Unit-5

1. Report Objects

Report objects are the core elements of an analytical report, encompassing a variety of visual and textual elements that help present data insights effectively. Key report objects include:

- **Tables and Matrices**: Display data in rows and columns, useful for detailed data analysis.
- **Charts and Graphs**: Visual representations like bar charts, pie charts, line charts, and scatter plots.
- **Maps**: Geographical data representation.
- **Cards and KPIs**: Highlight key metrics and figures.
- **Slicers**: Allow users to filter data dynamically.
- **Text Boxes**: Provide context, explanations, and annotations.
- **Images and Shapes**: Enhance visual appeal and convey additional information.

2. Format and Configure Visualization

Proper formatting and configuration of visualizations ensure clarity and effectiveness in conveying data insights:

- **Axis and Labels**: Clearly label axes, and ensure labels are readable.
- **Legends**: Use legends to explain colors, patterns, or symbols used in charts.
- **Colors and Themes**: Use consistent and contrasting colors to differentiate data points and highlight important information.
- **Tooltips**: Provide additional data insights when users hover over elements.
- **Interactivity**: Enable features like drill-downs, highlighting, and cross-filtering between visuals.
- **Data Sorting and Grouping**: Sort and group data logically to aid analysis.

3. Apply Filters to the Report Structure

Filters refine the data shown in a report, allowing for focused analysis:

- **Basic Filters**: Include visual-level filters, page-level filters, and report-level filters.
    - **Visual-Level Filters**: Affect only the selected visual.
    - **Page-Level Filters**: Apply to all visuals on a particular page.
    - **Report-Level Filters**: Apply to all visuals across the entire report.
- **Advanced Filters**: Enable more complex conditions, like filtering by top N values or using custom formulas.
- **Drill through Filters**: Enable users to navigate to detailed reports by right-clicking on a data point.

Apply filters to the report structure

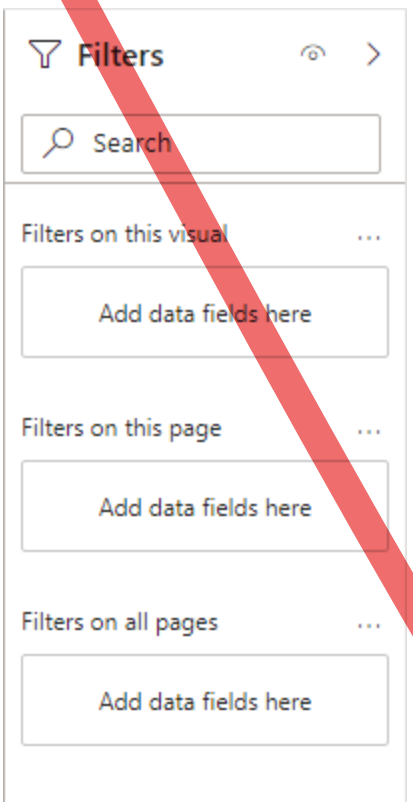
Filters can be applied at different levels:

Visual-Level Filters: Select a visual, then drag a field into the 'Filters on this visual' pane.

Page-Level Filters: Drag a field into the 'Filters on this page' pane. This affects all visuals on the page.

Report-Level Filters: Drag a field into the 'Filters on all pages' pane. This affects all visuals across all report pages.

At report design time, use the **Filters** pane to apply filters to the report structure.



The **Filters** pane has three sections:

- Filters on all pages
- Filters on this page
- Filters on this visual

The **Filters on all pages** section defines *report-level filters*, which apply to all report pages and visuals. Report-level filters are global filters.

The **Filters on this page** section defines *page-level filters*, which apply to all visuals on a specific page, adding to any existing report-level filters. For example, if a report-level filter restricts data to the country of United States, and a page-level filter restricts data to the state of Washington, then both filters are in effect: Country is United States and State-Province is Washington.

The **Filters on this visual** section defines *visual-level filters*. This section is only visible when one visual is in focus because visual-level filters apply only to a single visual; they add to any existing report-level and page-level filters. Extending the previous example, if a visual-level filter restricts data to the city of Seattle, then three filters are in effect: Country is United States, State-Province is Washington, and City is Seattle.

Unlike report and page-level filters, a visual-level filter can filter by using a measure. When a measure filters a visual, it's used to eliminate groups. For example, consider a column chart visual that groups by store. A measure filter could eliminate groups (stores) where the total store sales are less than a certain amount.

Filters apply to a single field and use one of following filter types:

- Basic
- Advanced
- Top N
- Relative date and Relative time

The **Basic filter** type allows you to select items from a list of distinct values that are found in the field. You can also restrict the filter to a single selection instead of multi-selection.

The **Advanced** filter type allows you to create more complex conditions by using data type-specific operators:

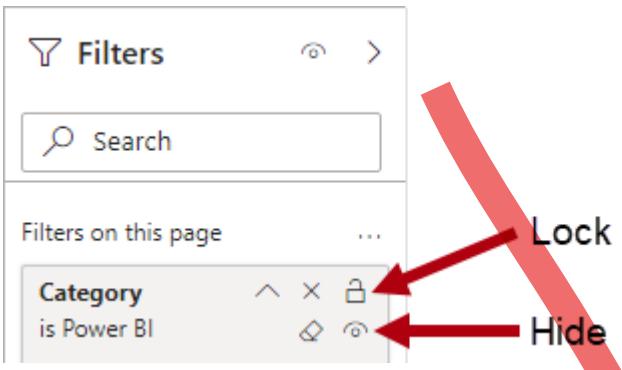
- **Text field operators** - Test for conditions such as "contains," "starts with," "is blank," "is empty," and others.
- **Numeric field operators** - Test for conditions such as "is less than," "is less than or equal to," and others.
- **Date field operators** - Test for conditions such as "is after," "is on or after," and others.

You can combine multiple tests by using a logical AND/OR operator.

The **Top N** filter type applies to text and date fields that are available only in visual-level filters. This filter type helps you filter by the top (or bottom) number of items, like the top five products by revenue. To configure the filter, you must pass in a field that's summarized, like sales revenue.

The **Relative date** and **Relative time** filter types apply to date fields only, making it possible to filter by *relative date or time*. Relative filters allow the report consumer to filter by past, present, or future time periods based on the current date and time.

You can lock filters to ensure that report consumers can't remove or modify them. It's a good idea to lock filters that are critical to the design of the report, page, or visual. Additionally, you can hide filters. A hidden filter isn't visible to report consumers. Consider hiding a filter when the report consumer doesn't need to know about it, such as when filters are cleaning up the data, perhaps by removing BLANKs.



You can hide the entire **Filters** pane to ensure that report consumers can't open it.

For more information, see [Format filters in Power BI reports](#).

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4. Apply Filters with Slicers

Slicers are interactive tools that allow users to filter data dynamically:

- **Single-Select Slicers**: Allow only one selection at a time.
- **Multi-Select Slicers**: Allow multiple selections.

- **Hierarchical Slicers**: Enable filtering through hierarchical data, such as categories and subcategories.
- **Date Slicers**: Filter data based on specific date ranges.
- **Searchable Slicers**: Provide a search box for users to find specific items within the slicer.

Apply filters with slicers

The slicer is a core visual with one purpose: *filter other visuals*. It's one of the most common visuals that you add to a report page because it presents an intuitive way for report consumers to filter data. As a report author, you have considerable control over how the visual is laid out and formatted and how it functions.

By default, slicers filter all other visuals on the page. However, you can edit visual interactions to restrict filtering between two visuals. We cover visual interactions later in this module. Sync slicers can also filter visuals on other pages.

Important

It might be tempting to think that slicers apply page-level filters because that's the default result. However, it's important to understand that a slicer is a visual that propagates filters to other visuals on the same page or (when synced) across other pages.

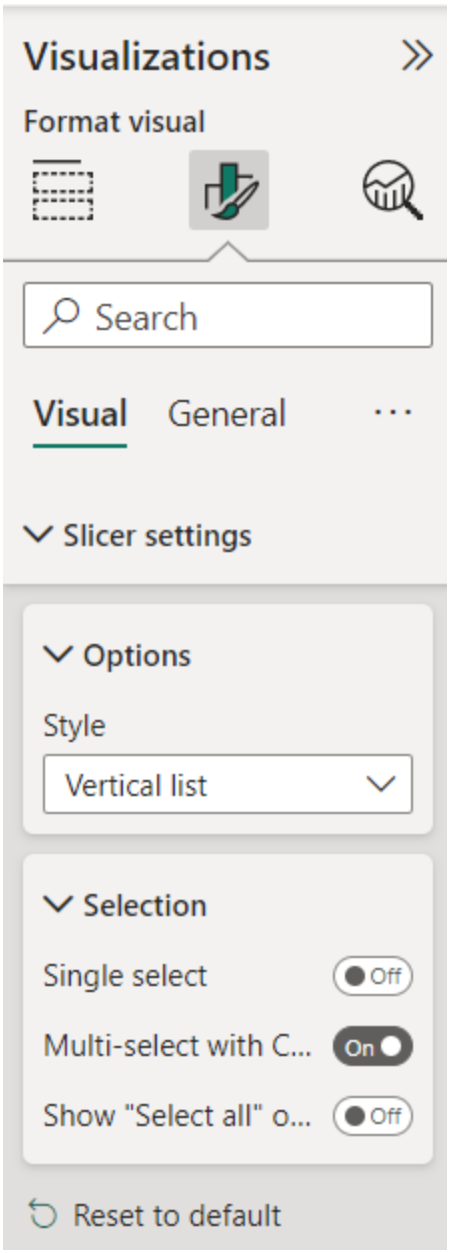
You can configure a slicer by using one or more fields from the same table or a hierarchy. When configured to use multiple fields or a hierarchy, the slicer presents an expandable tree structure of items.

The slicer layout is responsive to the data type of the field. Field data types are either text, numeric, or date. By default, a text field will produce a list slicer, a numeric field will produce a numeric range "between" filter, and a date field will produce a date range "between" filter, allowing value selection with calendar controls.

At design time, you can modify the slicer layout so that lists become dropdown lists. Dropdown lists use much less space on the report page. Numeric and date ranges offer additional layouts, allowing you to select a single value that acts as the lower or upper boundary of the filter. The reason why numeric and date slicers have additional layouts is because these data types represent continuous values. Therefore, the slicer layouts allow filtering by ranges of continuous values.

Note

To change the slicer style, select Format your visual > Slicer settings > Visual > Options > Style.



A slicer that is based on a date field offers additional layouts to filter by *relative date or time*. Relative filters allow the report consumer to filter by past, present, or future time periods based on the current date and time. For example, a relative date slicer could filter by the current date (today).

Possible layouts for the field data type are:

- **Text field -** List (default) or dropdown
- **Numeric field -** List, dropdown, between (default), less than or equal to, or greater than or equal to
- **Date field -** List, dropdown, between (default), before, after, relative date, or relative time

List and dropdown slicers support format options to control the selection of items. When you enable the **Single select** option, the slicer allows only a single item selection. That approach makes sense for a slicer like scenario, where the options are Actual, Budget, or Forecast. In this case, it only makes sense to filter by one scenario at a time.

Other configuration options are available for you to modify slicer behavior and its look. Review the product documentation for more details.

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5. Design Reports with Filtering Techniques

Effective filtering techniques enhance report usability and interactivity:

- **Sync Slicers Across Pages**: Ensure consistency by synchronizing slicers across multiple report pages.
- **Dynamic Filters**: Use parameters to create dynamic, user-driven filtering options.
- **Bookmarking**: Allow users to save and recall specific filter states.
- **Linked Filters**: Ensure that changes in one filter automatically update related visuals and filters.
- **User Roles and Permissions**: Apply security filters to control data access based on user roles.

6. Consumption-Time Filtering

Consumption-time filtering involves enabling users to interact with and filter data while consuming the report:

- **Interactive Dashboards**: Design dashboards with interactive elements like slicers, buttons, and drill-through capabilities.
- **Responsive Design**: Ensure reports are accessible and usable on various devices, including mobile.
- **Personal Bookmarks and Views**: Allow users to save personalized views of the report with their preferred filters applied.

7. Select Report Filter Techniques

Choosing the right filter techniques is crucial for effective data analysis and user experience:

- **Cascading Filters**: Use filters that depend on each other in a hierarchical manner.
- **Cross-Filtering and Highlighting**: Enable cross-filtering between visuals to provide more context.
- **Custom Visual Filters**: Utilize custom visuals that offer advanced filtering capabilities.
- **Role-Based Filters**: Implement row-level security to ensure users only see data they are authorized to view.
- **Automated Filters**: Use automated filters for periodic reports, ensuring they are always up-to-date with the latest data.

By integrating these elements and techniques, you can create a comprehensive and interactive analytical report that effectively communicates insights and supports informed decision-making.

Final Report with Filters:

Steps to Build Final Report with Filters:

Step1: Open PowerBI

Step2: Click on Get Data

Step3: Select Excel file and Load Data into powerBI

Step4: Select TextBox –Give name to Dashboard as Filters Report Dashboard

Step5:Seelct pie chart and do get chart.

Step6: Select Table in Visuals and do get table

Step7: Select KPI and Do get Expected results of KPI

Step8: Select Insert ->Q&A.Get the expected Q&A results.

Step9: Select Filters on this apge and do get results after applying Filters

Step10: Select Map and do respective map with results.

Step11: Apply Slicers and do get Results.

Step12: Save your Report