

Power BI

An Introduction

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Power BI

When Microsoft decided to Power through Modern BI

- Business Intelligence Reporting Software
- Designed for technical and business users
- Core Components
 - Power BI Desktop: Authoring Reports
 - Power BI Service: Share and Consume Reports

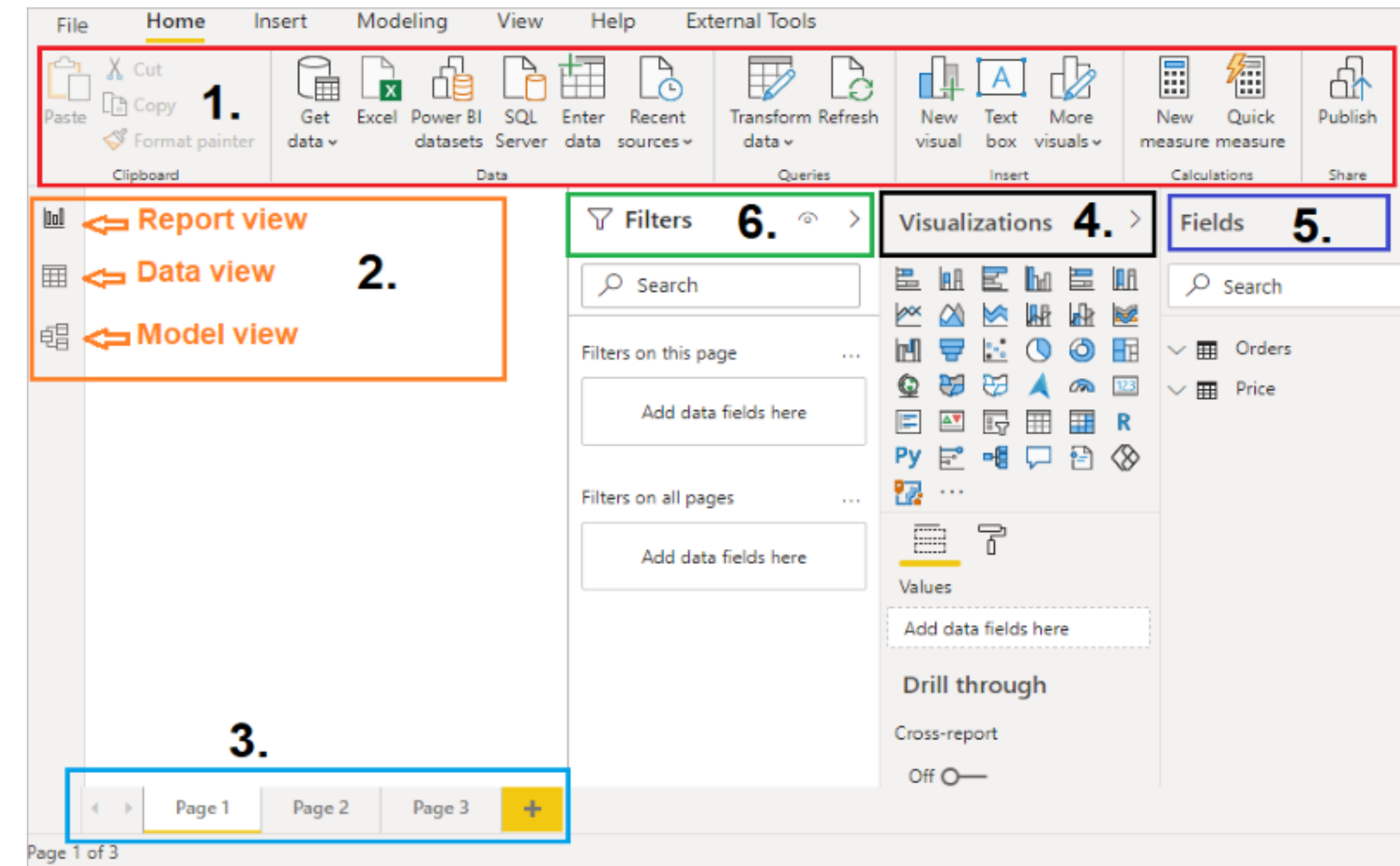


Interface: Power BI

Interface Tour

What do the shiny buttons do?

1. Ribbon
2. Views
3. Page Navigation
4. Visualizations Pane
5. Data/Fields Pane
6. Filters Pane

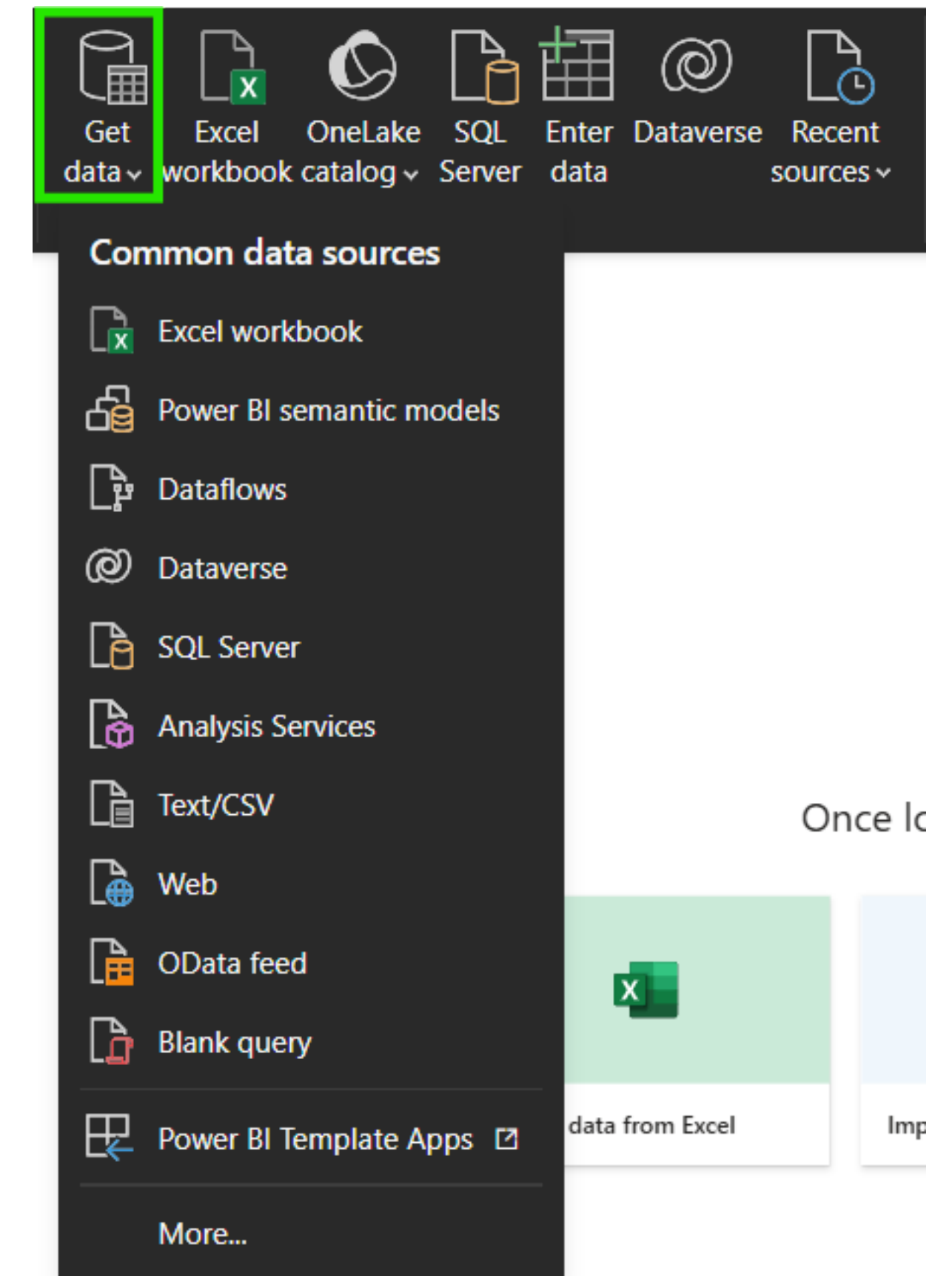


Get Data

Get Data

Bringing in Data

- Connect to 100+ sources - Excel, databases, Google Sheets, APIs
- Powered by Power Query: Load data as-is or run powerful transformations
- Work on snapshot of data or set up Live connection to data
- Mix and match data

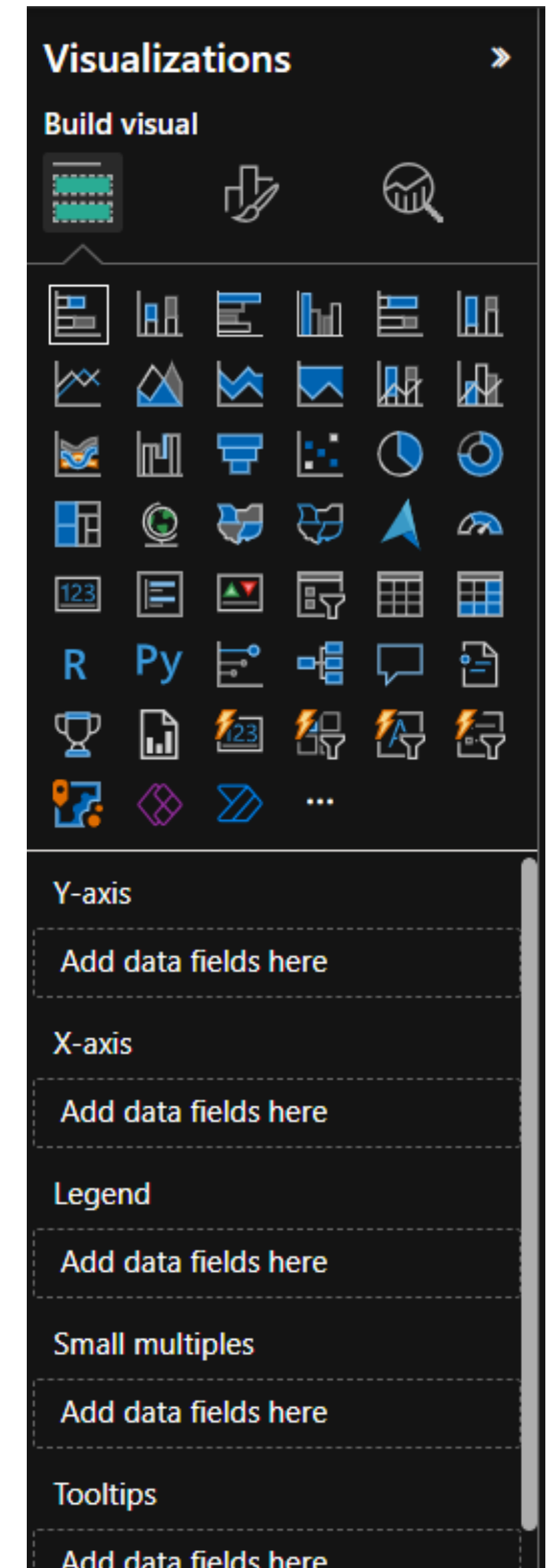


Build Visuals

Making Visualization

As Easy As Drag and Drop

- Pick the right chart for the story - bars, lines, maps, and more
- Drop fields into it - sales here, dates there, done!
- Tweak colors and styles to make it pop
- Add one or more viz in a report page to tell the story

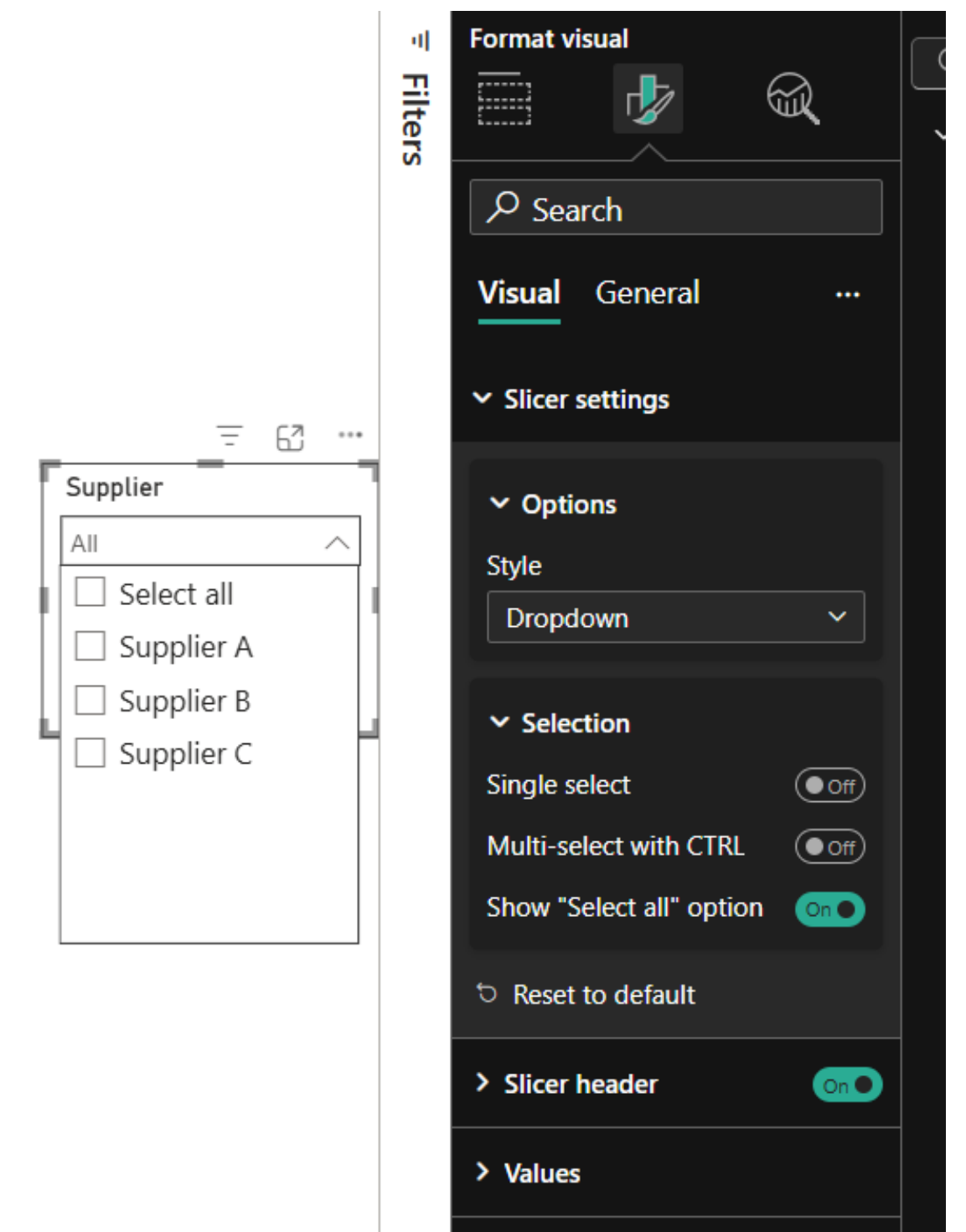
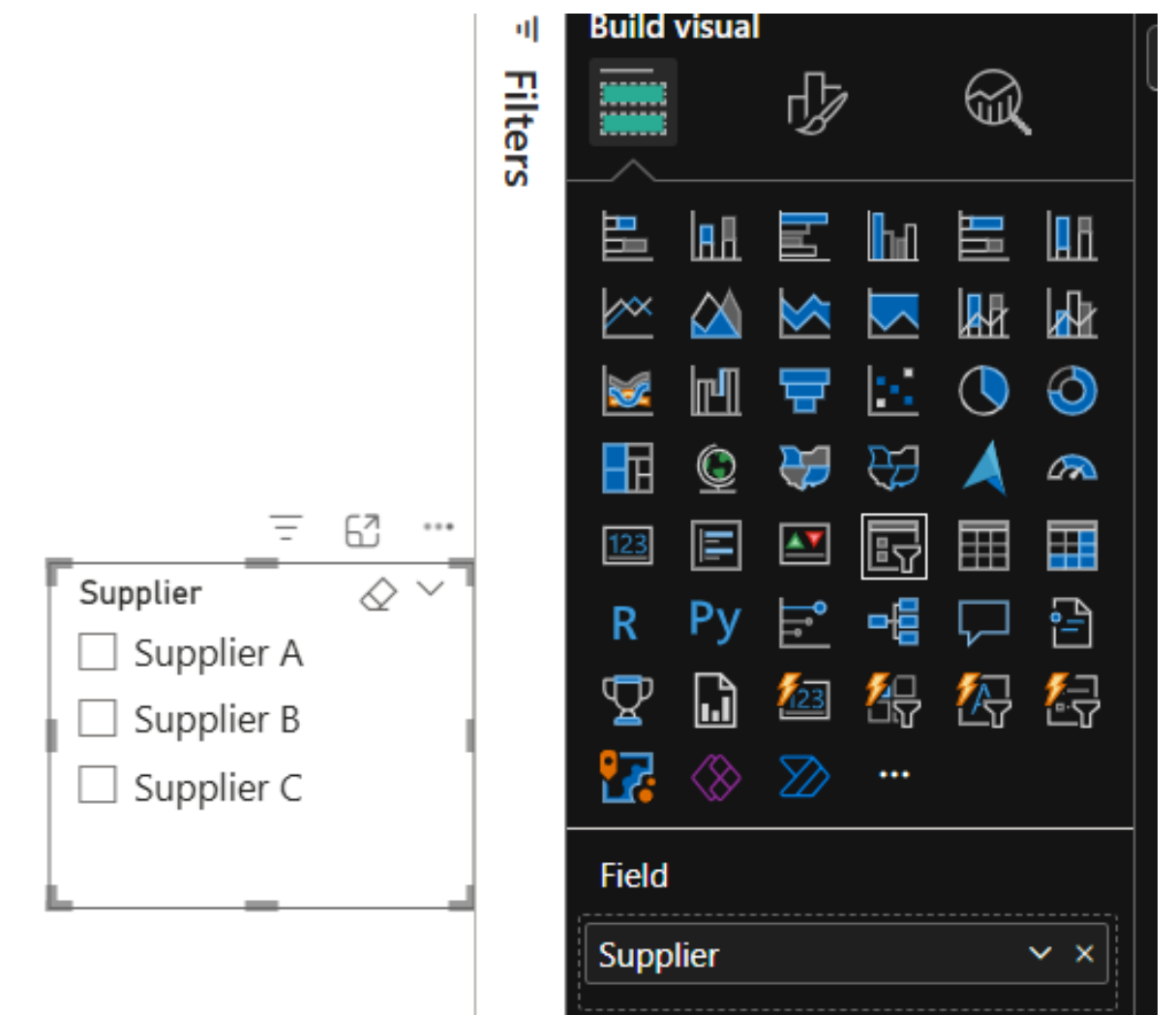


DropDown Filters

DropDown Filters

Slicing Down Data

- Users slice data however they want
- Choose from various available styles - Tile, Dropdown, List
- Single choice or multi-select as per requirement



Power Query

Power Query

An Introduction

- Built-in data transformation tool (started as Excel add-in, now core to Power BI)
- Clean and shape data before analysis
- Point-and-click interface - no coding required (M language powers under the hood)
- Saves transformation steps to reuse on refreshed data

Interface: Power Query

Power Query Interface

Data Kitchen Tour

The screenshot displays the Power Query Editor window titled "Untitled - Power Query Editor". The ribbon at the top includes tabs for Home, Transform, Add Column, View, Tools, and Help. The Home tab is active, showing various options like Close & Apply, New Source, Recent Sources, Enter Data, Data source settings, Manage Parameters, Refresh Preview, Properties, Advanced Editor, Manage, Choose Columns, Remove Columns, Keep Rows, Remove Rows, Sort, Split Column, Group By, Data Type, Use First Row as Headers, Replace Values, Merge Queries, Append Queries, and Combine Files.

The main area shows a query named "sales_dataset_09142025" with the following columns: SalesDate, Supplier, Brand, Region, UnitsSold, and SalesAmount. Each column has a data type (date, text, text, text, integer, integer) and a status bar indicating the number of distinct and unique values. The data is displayed in a table view with 12 rows shown.

The right-hand pane shows the "Query Settings" for "sales_dataset_09142025". It includes the "PROPERTIES" section with the query name and a link to "All Properties". The "APPLIED STEPS" section shows a list of steps: Source, Promoted Headers, and Changed Type.

At the bottom, the status bar indicates "7 COLUMNS, 990 ROWS" and "Column profiling based on top 1000 rows". A note at the bottom right states "PREVIEW DOWNLOADED ON WEDNESDAY".

	SalesDate	Supplier	Brand	Region	UnitsSold	SalesAmount
1	9/24/2022	Supplier A	Brand X	North	150	
2	9/25/2022	Supplier B	Brand Y	South	200	
3	9/26/2022	Supplier C	Brand Z	East	75	
4	9/27/2022	Supplier A	Brand Y	West	300	
5	9/28/2022	Supplier B	Brand X	North	120	
6	9/29/2022	Supplier C	Brand Z	South	90	
7	9/30/2022	Supplier A	Brand X	East	180	
8	10/1/2022	Supplier B	Brand Y	West	250	
9	10/2/2022	Supplier C	Brand Z	North	100	
10	10/3/2022	Supplier A	Brand X	South	160	
11	10/4/2022	Supplier B	Brand Y	East	220	
12	10/5/2022	Supplier C	Brand Z	West	85	

Loading Data

Loading Data

Welcome to the Staging Area

- Click “Transform Data” after connecting to a source
- Preview the data in a spreadsheet-like view
- Each step gets recorded on the right side
- Can always go back and modify any step

Basic Transformations

Basic Transformations

Sneak Peek Into Transformation Power

- Remove or rename columns to keep things tidy
- Change data types (text to numbers, dates, etc.)
- Filter rows to keep only what matters
- Split columns (like separating first and last names)

Data Quality Views

Data Quality Views

How is the Data?

- **Column Quality** : Shows % of valid, error, and empty values
- **Column Distribution** : Visualizes how data is spread across values
- **Column Profile** : Detailed stats like min, max, distinct count
- Spot data issues before they become report problems

Text Transformations

Text Transformations

Changing up the text

- Change case - UPPERCASE, lowercase, Title Case, etc.
- Trim whitespace from start and end of text
- Extract text - first characters, last characters, or from middle
- Merge or split columns based on delimiters

Numerical Transformations

Numerical Transformations

Playing Around with Numbers

- Change data types to whole number, decimal, percentage, currency
- Perform calculations - add, subtract, multiply, divide columns
- Rounding options - round up, down, or to specific decimals

Cleanup

Cleanup

Replace Values & Cleanup

- Find and replace specific values across columns
- Replace errors or nulls with meaningful defaults
- Remove special characters or unwanted text
- Standardize inconsistent entries (like “NY” vs “New York”)

Conditional Columns

Conditional Columns

As per the conditions set forth

- Create IF-THEN logic without writing formulas
- Set conditions based on column values (if sales > 1000, then “High”)
- Multiple conditions with AND/OR logic
- Perfect for categorizing or flagging data

Group By

Group By

Now in Groups

- Aggregate data - sum sales by region, count orders by customer
- Multiple aggregation options - sum, count, average, min, max
- Group by one or multiple columns
- Creates summary tables from detailed data

Q&A