

Power BI

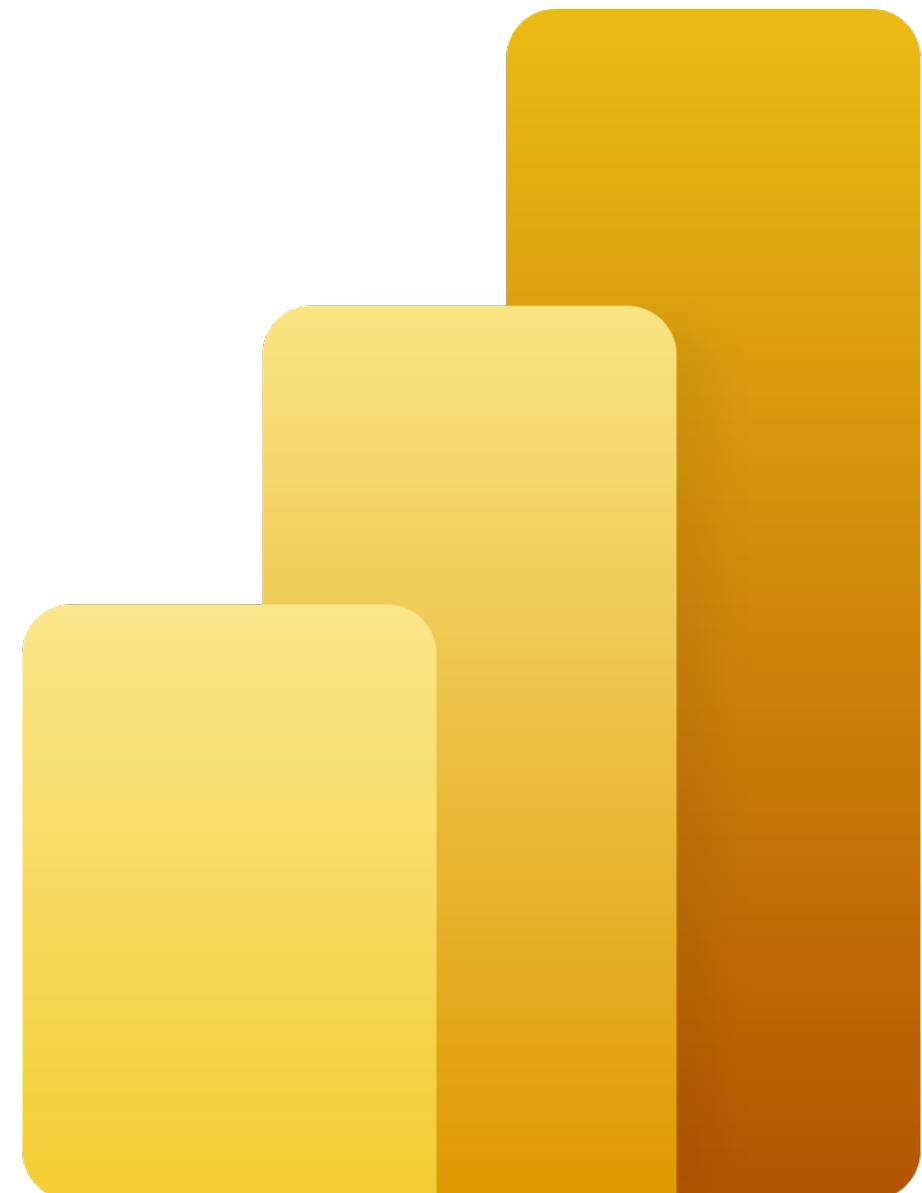
An Introduction

Alish Bista - 10/01/2025

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

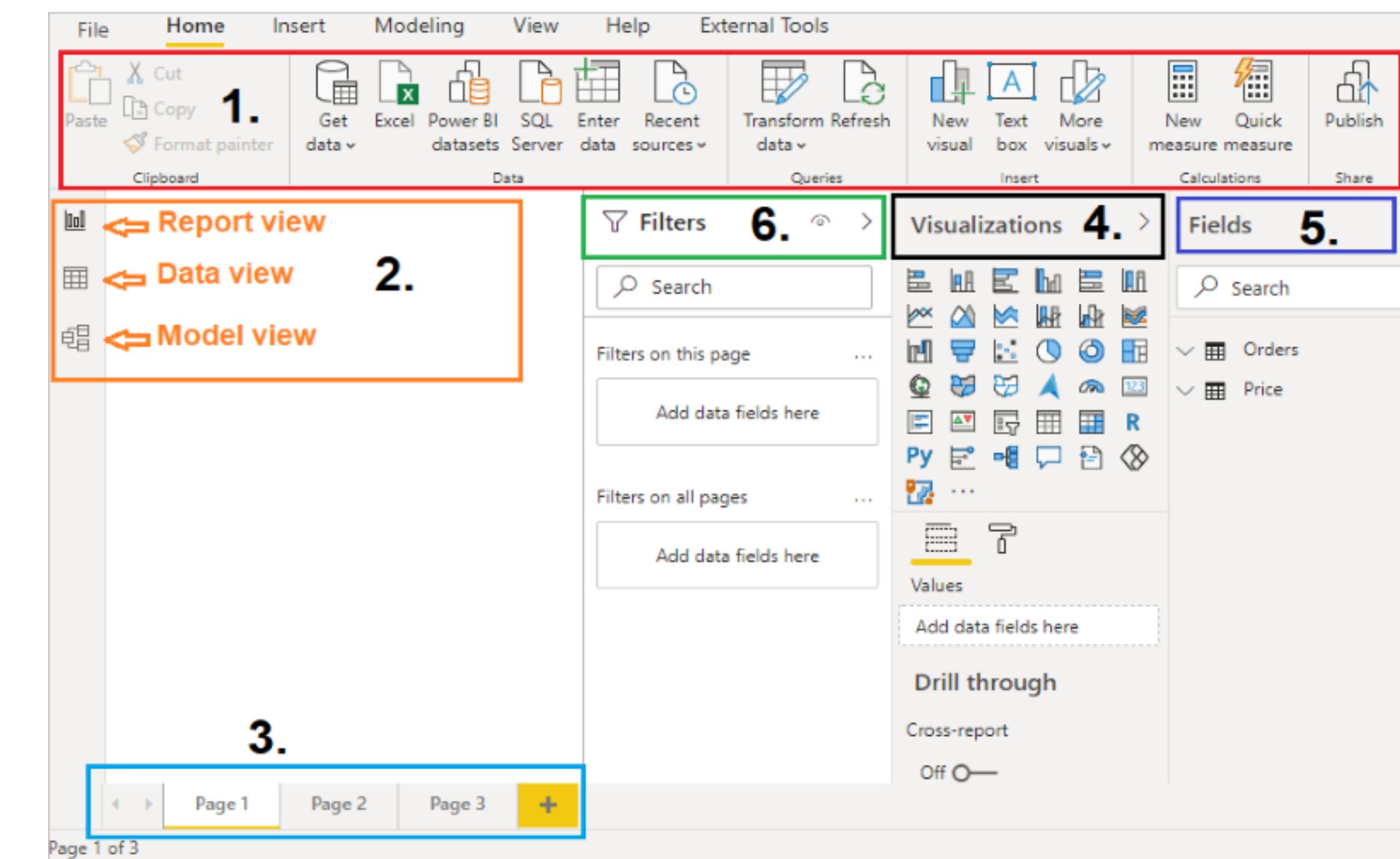


Interface: Power BI

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

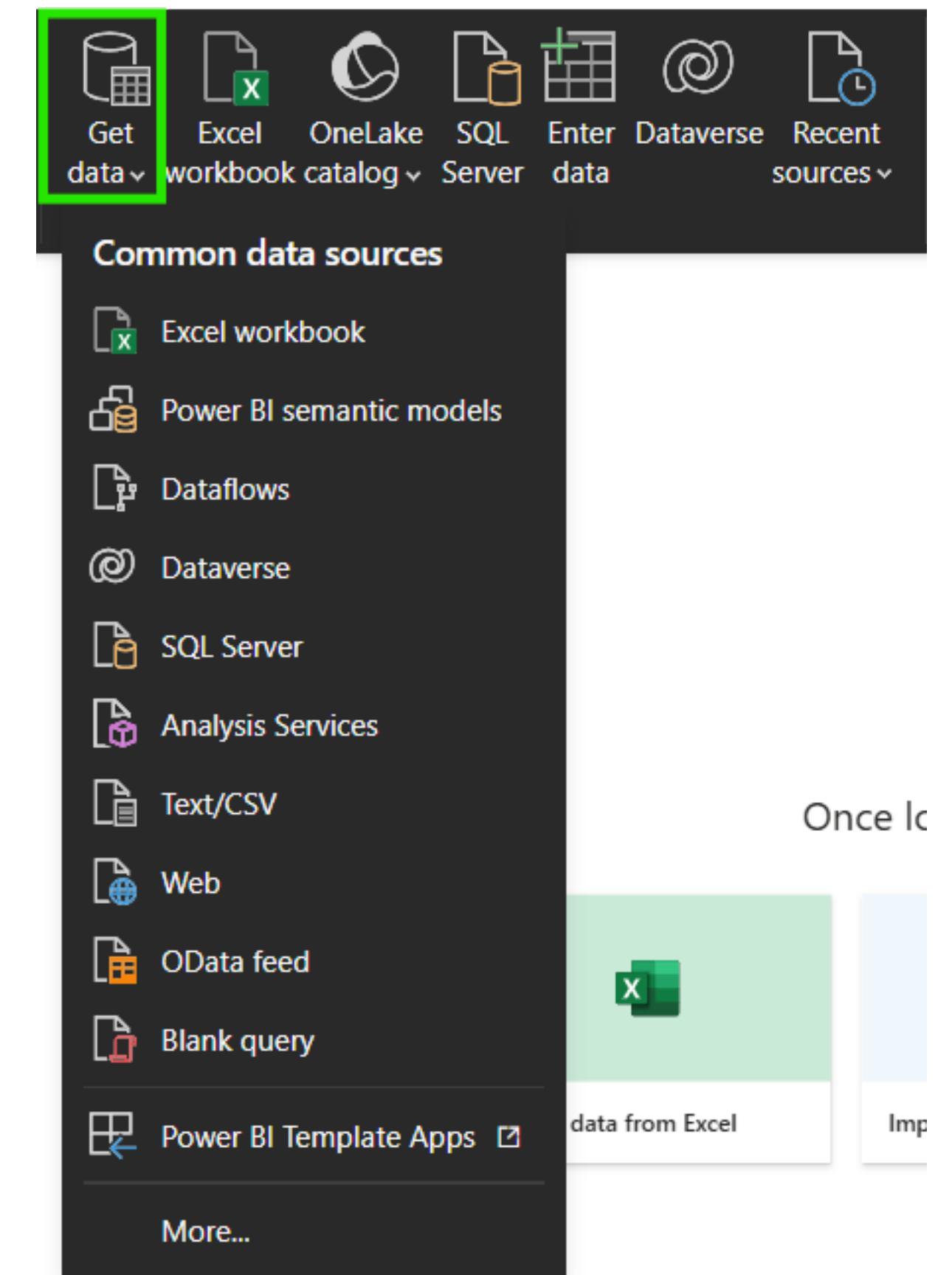


Get Data

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

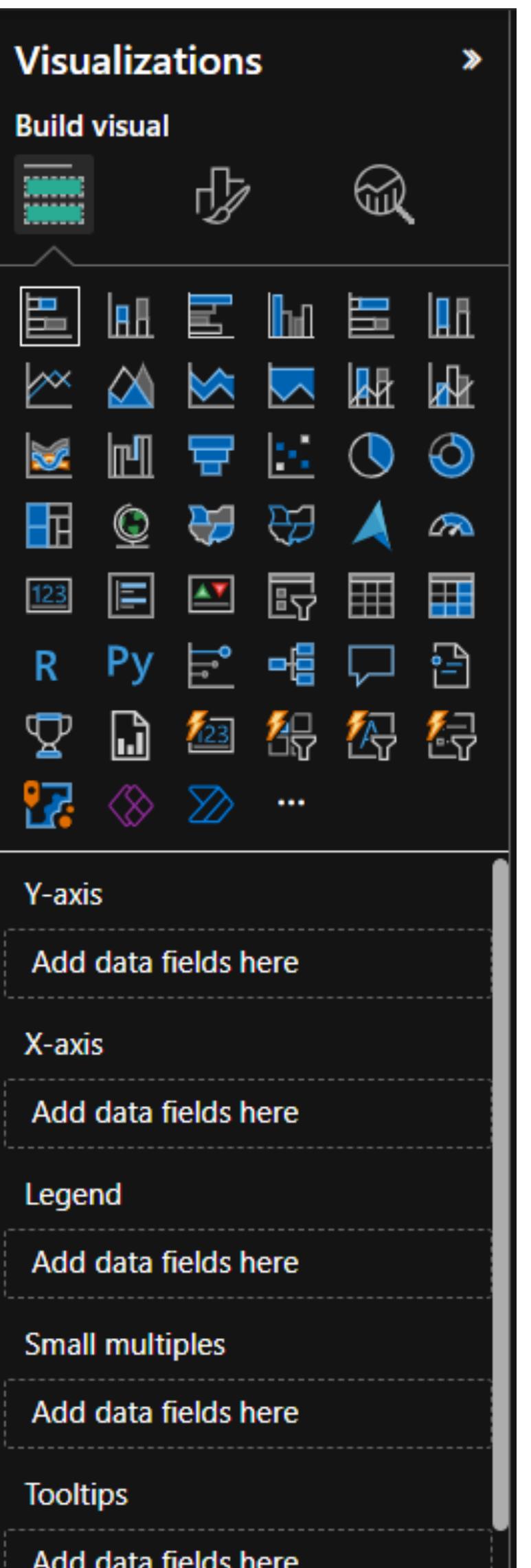


Build Visuals

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

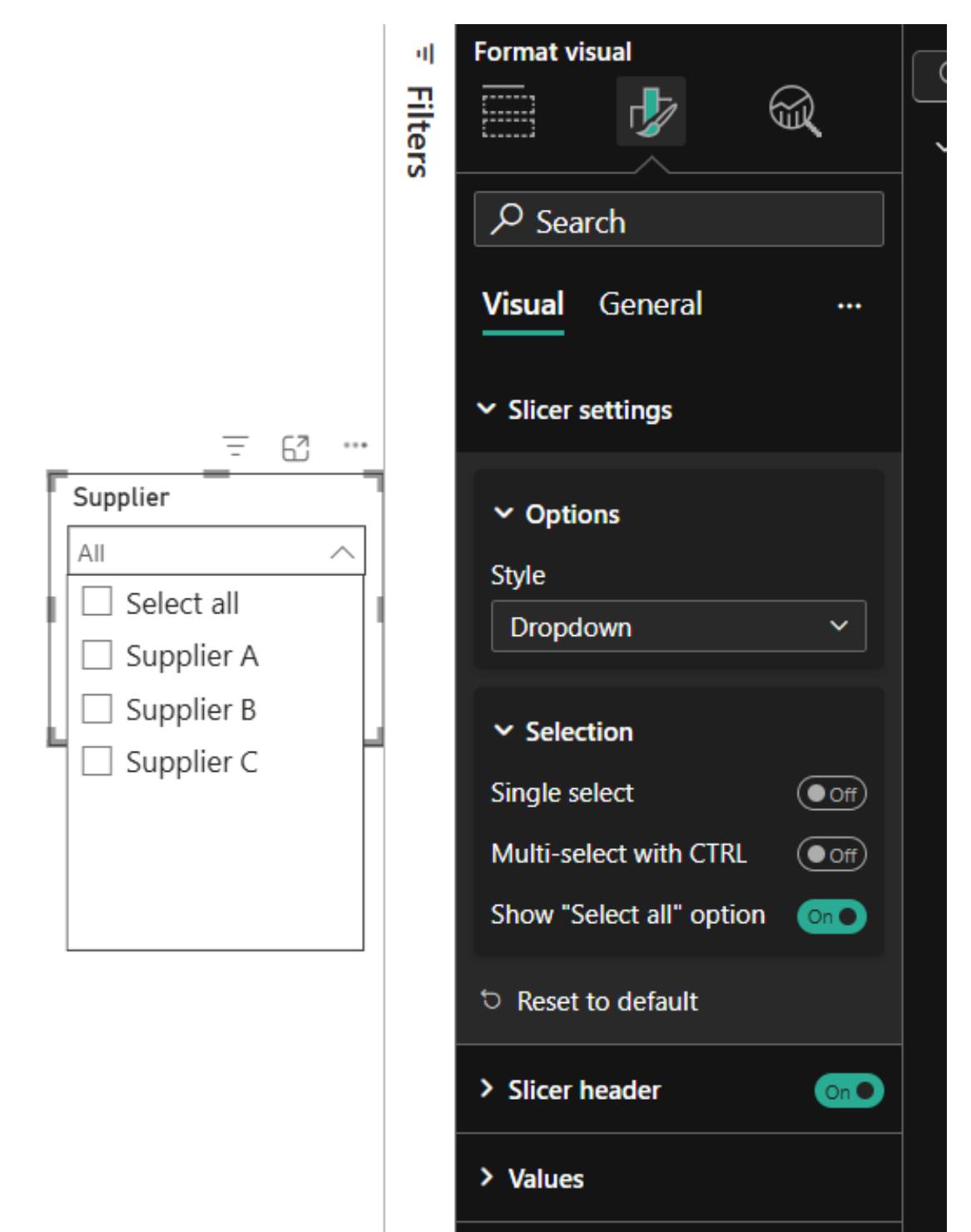
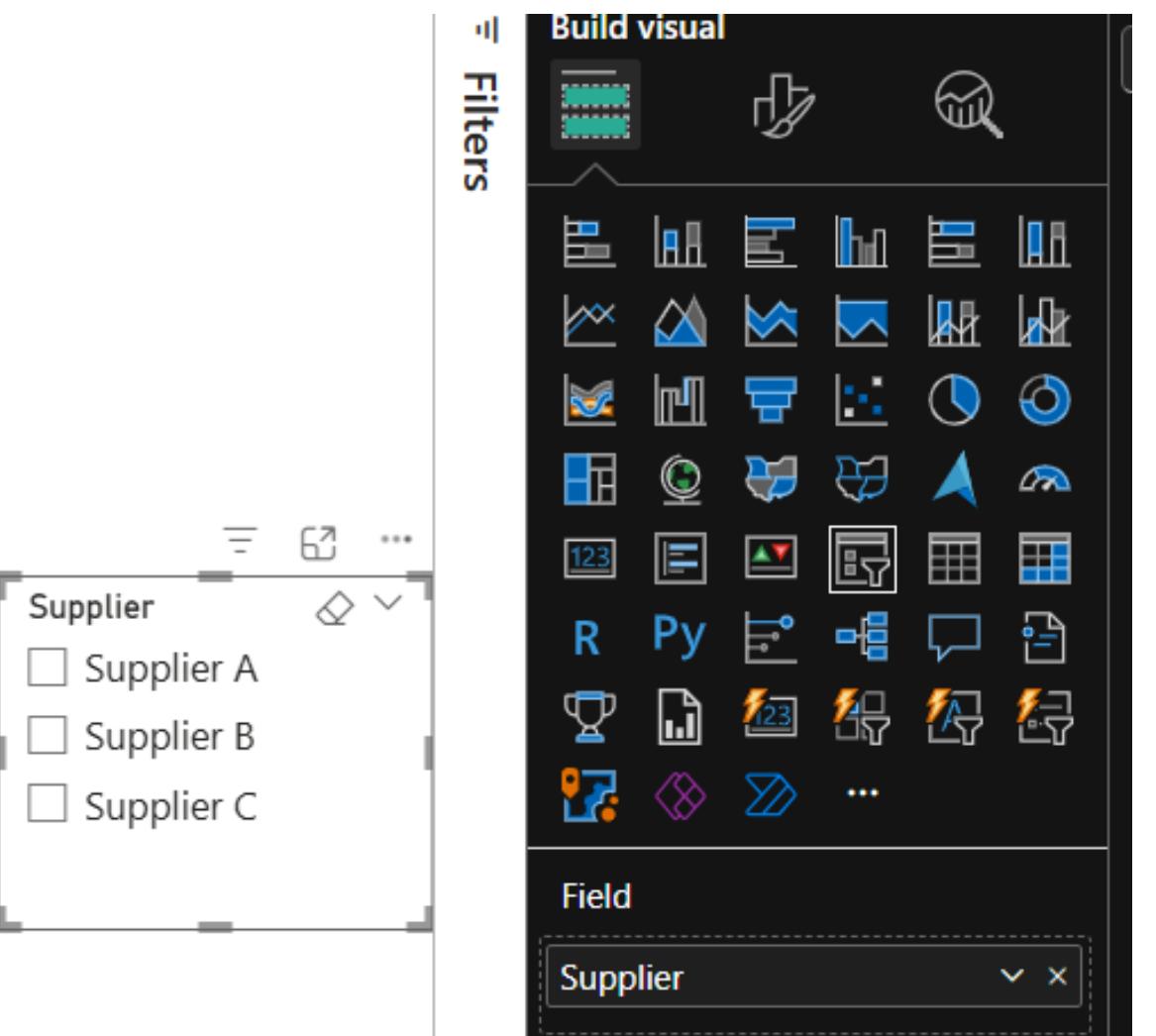


DropDown Filters

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

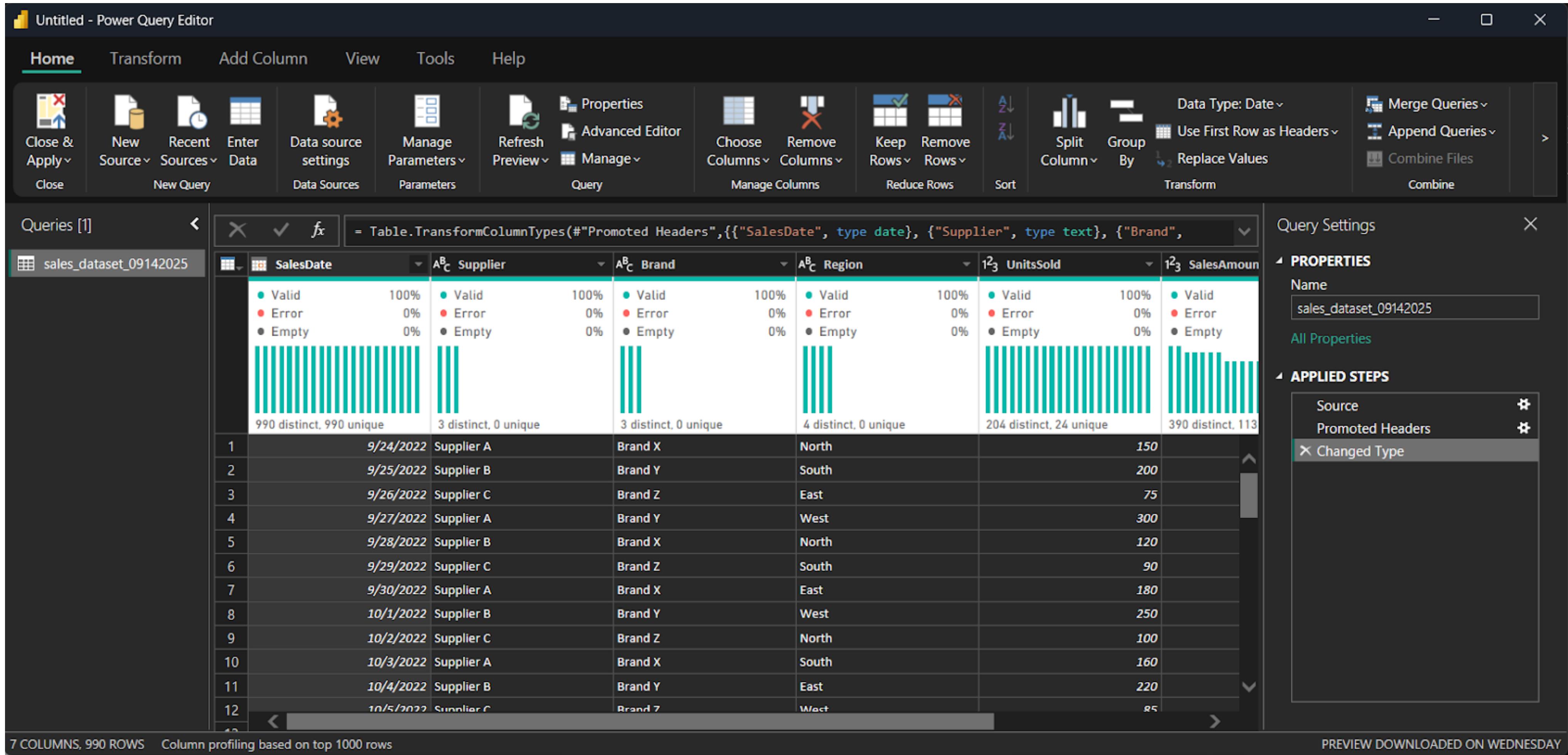
An Introduction

- 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 shows the Power Query Editor interface with the following details:

- Home Tab:** The active tab, showing various icons for file operations, data sources, and query transformations.
- Queries [1]:** A list containing `sales_dataset_09142025`.
- Preview Area:** Displays a table with 7 columns and 990 rows. The columns are: SalesDate, Supplier, Brand, Region, UnitsSold, and SalesAmount. The preview shows data for the first 12 rows, with columns 3-6 showing distinct values and counts (e.g., 3 distinct Supplier values, 4 distinct Region values).
- Query Settings Panel:** On the right, it shows the `sales_dataset_09142025` query with the following settings:
 - PROPERTIES:** Name is set to `sales_dataset_09142025`.
 - APPLIED STEPS:** The steps listed are `Source`, `Promoted Headers`, and `Changed Type`.
- Bottom Status:** Shows "7 COLUMNS, 990 ROWS" and "Column profiling based on top 1000 rows".
- Bottom Right:** Shows "PREVIEW DOWNLOADED ON WEDNESDAY".

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