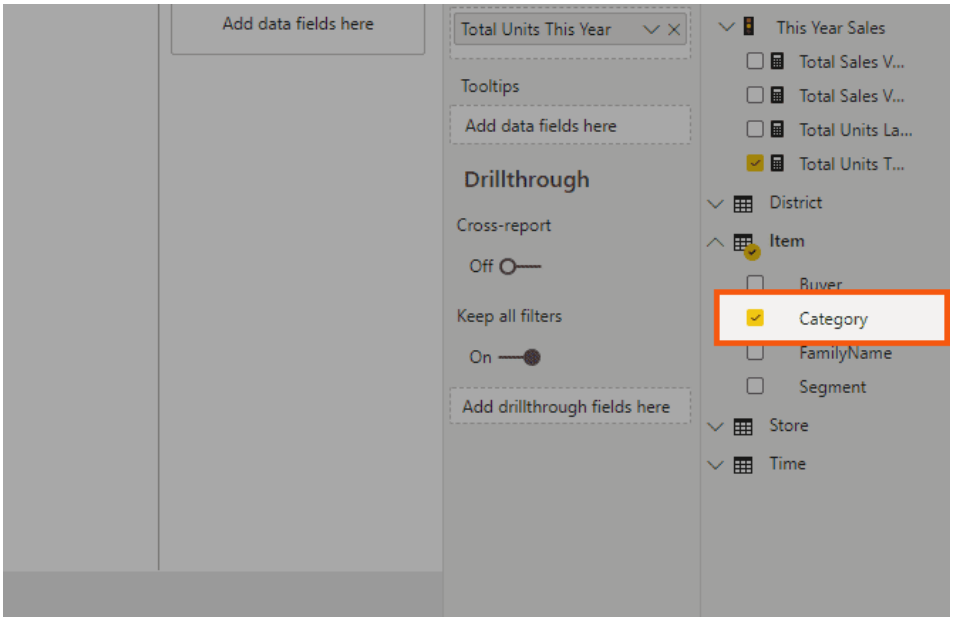
We'll go with the first method.

To start, focus your attention on the fields pane.

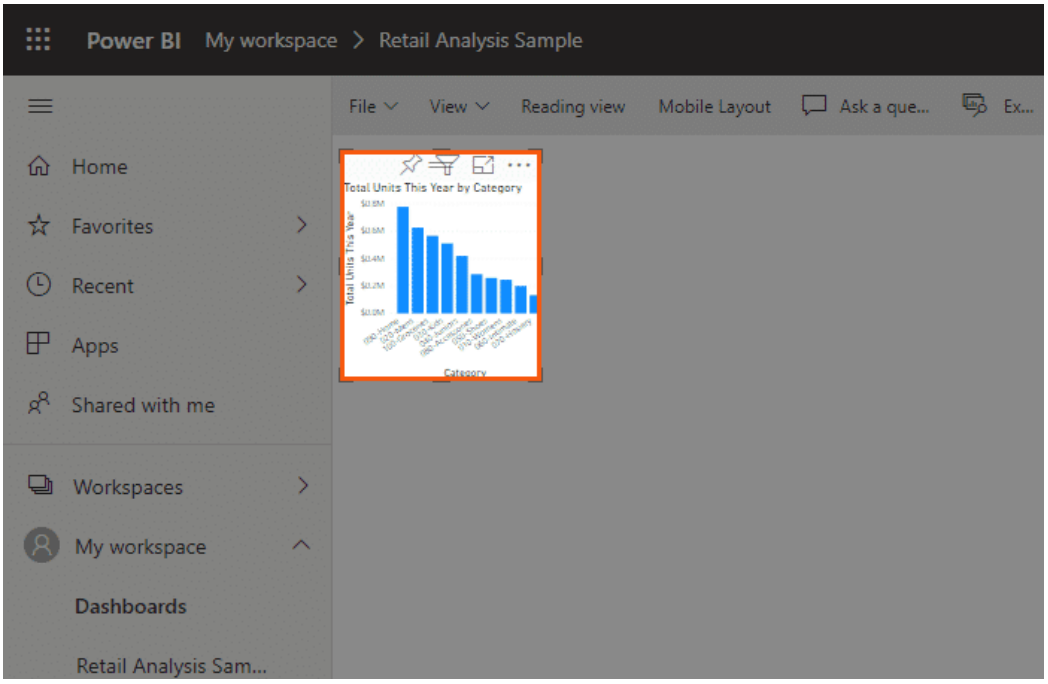
Select "Sales" and then "Total Units This Year":



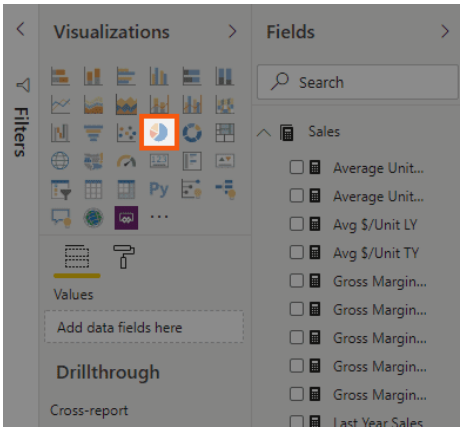
Select "Item" and then "Category":



While clicking those fields, a visual will appear on the canvas:



To change the type of visual, just head over to the visualizations pane and click the pie chart icon:

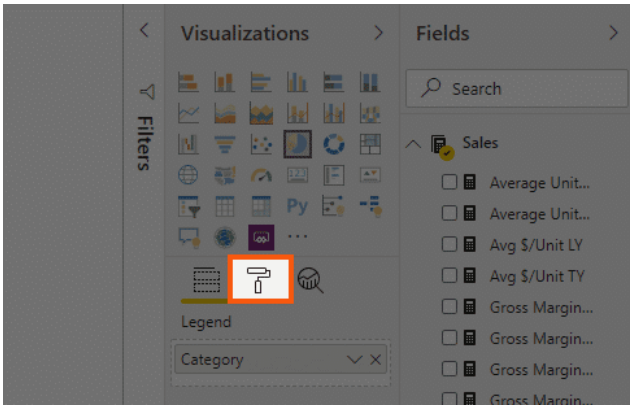


Now you got your report in the visual type you preferred.

Feel free to enlarge your visual to the size you want. Simply click on the visual and drag its corners.

The next part is enlarging the texts — legend, detail labels, and title — of your report.

On the visualizations pane, go to the ‘Format’ section:

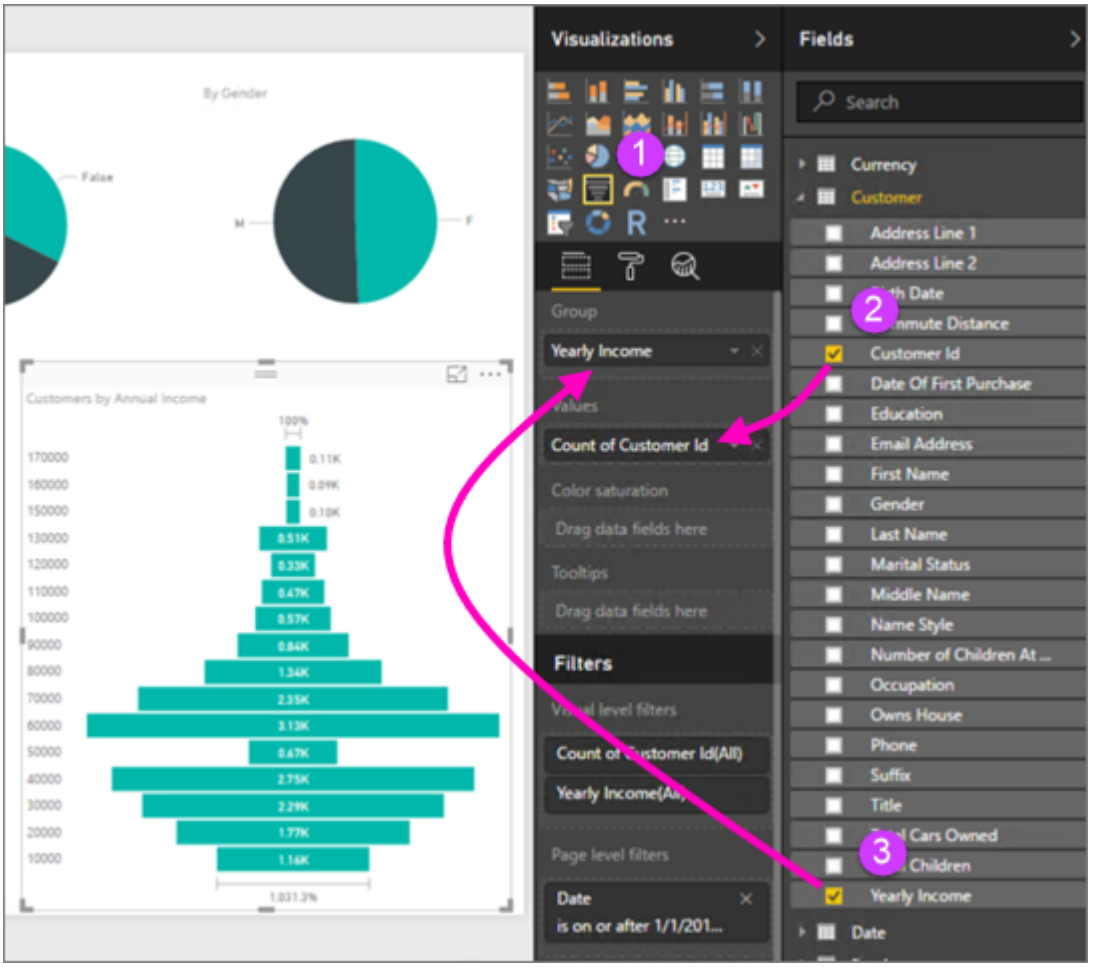


Here, you can change the format of your visuals. Each type of visual has different sets of options so an option on another might not be available on another.

To enlarge the text, simply go through the ‘Legend’, ‘Detail labels’, and ‘Title’ and then adjust the text size.

To save your report, click ‘File’ from the tab list and select ‘Save’.

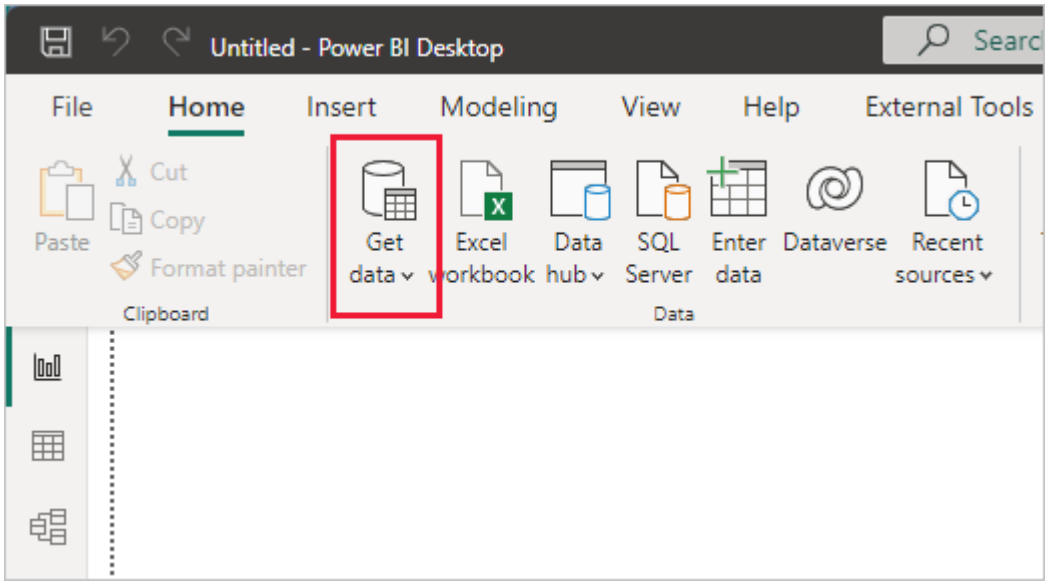
You could create a funnel chart of customers and group values by yearly income.



1. In Visualizations, select Funnel chart.
2. Drag the field to be counted to the Values well. If it's not a numeric field, Power BI Desktop automatically makes it a Count of the value.
3. Drag the field to group on to the Group well.

4. How to connect to data in Power BI? How to use the content pack to connect to google analytics? Mention the steps.

With Power BI Desktop, you can connect to many different types of data. These sources include basic data sources, such as a Microsoft Excel file. You can connect to online services that contain all sorts of data, such as Salesforce, Microsoft Dynamics, Azure Blob Storage, and many more.
To connect to data, from the Home ribbon select Get data.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SQL Server
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Dataverse
Recent sources
Data

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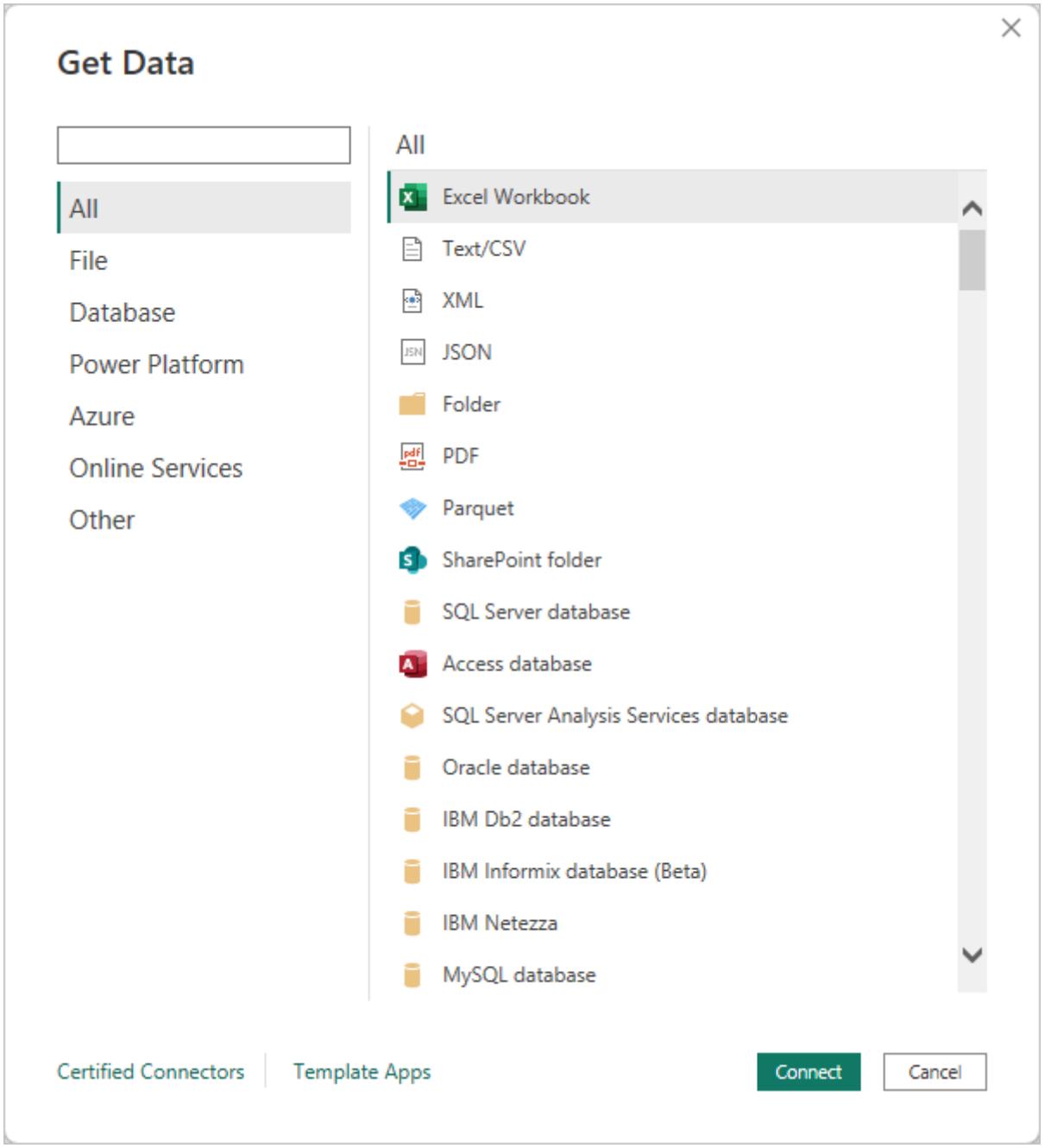
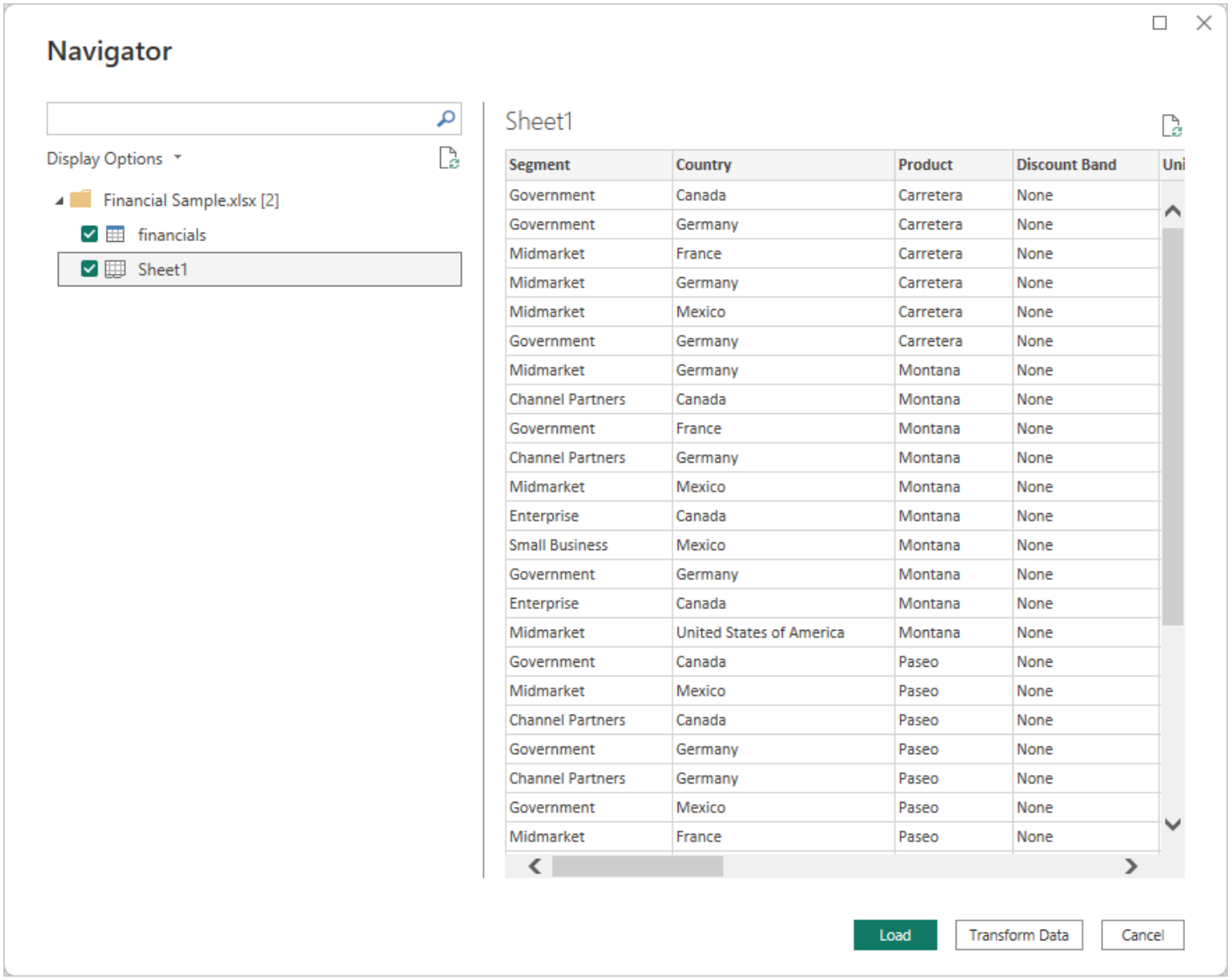
The Get Data window appears. You can choose from the many different data sources to which Power BI Desktop can connect.



Select the data source from the Get Data window, then select the Connect button.
Power BI Desktop then loads and reads its contents, and shows you the available data in the file using the Navigator window. In that window, you can choose which data you would like to load into Power BI Desktop. Select the tables by marking the checkboxes beside each table you want to import.



Once you've made your selections, select Load to import the data into Power BI Desktop.

Connecting Power BI with Google Analytics:

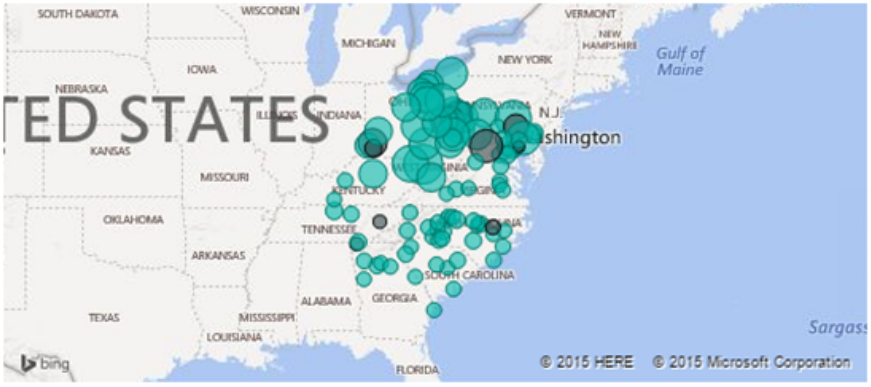
Most organizations use Google Analytics to establish whether they're meeting their marketing objectives, and obtain insights into what changes could be made to improve website performance. But with Google Analytics data in Power BI, it's possible to uncover hidden relationships or patterns that point to completely new opportunities or suggest innovative marketing ideas and ways to attract new customers.

Google Analytics does a great job of tracking website visitor behavior, such as the number of unique page visits, time spent browsing a site, and geographic location of customers. But Google Analytics doesn't offer a lot of analytic tools for connecting marketing data to data from other parts of the company, or to external data trends that are influencing the marketplace.

That's the value added by Power BI. With Power BI you can compare web performance data in Google Analytics to data brought in from other sources, internal and external. Import data from HDInsight, Azure Marketplace, Exchange—or even Facebook, Wikipedia, and Data.gov. Evaluate web performance data against data you import from Salesforce, Marketo, or other sources. Enable colleagues to achieve a more holistic view of your organization's performance.

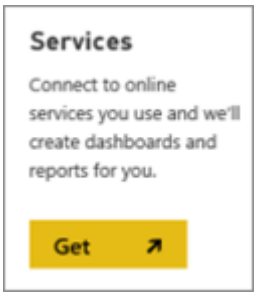
For many users, what's really exciting about Power BI is its dynamic visualization tools. Sure it's great to measure how your website performs over time, but there's a pretty big wow factor in watching data come alive in real time, uncovering multiple trends and relationships.

Consider Power BI map visualizations. They enable you to track where visitors to your site arrive from various locations worldwide over time. If a location catches your eye, you can drill down for more detail. See a spike in website traffic at a certain place and time? Zoom in and pinpoint the location. Cross check the time and place against contemporaneous events. Did the jump in traffic coincide with a local conference or sales announcement? Armed with this insight, you can better anticipate when people will visit your site, enabling you to add relevant and timely information to generate interest in your products or services.

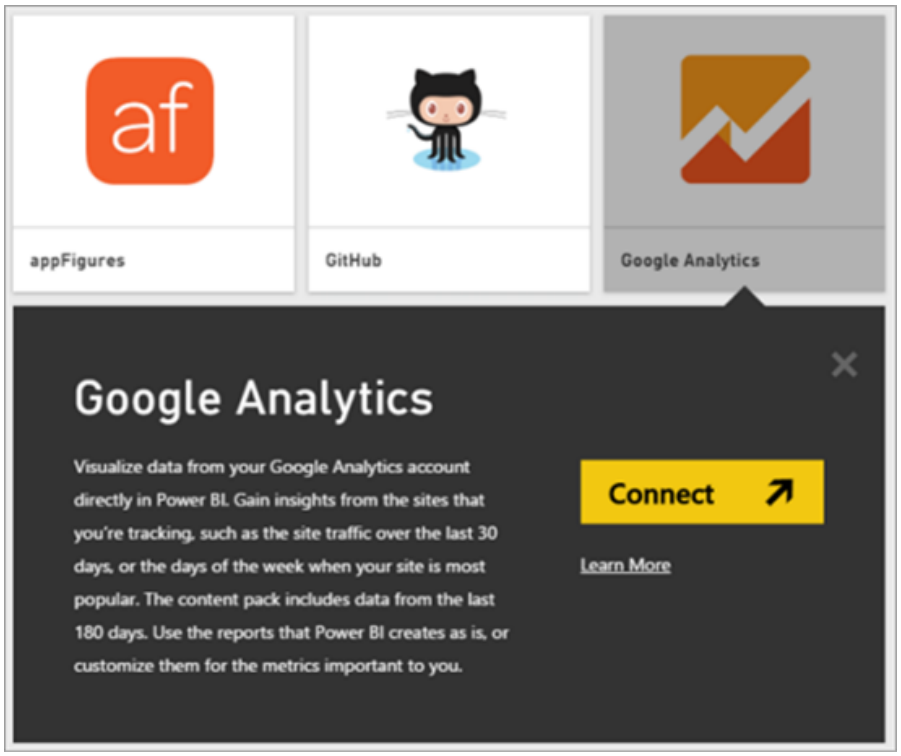


In Power BI, it's straightforward to connect to the Google Analytics content pack.

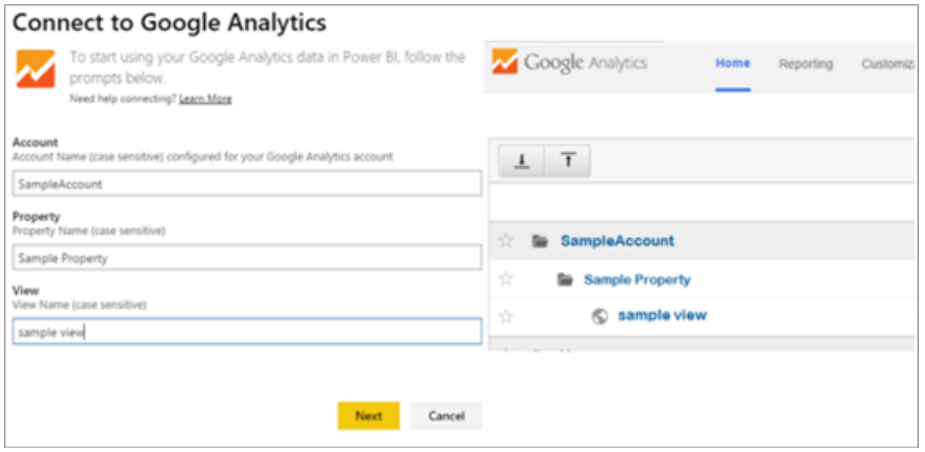
1. In the left navigation pane, click Get Data. 

2. In the Services box, click Get. 

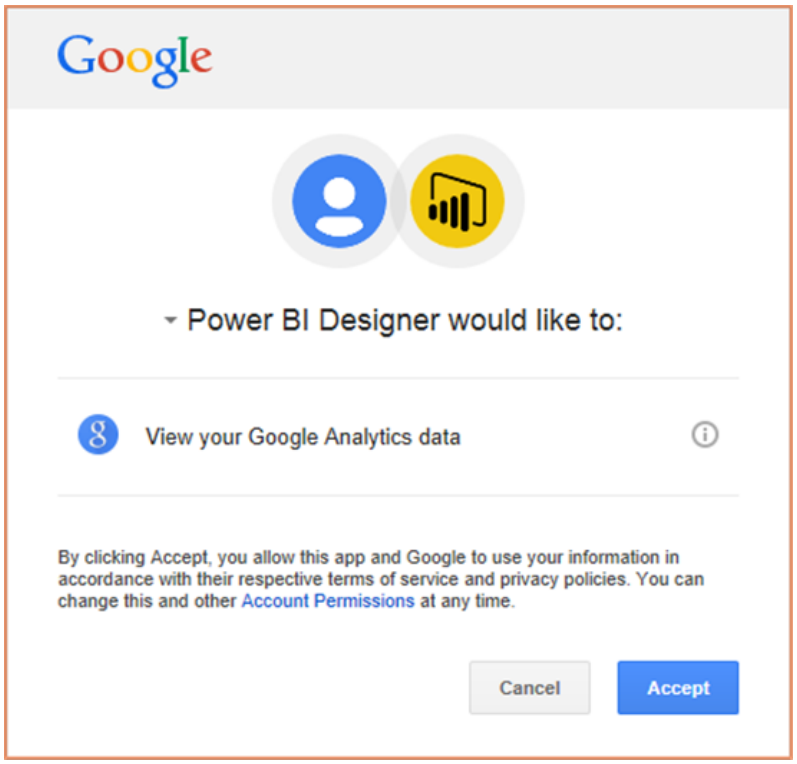
3. From the menu of online services, select Google Analytics, and then click Connect.



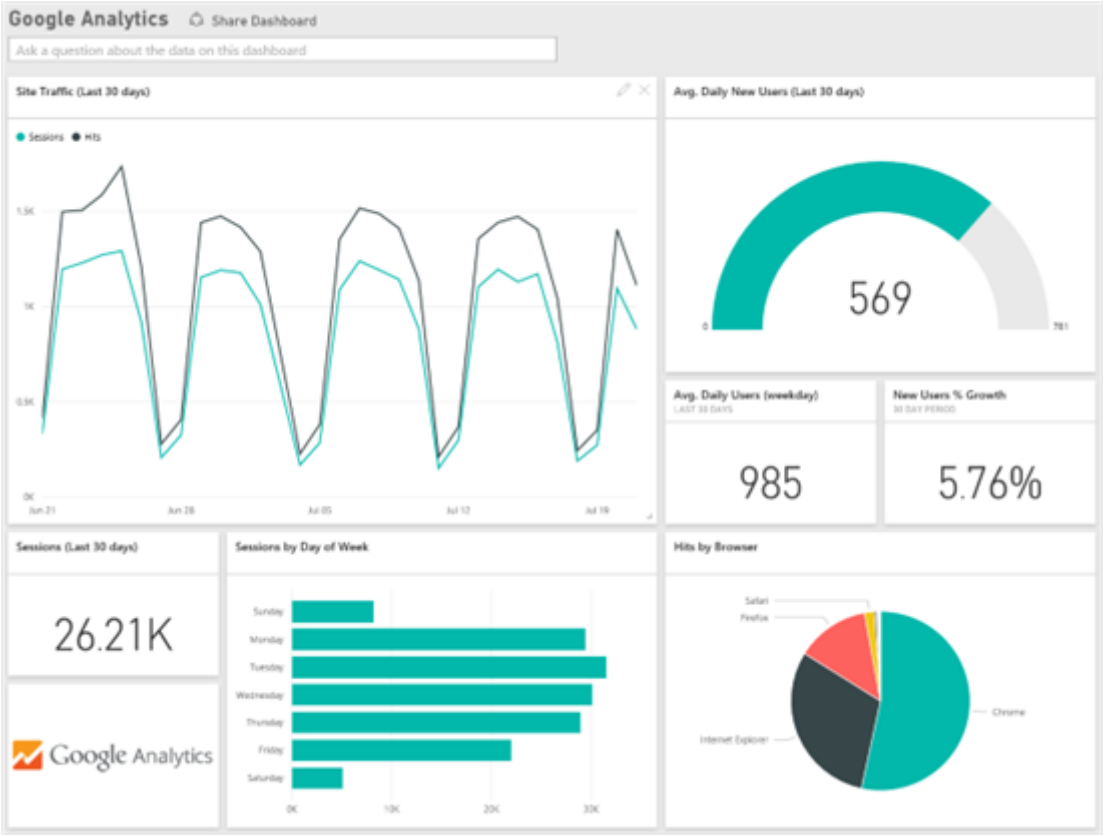
4. Enter the Google Analytics account, property, and view that you want to connect to. Then sign in with your Google Analytics credentials.



5. To permit Power BI to connect to Google Analytics, click Accept.

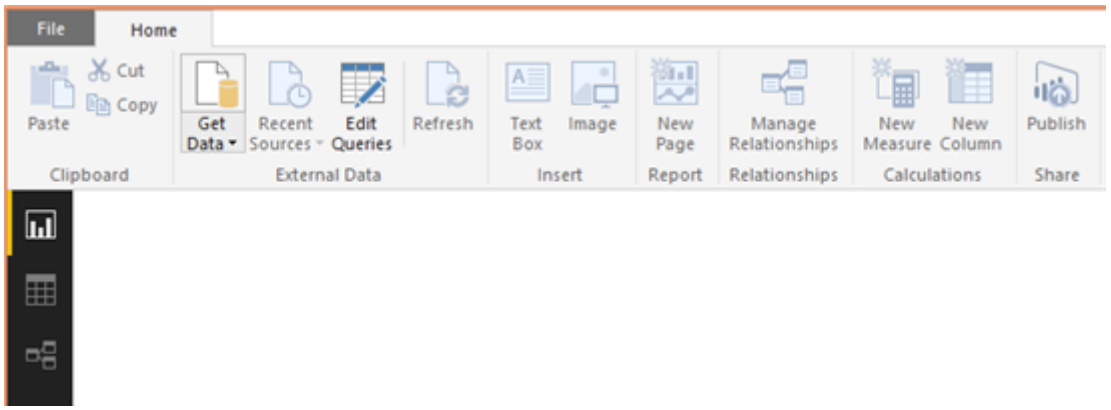


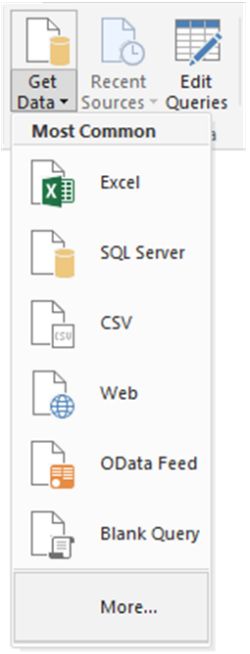
6. When the import process completes, you will see a new dashboard, report, and model in the Navigation Pane. Select the dashboard to view your imported data.



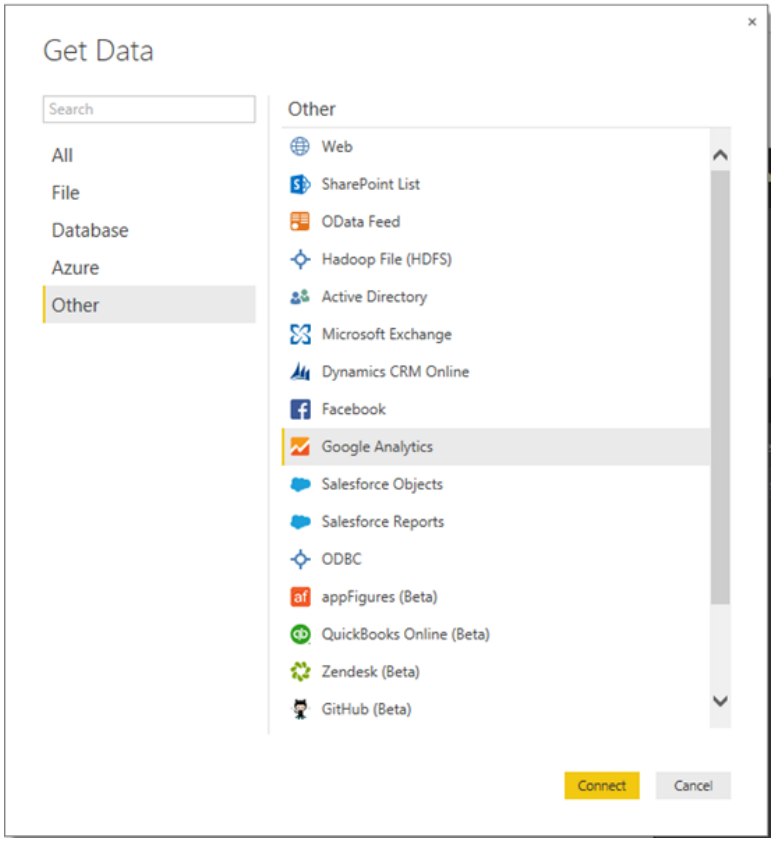
You can also import Google Analytics data directly into Power BI Desktop.

1. Launch Power BI Desktop. On the ribbon, in the External Data group, click Get Data.

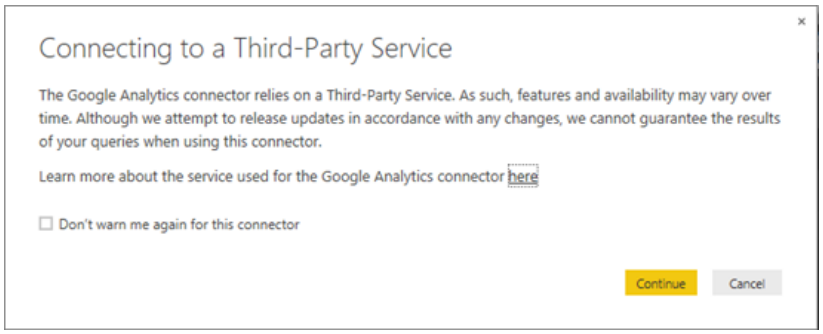




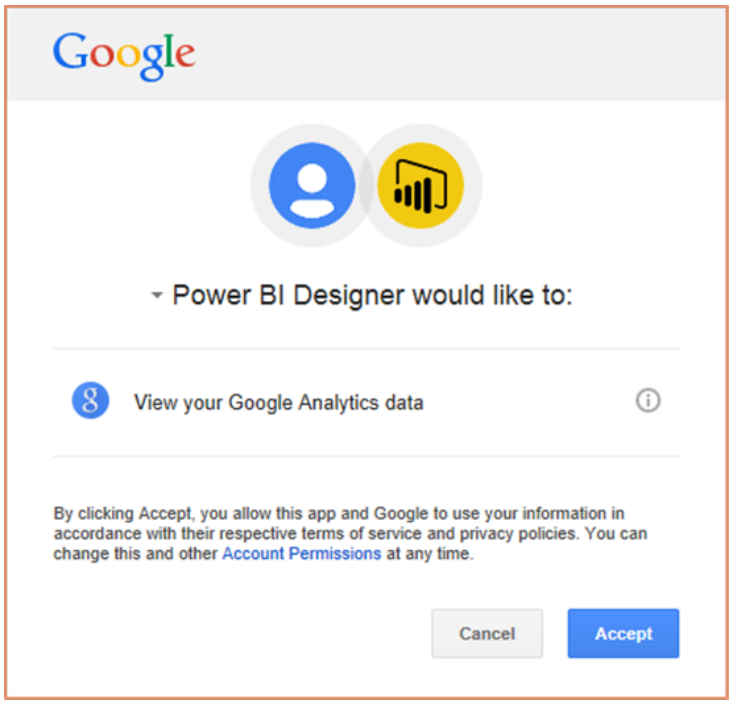
2. From the drop-down menu, click More...
3. In the Get Data window, click Other. From the list of other data sources, click Google Analytics, and then click Connect.



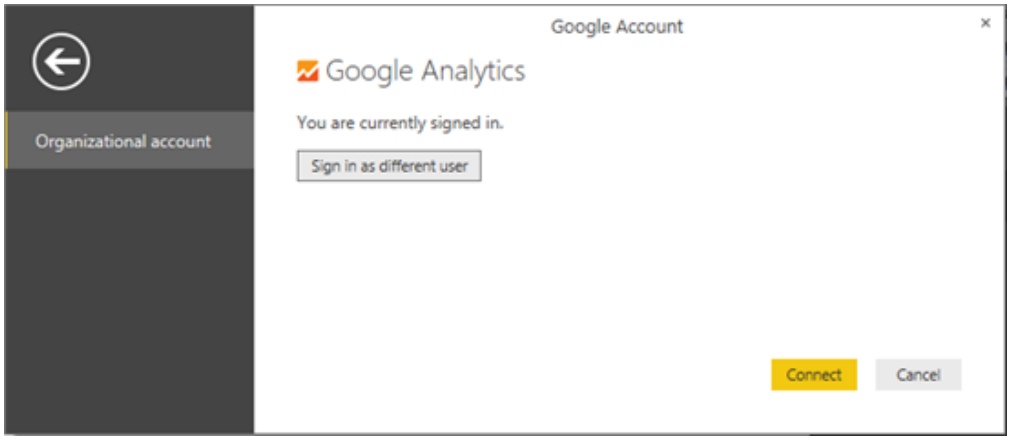
4. Read the information about connecting to a third-party service, and then click Continue.



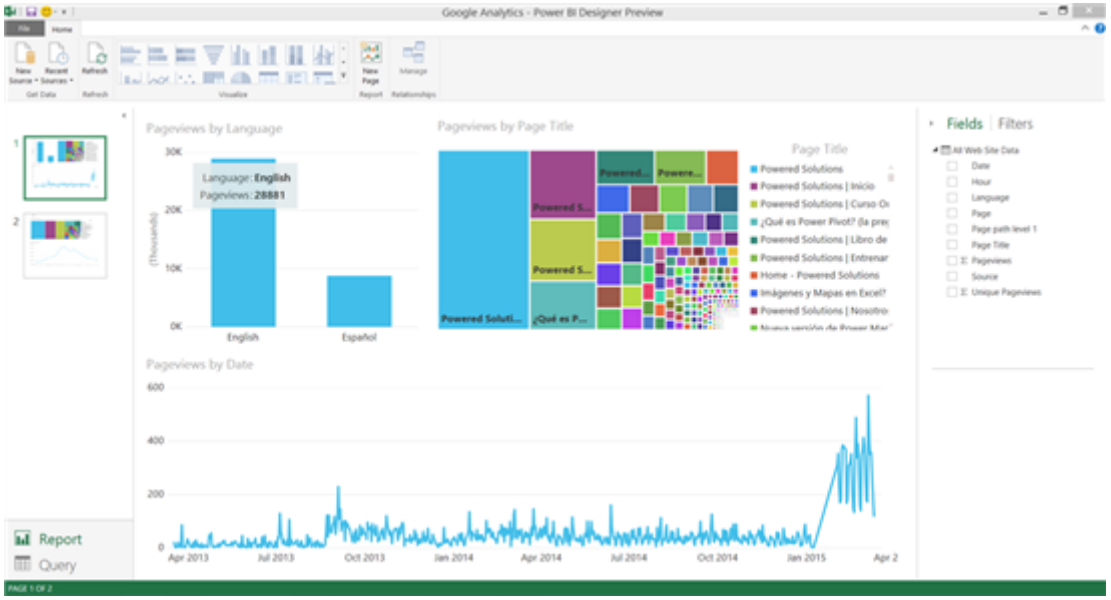
5. Google Analytics asks Power BI Desktop for permission to connect to your data. Click Accept.



6. Power BI Desktop shows that you're signed in to Google Analytics. To load your Google Analytics data, click Connect.



7. Power BI Desktop loads the Google Analytics data. Now you can start creating your amazing dynamic reports.



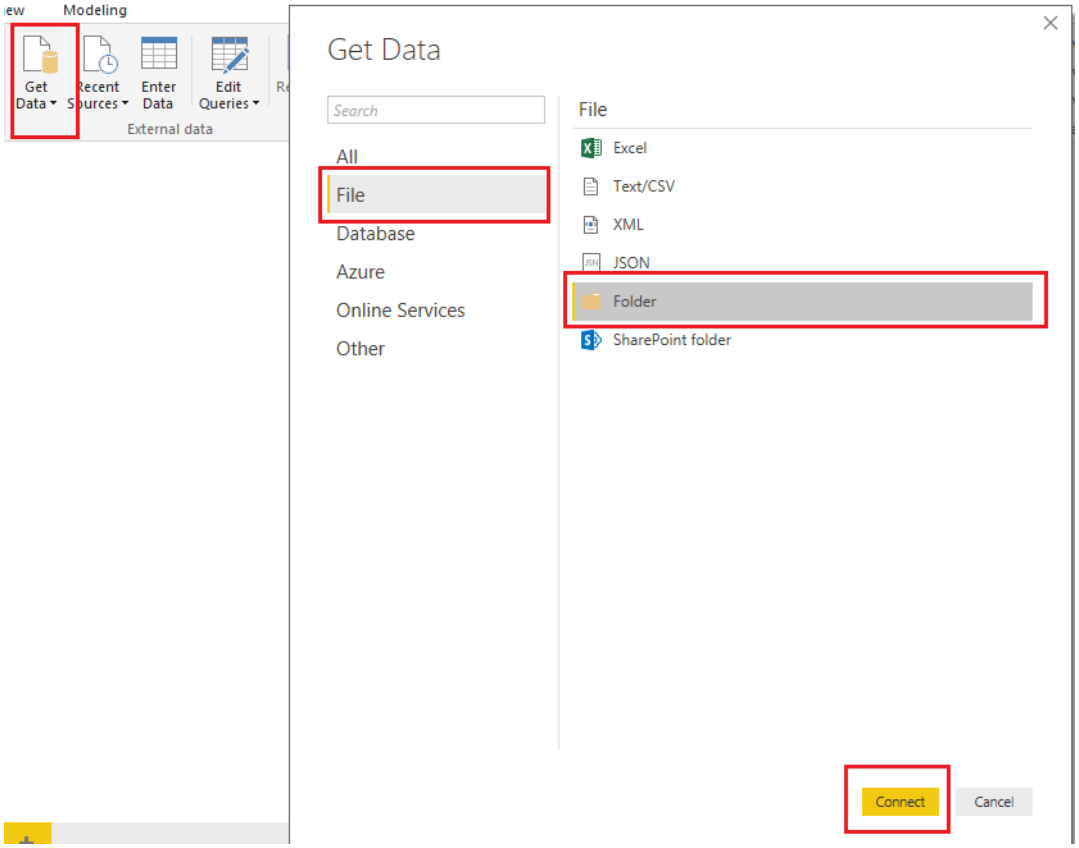
Power BI makes it possible for anyone to connect to huge amounts of structured and unstructured data from multiple sources. By importing data from Google Analytics into the mix, organizations can view their website's performance in the context of many other variables.

Power BI has the tools for manipulating this data, representing it visually, and sharing it easily with your colleagues. The more sources of data you have, with the right tools to analyze and visualize them, the more likely that important insights will emerge.

5. How to import Local files in Power BI? Mention the Steps.

Step 1: Open Power BI Desktop.

Step 2: Click on Get Data > File > Folder. Then, click "Connect".



Step 3: It asks for local file system path. Click on "Browse" and select the folder for which you want to prepare the Power BI report.

Press OK. It will take some time to grab data from a file system.

6. In Power BI visualization, what are Reading View and Editing view?

You can create and edit reports in both the Power BI service and Power BI Desktop. In the Power BI service, you create and edit reports in Editing view. In Power BI Desktop, you create and edit reports in Report view.

Power BI Desktop includes a Report view, where you can create any number of report pages with visualizations. Report view in Power BI Desktop provides a similar design experience to the report's editing view in the Power BI service. You can move visualizations around, copy and paste, merge, and so on.

The Power BI service has two different modes for interacting with reports: Reading view for report business users and Editing view for report owners and creators. You need a Power BI Pro or Premium Per User (PPU) license to share reports and to edit reports created by others. Without a Pro or Premium Per User (PPU) license, you can still create reports in your My Workspace, but you can't share them.

In report Editing view, you have flexibility in both exploring and designing a report. All the Reading view functionality is available plus much more.

If you are a business user, then you are more likely to use Reading view to consume reports created by others. Editing view is used by report designers, who create the reports and share them with you. Reading view is your way to explore and interact with reports created by colleagues.

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