Power BI Detailed Features - Q&A

## What is Power BI?

Power BI is a business analytics tool developed by Microsoft that allows users to visualize data, share insights across an organization, or embed them in an app or website. It provides tools for aggregating, analyzing, visualizing, and sharing data.

## What are the key components of Power BI?

1. Power BI Desktop – Create reports and data models.  
2. Power BI Service – Cloud platform to publish/share reports.  
3. Power BI Mobile Apps – Access reports on mobile devices.  
4. Power BI Data Gateway – Connect on-premise data with Power BI services.  
5. Power BI Report Server – Host reports on-premise.  
6. Power BI Embedded – Embed Power BI into custom applications.

## What types of data sources does Power BI support?

Power BI connects to a wide range of data sources, including Excel, SQL Server, Azure, Web APIs, SharePoint, Oracle, MySQL, Google Analytics, CSV/Text files, and many more.

## What is Power Query and how is it used?

Power Query is the ETL (Extract, Transform, Load) tool in Power BI used to import, clean, and transform data before loading it into the Power BI model. Common transformations include removing columns, changing data types, merging/appending queries, and more.

## What is a Data Model in Power BI?

A data model is a collection of tables and relationships designed for analysis. Power BI supports building efficient models using star or snowflake schemas and allows relationships, calculated columns, and hierarchies to be defined.

## What is DAX and why is it important?

DAX (Data Analysis Expressions) is a formula language used in Power BI to define custom calculations and metrics. It's used to create measures, calculated columns, and manage filter contexts in analysis.

## What are the main visualization types in Power BI?

Power BI provides various visualizations such as bar charts, pie charts, line graphs, tables, matrices, maps, KPIs, cards, scatter plots, slicers, and also supports importing custom visuals from the marketplace.

## What are filters and slicers in Power BI?

Filters and slicers are tools used to limit or customize the data being visualized. Filters can be applied at visual, page, or report level. Slicers are interactive filters users can use to explore the report dynamically.

## What is the Power BI Service?

The Power BI Service is an online SaaS platform where users can publish, share, and collaborate on reports and dashboards. It supports features like scheduled refreshes, workspaces, dashboards, and row-level security.

## What is Row-Level Security (RLS)?

RLS enables you to restrict data access for certain users. It is configured using DAX filters in Power BI Desktop and assigning roles to users in the Power BI Service.

## What are the differences between Power BI and Excel?

Power BI handles larger datasets, offers advanced visualizations, supports real-time updates, better sharing capabilities, and automation options compared to Excel, which is more manual and limited in interactivity.

## What are some best practices in Power BI?

• Clean and transform data before modeling  
• Use star schema for efficiency  
• Optimize performance by reducing data load  
• Use clear, simple visuals  
• Leverage bookmarks, tooltips, and drillthroughs  
• Apply row-level security where needed

## What are the advanced capabilities in Power BI?

Advanced features include AI visuals (Key Influencers, Decomposition Tree), Paginated Reports, Dataflows, Composite Models, DirectQuery, integration with Python/R, and performance optimization tools like the Performance Analyzer.

## What is a Dashboard in Power BI?

A dashboard is a single-page, often called a canvas, that uses visualizations to tell a story. It is only available in the Power BI Service and can contain visuals from multiple reports.

## What is a Report in Power BI?

A report is a multi-page document created in Power BI Desktop or Service, containing multiple visuals derived from a single dataset.

## Can Power BI connect to live data sources?

Yes, Power BI supports live connections through DirectQuery or Live Connection modes for services like SQL Server, Azure, and Analysis Services.

## What is DirectQuery?

DirectQuery allows Power BI to query data directly from the source rather than importing it, ensuring real-time data access.

## What is Import Mode in Power BI?

In Import Mode, data is imported into Power BI's in-memory engine for fast performance. It is ideal for small-to-medium datasets.

## What is Composite Model?

A Composite Model allows combining DirectQuery and Import data sources in a single model, providing flexibility in data modeling.

## What are Calculated Tables?

Calculated tables are tables created using DAX formulas based on other data in the model. They are useful for generating reference tables or filtered data sets.

## How can you optimize Power BI performance?

• Reduce the number of columns loaded  
• Use star schema  
• Use variables in DAX  
• Limit visuals on a page  
• Use aggregation tables  
• Avoid complex nested DAX queries

## What are Parameters in Power BI?

Parameters are used to create dynamic reports, especially useful when connecting to data sources where inputs can vary (like file paths or filters).

## What are Power BI Themes?

Themes allow you to apply a consistent color palette and formatting across your report. JSON files can be used to define custom themes.

## What is the Q&A visual in Power BI?

The Q&A visual lets users type natural language queries, and Power BI automatically creates a visual based on the question.

## What are Bookmarks used for?

Bookmarks capture the current state of a report page, including filters and visuals, allowing you to create interactive storytelling experiences.

## What is the Decomposition Tree?

This AI visual breaks down a measure by multiple dimensions, helping you understand how individual parts contribute to the whole.

## What is the Key Influencers visual?

This visual identifies the factors that influence a particular metric, using AI to find relationships in your data.

## What are Drillthrough pages?

Drillthrough pages allow users to right-click a data point and navigate to a detailed view filtered to that selection.

## How do you schedule data refresh in Power BI?

In the Power BI Service, go to Dataset > Settings > Schedule Refresh. You can set daily/weekly refresh schedules and credentials.

## Can you share Power BI reports with external users?

Yes, by using Power BI Service, you can share reports via links or directly with external users if your tenant settings allow it.

## What is Power BI Workspace?

A workspace is a shared environment in Power BI Service where teams can collaborate on datasets, reports, dashboards, and apps.

## What are Apps in Power BI?

Apps bundle datasets, reports, and dashboards for distribution to users in your organization, providing a consistent reporting experience.

## What is a Measure in Power BI?

Measures are calculations created using DAX that aggregate data dynamically. They are typically used in visuals.

## What are the limitations of Power BI Free vs Pro?

Free version: Build reports and dashboards but no sharing. Pro version: Collaborate, share, and use Power BI Service fully.

## What is Incremental Refresh?

Incremental Refresh allows Power BI to refresh only new/changed data rather than the entire dataset, improving performance and scalability.

## What are Custom Visuals?

Custom visuals are third-party visuals you can import into Power BI from the AppSource Marketplace for enhanced visualization needs.

## What is Dataflow?

Dataflows are reusable data transformation processes in Power BI Service using Power Query Online, stored in Azure Data Lake.

## What are Paginated Reports?

Paginated Reports are pixel-perfect, printable reports ideal for operational reporting. Created in Power BI Report Builder.

## Can Power BI integrate with R and Python?

Yes, you can run R and Python scripts in Power BI for data transformation and to create advanced analytics visuals.

## What is Usage Metrics Report?

This report shows how users interact with your content, including views, viewers, and trends over time.

## How to use Power BI with SharePoint?

You can connect Power BI to SharePoint lists and folders, enabling you to visualize and analyze data stored on SharePoint.

## How to export data from Power BI?

You can export data from visuals into Excel or CSV formats. Options include 'Export data' and 'Analyze in Excel'.

## What are the roles of a Power BI developer?

• Data preparation  
• Data modeling  
• Report and dashboard creation  
• Performance optimization  
• Security implementation  
• Collaboration and sharing

## What are the types of charts available in Power BI?

Power BI offers a wide range of visualizations:

* **Bar/Column Charts** – Compare categorical data.
* **Line/Area Charts** – Show trends over time.
* **Pie/Donut Charts** – Display parts of a whole.
* **Waterfall Chart** – Show cumulative impact.
* **Treemap** – Display hierarchical data using size.
* **Scatter Chart** – Show relationships between variables.
* **Map/Filled Map/Shape Map** – Visualize geolocation data.
* **Gauge/KPI/Card** – Display performance or numeric metrics.
* **Funnel** – Visualize process stages.
* **Decomposition Tree** – Explore contributing factors dynamically.
* **Matrix/Table** – Show structured/tabular data.

## How can visuals be formatted in Power BI?

Use the **Format Pane (paint roller icon)**:

* **Title** – Customize font, color, size, background.
* **Data Labels** – Show/hide numbers and values.
* **X/Y Axis** – Customize axis labels, ranges, and titles.
* **Legend** – Control placement and formatting.
* **Background/Border** – Add style and contrast.
* **General** – Adjust alignment, size, padding, tooltips.

## What are the main tabs in the Power BI Desktop toolbar?

**🔹 Home**

* **Get Data**: Connect to Excel, SQL, web, etc.
* **Recent Sources**: Quick access to used connections.
* **Transform Data**: Launch Power Query editor.
* **Manage Relationships**: Define relationships between tables.
* **New Measure/Column/Table**: Create DAX expressions.
* **Publish**: Upload to Power BI Service.

**🔹 Insert**

* Add visuals (Text Box, Image, Button).
* Add **Bookmark Navigator**, **Page Navigator**.
* Create tooltips, shapes, Q&A visual.

**🔹 View**

* Choose **Page Size**, **Themes**, **Mobile Layout**.
* Enable/Disable panes (Selection Pane, Bookmarks).
* Use **Performance Analyzer**.

**🔹 Modeling**

* Manage roles (RLS).
* Define measures, columns, quick measures.
* Set default summarizations.

**🔹 Help**

* Access tutorials, training, Power BI community.
* Open sample datasets.

## What tools are available in the “View” tab and what do they do?

* **Selection Pane**: Show/hide visuals and rename them.
* **Bookmarks**: Save current page state and toggle between views.
* **Sync Slicers**: Apply the same slicer across multiple pages.
* **Performance Analyzer**: Identify visuals slowing the report.
* **Formula Bar**:
  + Use to write **DAX** formulas.
  + Example:
  + Total Sales = SUM(Sales[Amount])

## What is Power Query Editor and where is it found?

It's a separate window used for **ETL (Extract, Transform, Load)** tasks. You can open it from **Home > Transform Data**.

**What are the tabs and tools in Power Query Editor?**

**🔹 Home**

* **Close & Apply**: Load data into Power BI.
* **Remove Columns/Rows**: Clean data.
* **Keep Top Rows**, **Sort**, **Merge Queries**, **Append Queries**.
* **Use First Row as Headers**.

**🔹 Transform**

* **Data Type**: Set numeric, date, text formats.
* **Replace Values**, **Split Columns**, **Pivot/Unpivot**.
* **Extract**: Get part of text (e.g., first word).
* **Format**: Uppercase, lowercase, trim, clean.
* **Date/Time**: Extract Year, Month, Day, etc.

**🔹 Add Column**

* **Custom Column**: Use M language to define new columns.
* **Conditional Column**: Create columns based on rules.
* **Index Column**: Add unique row numbers.
* **From Text/Date**: Generate new columns.

**🔹 View**

* **Formula Bar**: Show M code behind each step.
* **Query Settings Pane**: List all applied transformations.
* **Advanced Editor**: Full M script of the query.
* **Column Distribution/Profile**: Analyze nulls, counts, data types.

## What is the Formula Bar used for in Power Query?

It displays the **M code** for each step. You can edit this code directly.

* Example:
* = Table.RemoveColumns(Source,{"Column1"})

## What is the Query Settings Pane?

Shows metadata for the current query:

* **Name of the query**
* **Applied Steps** in chronological order
* Allows you to rename or delete steps

## What is the Advanced Editor used for?

Opens a script view of the full **M code** for the entire query. You can:

* Edit steps manually
* Copy queries between reports
* Debug logic and parameters

## What are Column Profiling and Quality features?

Found in View Tab:

* **Column Quality**: Shows % valid, error, empty.
* **Column Distribution**: Visualize distinct and duplicate values.
* **Column Profile**: Shows stats like min, max, count, average.