

Q1. Explain DAX.

Ans: DAX stands for Data Analysis Expressions, it is language developed by Microsoft to interact with data in a variety of their platforms like Power BI, PowerPivot and SSAS tabular models. It is designed to be simple and easy to learn while exposing the power and flexibility of tabular models. In a way, you could compare it with Excel formulas on steroids. Using DAX will truly unleash the capabilities of Power BI.

Why we Should Learn DAX

(a) Speed Up Your Dashboard

The better you get at DAX, the smarter you can make your dashboard. By using DAX you can create smarter calculated columns and/or measures by which you can limit the data the dashboard has to fetch and visualise. Even though some DAX expressions can test the limits of the data engines, a well written expression can speed things up, thereby limiting the usage of resources. For some other ways to speed up your dashboard without using DAX, you can read these 5 tips I shared a couple of months ago.

(b) It Opens Up A Whole New World

Learning DAX as a Power BI user is much like being an Excel user and discovering how to use formulas, You were able to structure your tables, add some charts and click the sum/average/... button (Σ) but suddenly you discover the world of VLOOKUP, IF functions and whatnot. However, this comparison is not completely valid since, or at least in my opinion, Power BI is already an incredibly powerful tool even without DAX, as in contrast, anything beyond light use in Excel already requires formulas. That being said, learning DAX will open up a new world of Power BI for you. The most important feature you will unlock is being able to select, join, filter,... data in a dynamic way. This means that the dashboard can take input from the users and use it to dynamically generate calculated columns, measures and tables.

(c) Fewer Headaches

It doesn't take a lot of experience to reach a point where you are cursing at your screen, because your dashboard does not give you the results you expected. Once you know how to use DAX you will be surprised at how many of these headaches you can avoid, or completely bypass (in some hacky way). A very simple example of this is the 'blank' value in the card widget. When displaying numerical data in a card, for example 'revenue', it will return 'blank' if you set your filters in a way there is no revenue to show. However, a more natural way to display 'no revenue' should be '0' instead of 'blank'. With a very simple DAX expression, you can yourself create a measure adding a '0' to the formula, meaning you will never have to see 'blank' again.

Q2. Explain datasets, reports, and dashboards and how they relate to each other?

Ans: 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.

Reports

A report is used when we need **to** perform an in-depth analysis of a specific aspect over a specific period of time. Thus, a report is the ideal tool to monitor and study a thematic area in an exhaustive and detailed way over a finite period of time.

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”.

Dashboards

In Power BI, dashboards are a way of pulling together visualizations from various reports. When you think 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 tool for pinning visuals from different reports and other sources of data.

Similarities

Dashboards and reports have become essential tools for any company. In the age of data, businesses require environments where they can analyse and visualise their data to make it understandable, transform it into information and be able to make data-driven decisions.

Both dashboards and reports act as platforms for the democratisation of data, as they illustrate and present data in an understandable way so that any user can **draw conclusions**, inspect business activity in depth and make informed decisions.

Q3. How reports can be created in power BI, explain two ways with Navigation of each.

Ans: There are several ways to create reports quickly in the Power BI service. Instead of downloading the Power BI Desktop app and importing the data, you can paste data straight into Power BI on the web, and Power BI automatically generates visuals.

(i) Create a report from an Excel file in the Power BI service

Import the Excel file

- (a) In the navigation pane, select My Workspace.
 - (b) From the bottom of the nav pane, select Get data.
 - (c) Select Files and navigate to the location where you saved the Retail Analysis sample.
 - (d) For this exercise, select Import.
 - (e) Select Open.
- Once the Excel file is imported, it's listed as a *dataset* in the workspace list.
- (f) Select More options (...) next to the dataset, and select Create report.
 - (g) The report editor opens.

Add a Radial Gauge to the report

- (a) In the Fields pane, select Sales > This Year Sales > Value.
- (b) Convert the visual to a Gauge by selecting the Gauge template from the Visualizations pane.
- (c) Drag Sales > This Year Sales > Goal to the Target value well. Looks like we're very close to our goal.
- (d) Now would be a good time to save your report.

Add an area chart and slicer to the report

- (a) First, let's make some room on our canvas. Select the Gauge and move it into the top-right corner. Then grab and drag one of the corners and make it smaller.
- (b) Deselect the gauge. In the Fields pane, select Sales > This Year Sales > Value and select Sales > Last Year Sales.
- (c) Convert the visual to an Area chart by selecting the Area chart template from the Visualizations pane.

(d) Select Time > Period to add it to the Axis well.

(e) To sort the visualization by time period, select the ellipses and choose Sort by Period.

(f) From the Fields pane, select District > District. Move and resize the slicer.

(g) Use the slicer to look for patterns and insights by District.

(ii) Interact with autogenerated "quick" reports in the Power BI service

(a) Explore your initial report

When Power BI first generates your report, we look through your data to identify patterns and distributions and pick a couple of fields to use as starting points for creating the initial set of visuals. The initial fields we pick are selected automatically in the Your Data pane to the right of the report.

(b) Show data table

You can see the whole data table that the report is based on. Measures aren't currently included in the data table.

Select Show data table to see the entire table you're visualizing.

(c) Report with a single table

If the report that you're visualizing is based on a single table, select the Show data table button to reload the report with the entire table shown at the bottom of the report. The button updates to Hide data table. Selecting it reloads the report with the table hidden again.

(d) Report with multiple tables

If the report that you're visualizing is based on a dataset with multiple tables, the **Show data table** button becomes a dropdown menu where you pick the table you want to view.

(e) Modify your report

You can make basic modifications to your autogenerated report.

First, by changing which fields are selected in the Your Data pane, you can give Power BI more hints about which fields are most interesting to you. Every time you add or remove a field, we update the automatically generated visuals. As with the initially created report, all visuals include at least one of the selected fields.

(f) Save your report

When you save your report, you can name it, pick the workspace it's saved to, and, if your organization requires it, assign it a sensitivity label. You can save to any workspace that you have a Contributor, Member, or Admin role assigned. See Roles in workspaces for details. If you have a free Power BI license, you can save to your personal My Workspace.

Q4. How to connect to data in Power BI? How to use the content pack to connect to google analytics? Mention the steps.

Ans: You can connect to Google Analytics data using the Google Analytics connector. To connect, follow these steps:

- (a) In Power BI Desktop, select Get data from the Home ribbon tab.
- (b) In the Get Data window, select Online Services from the categories in the left pane.
- (c) Select Google Analytics from the selections in the right pane.
- (d) At the bottom of the window, select Connect.

You're prompted with a dialog that explains that the connector is a Third-Party Service, and warns about how features and availability may change over time, and other clarifications.

When you select Continue, you're prompted to sign in to Google Analytics.

When you enter your credentials, you're prompted that Power BI would like to have offline access. This is how you use Power BI Desktop to access your Google Analytics data.

Once you accept, Power BI Desktop shows that you're currently signed in.

Select Connect, and your Google Analytics data is connected to Power BI Desktop, and loads the data.

Q5. How to import Local files in Power BI? Mention the Steps.

Ans: Steps to import :

- (a) In Power BI, click Get Data in the lower left screen.
- (b) Under Import or Connect to Data > Files, click Get.
- (c) Click Local File.
- (d) Choose which file to upload and click Open.
- (e) Click Upload under Upload your Excel file to Power BI.
- (f) The message “Your file has been uploaded” should appear.

Q6. In Power BI visualization, what are Reading View and Editing view?

Ans: There are two modes for interacting with reports in the Power BI service: Editing view and Reading view. 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.

Even in Reading view, the content isn't static. You can dig in, looking for trends, insights, and other business intelligence. Slice and dice the content, and even ask it questions using your own words. Or, sit back and let your data discover interesting insights for you; send you alerts when data changes, and email reports to you on a schedule you set. All your data, any time, in the cloud or on-premises, from any device.

