

## Lesson 6

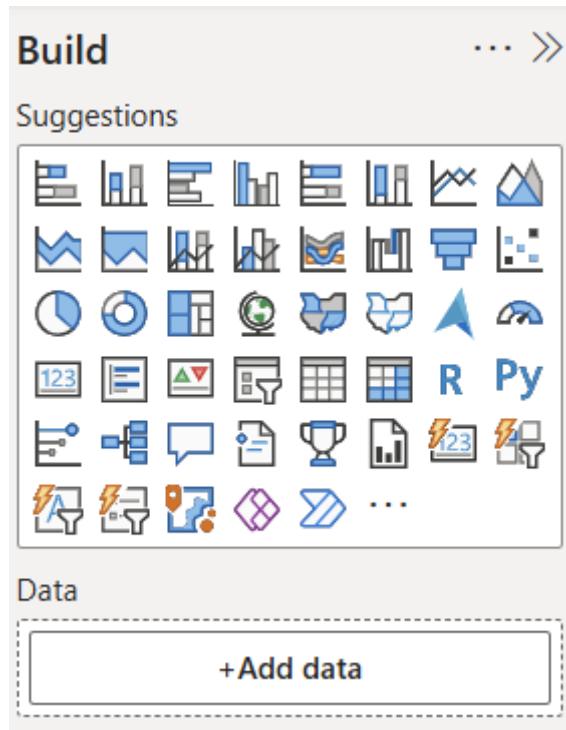
**Topic: Creating Basic Visualizations & Adding Interactivity to Visuals**

**Prerequisites: Download Sales\_Interactive.xlsx file.**

### 1. Name three types of visuals you can create in Power BI.

Three common types of visuals you can create in Power BI are:

1. Bar Chart – Used to compare values across categories (e.g., Sales by Region).
2. Pie Chart – Shows proportions or percentage share of a whole.
3. Card – Displays a single number (e.g., Total Sales, Number of Orders).



### 2. How do you add a slicer to a report?

Step 1: Load the Data

- Open Power BI Desktop
- Click on Home → Enter Data
- Copy and paste your table, name it SalesData, and click Load

Step 2: Add a Bar Chart

- From the Visualizations pane, select Bar chart
- Drag Product to the X-axis (Category)
- Drag SalesAmount to the Y-axis (Values)

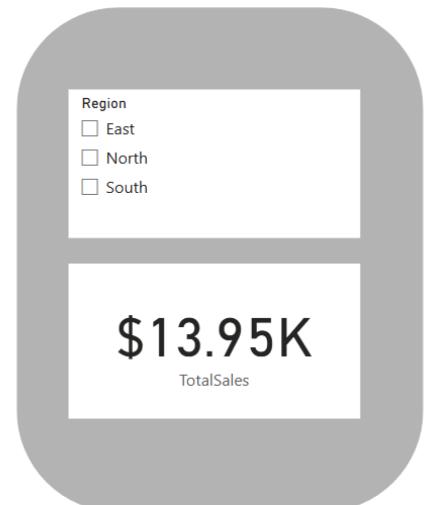
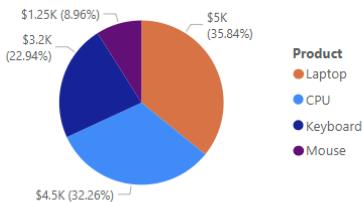
#### Step 3: Add a Slicer

- Click on the Slicer icon in the Visualizations pane
- Drag the Region field to the Field well of the slicer
- Now your report has a slicer that filters the chart based on the selected region

#### Step 4: Try Interacting

- Click on North in the slicer → Bar chart will update to show only Laptop and CPU
- Click Clear filter to reset

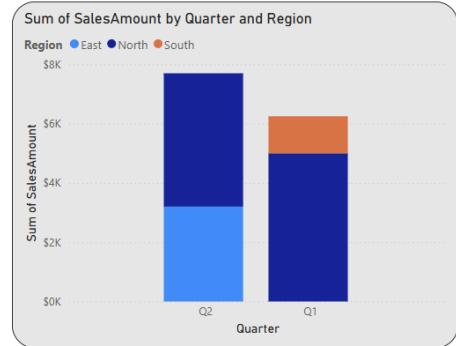
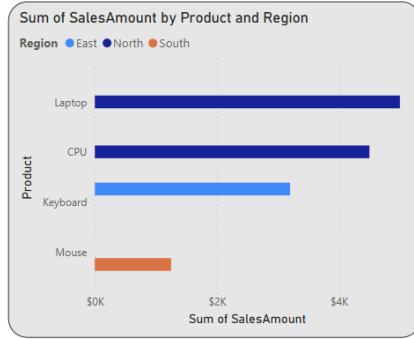
Sum of SalesAmount by Product



### 3. What is the difference between a bar chart and a column chart?

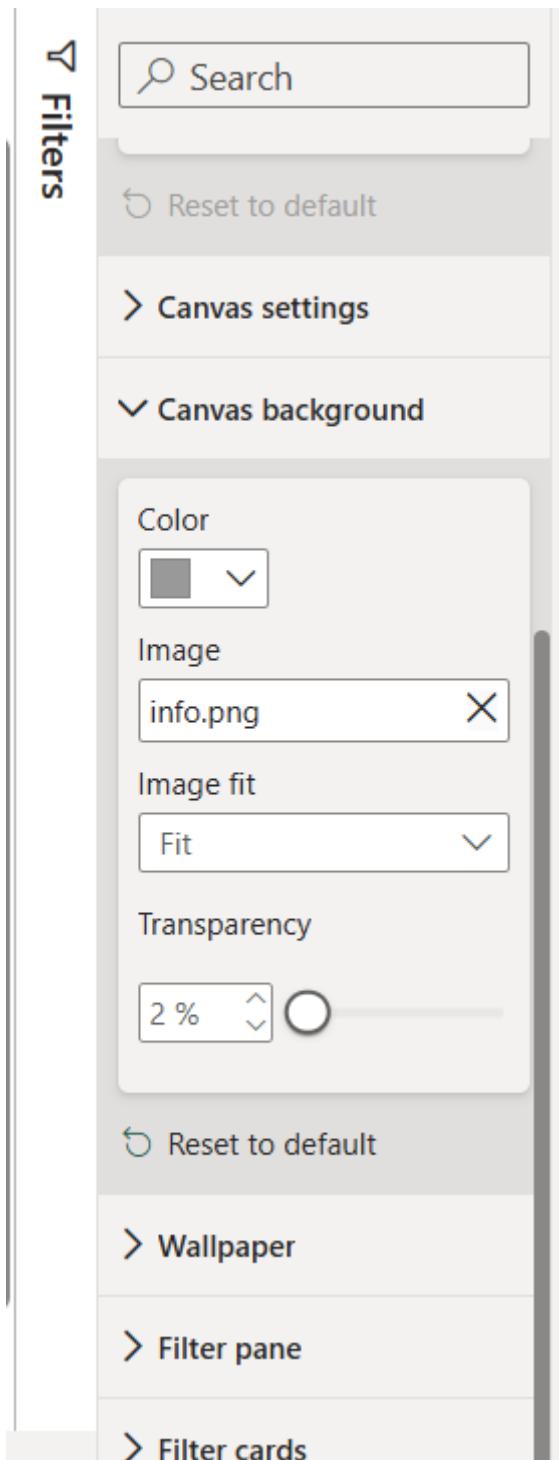
Feature	Bar Chart	Column Chart
Orientation	Horizontal bars	Vertical columns
X-Axis	Shows values (e.g., SalesAmount)	Shows categories (e.g., Product)
Y-Axis	Shows categories (e.g., Region/Product)	Shows values (e.g., SalesAmount)

Feature	Bar Chart	Column Chart
Best For	Long category labels or many categories	Time-based data or few categories
Example	Sales by Region	Sales per Quarter



#### 4. How do you change the color of a visual background?

1. **Click on the visual** you want to customize.
2. In the **Visualizations pane**, go to the **Format** section (paint roller icon).
3. Scroll down and **expand the “Background” section**.
4. Toggle the **“Background” switch to ON**.
5. Choose the desired **color** from the color picker.
6. You can also **adjust the transparency** using the slider.
7. Click away from the visual to see the changes.



## 5. What does "drill-down" mean in a visual?

Drill-down in Power BI allows users to explore data at different levels of detail within a visual.

It means you can click on a part of a chart (e.g., a bar) and go deeper into the next level of data hierarchy.

Example:

If your data hierarchy is:

- Year → Quarter → Month

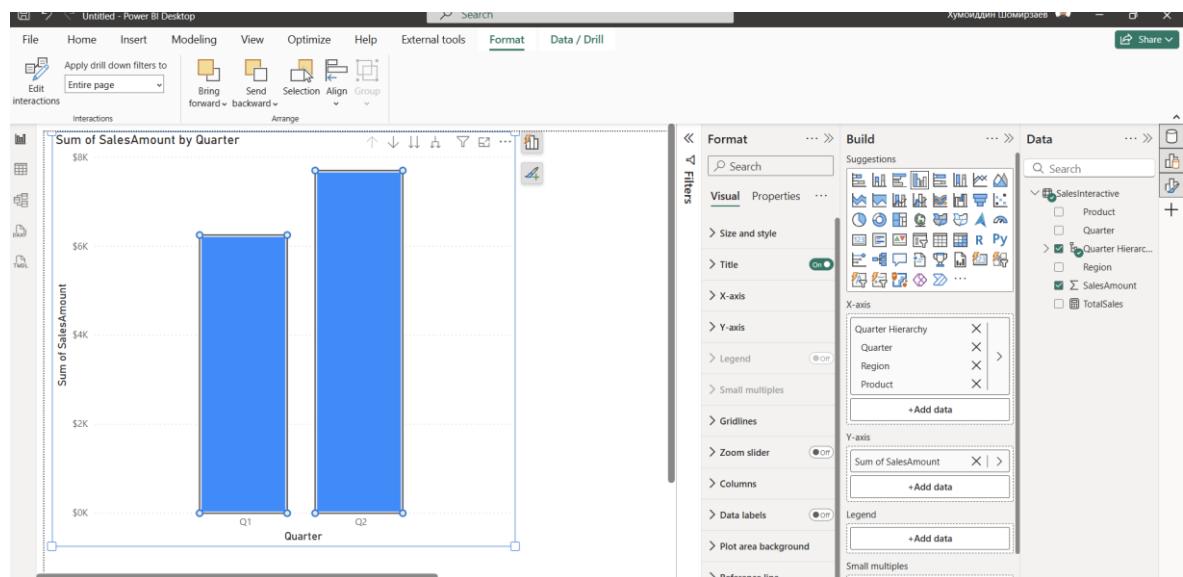
Then in a column chart showing total sales:

- Click on Year 2024 → the chart will drill down to show Quarterly sales for 2024
- Click on a Quarter → see Monthly sales

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How to enable drill-down:

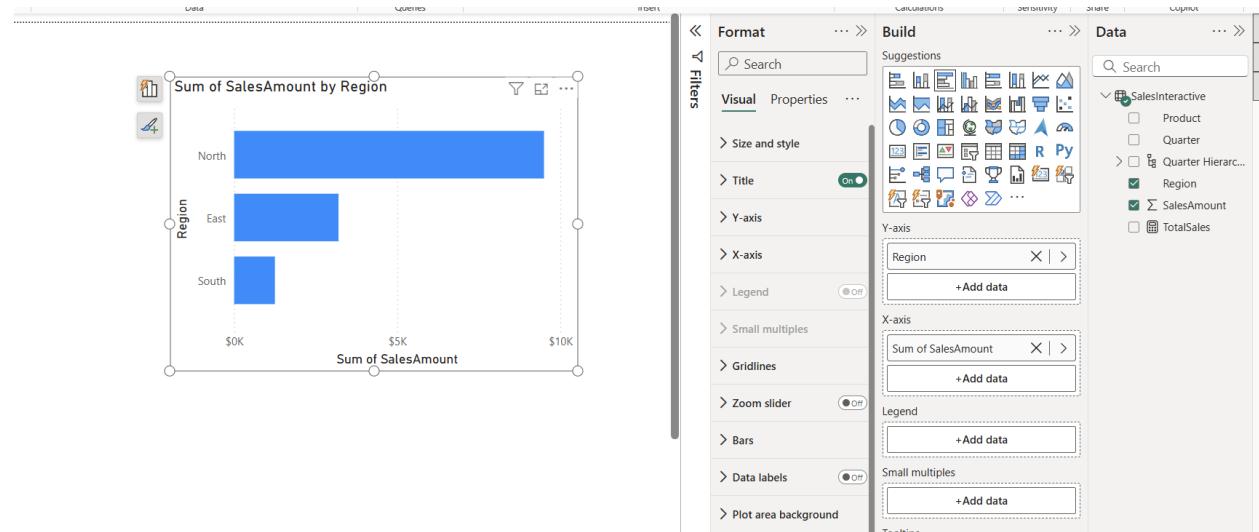
1. Create a hierarchy (e.g., drag Year, Quarter, Month under the same axis).
2. Turn on drill-down:
  - Click the "drill icon" in the top-left corner of the visual.
  - Or right-click on a bar → choose Drill Down or Drill Through.



## 6. Create a bar chart showing SalesAmount by Region.

1. In the Visualizations pane, click on the Bar Chart icon (*It's the horizontal one, not vertical*)
2. From the Fields pane:
  - Drag Region into the Y-axis

- Drag SalesAmount into the X-axis (Values)



## 7. Add a slicer for Quarter to filter all visuals on the page.

Ensure You Have Visuals on the Page

- Make sure your Bar Chart (SalesAmount by Region) is already on the page.
- The Quarter field must already exist in your dataset.

### 2. Add a Slicer

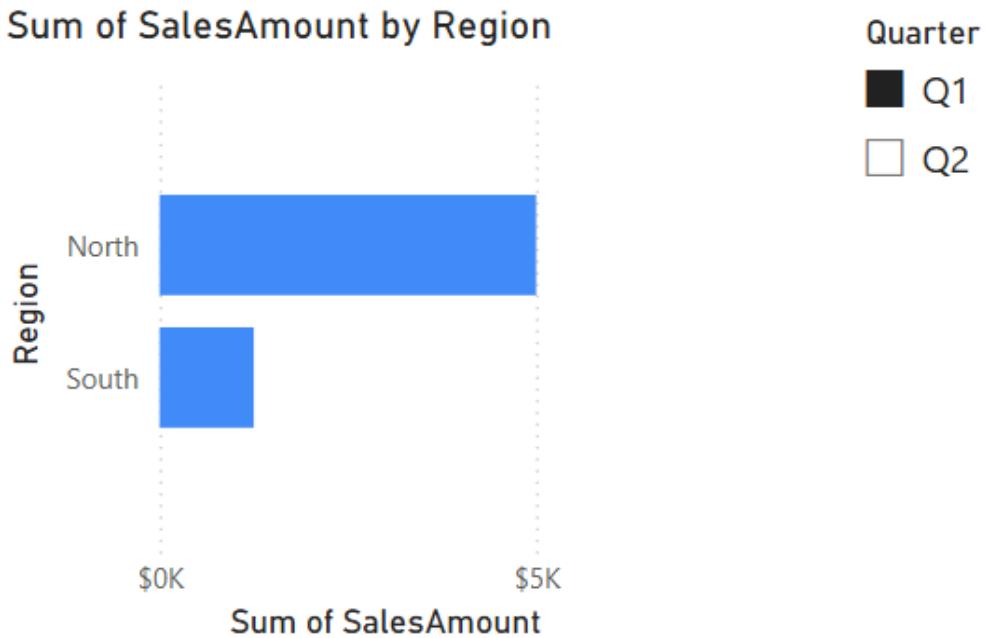
1. Go to the Visualizations pane
2. Click on the Slicer icon (looks like a filter symbol)
3. A blank slicer visual will appear

### 3. Add the Quarter Field

- From the Fields pane, drag Quarter into the Field well of the slicer

### 4. Test the Slicer

- Click on a quarter (e.g., Q1) in the slicer
- All visuals on the page (like your Bar Chart) will automatically filter to show data only for that quarter



## 8. Format the bar chart to show data labels.

### 1. Select the Bar Chart

- Click on the Bar Chart visual on your report page to select it.
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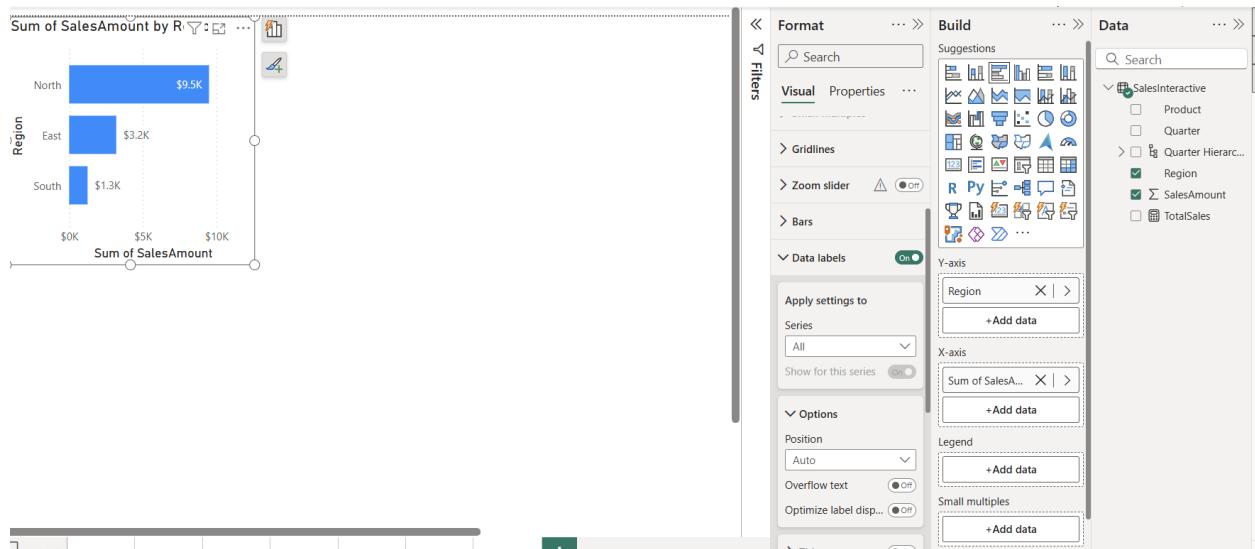
### 2. Open the Format Pane

- Go to the Visualizations pane on the right.
  - Click on the Format icon ( paint roller).
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### 3. Turn On Data Labels

- Scroll through the Format pane until you find “Data labels”.
- Expand the Data labels section.
- Toggle the switch to ON.

Now, the exact SalesAmount values will appear next to each bar.



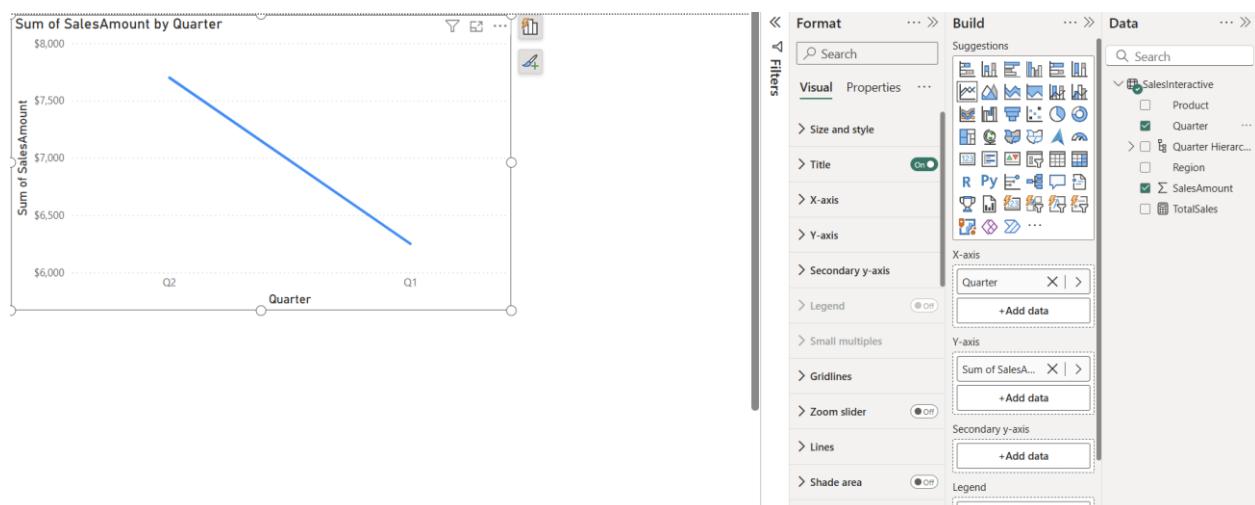
## 9. Use a line chart to show SalesAmount trends over Quarter.

1. In the Visualizations pane, click on the Line Chart icon (looks like a line graph).
  2. From the Fields pane:
    - o Drag Quarter to the X-axis (Axis)
    - o Drag SalesAmount to the Y-axis (Values)
- 

### 3. Check the Trend

- You'll see a line connecting Q1 and Q2 values:
  - o  $Q1 = 6250$
  - o  $Q2 = 7700$

This shows an upward trend in sales from Q1 to Q2.



## **10. Add a tooltip to display Product details when hovering over bars.**

Open Your Existing Bar Chart

- Make sure your bar chart shows SalesAmount by Region (as created earlier)

2. Add Product to the Tooltip Field

1. Select the bar chart visual
2. In the Visualizations pane, look for the “Tooltip” field well (usually at the bottom)
3. Drag the Product field from the Fields pane into the Tooltip area

3. Test the Tooltip

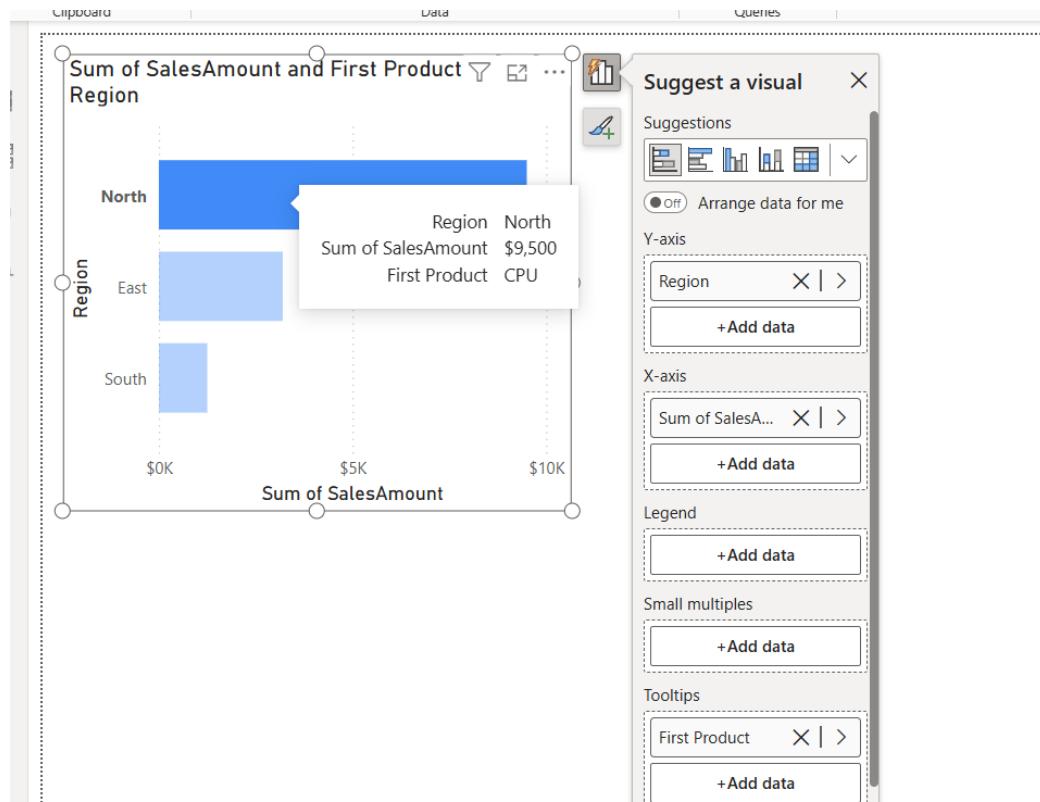
- Hover your mouse over a bar (e.g., "North")
- Power BI will show:
  - Region: North
  - SalesAmount: 9500
  - Product: Laptop, CPU (*only if multiple products exist in that region*)

Note: If you want a detailed product breakdown in the tooltip, use a report page tooltip (explained below).

Optional (Advanced Tooltip): Create a Custom Tooltip Page

For richer tooltips:

1. Create a new report page
2. In the Page Information pane:
  - Turn Tooltip = ON
3. Design the page with visuals (e.g., Product list, Sales by Product)
4. On your main bar chart:
  - Go to Format → Tooltip → Type → Report page
  - Select your custom tooltip page



## 11. Sync slicers across multiple report pages.

### 1. Create a Slicer on the First Page

- Go to Page 1 of your report.
  - Add a slicer (e.g., for Quarter or Region).
  - Customize it as needed.
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### 2. Open the Sync Slicers Pane

- Go to the View tab in the top ribbon.
  - Click “Sync slicers” — a pane will open on the right side.
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### 3. Select the Slicer

- Click on the slicer you want to sync.
  - In the Sync Slicers pane, you'll see a list of all report pages.
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### 4. Enable Sync Options

For each page:

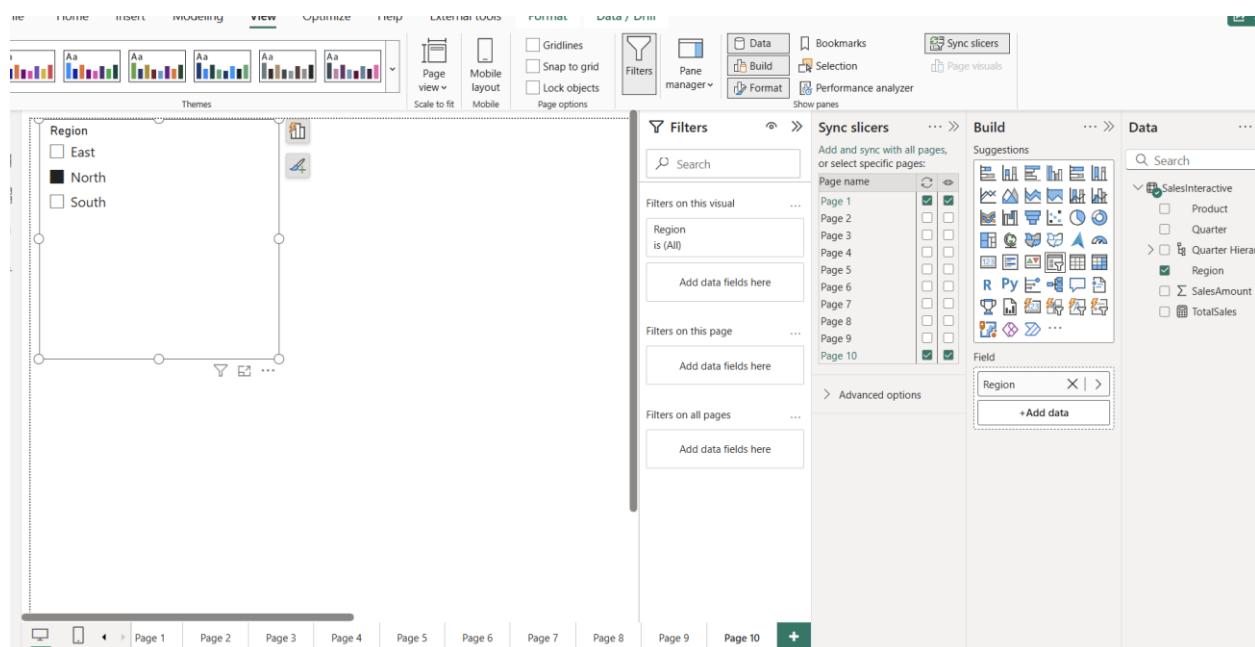
- Check “Sync” to apply the slicer’s selection to that page.
- Check “Visible” to make the slicer visible on that page (optional).

You can sync without showing it everywhere — e.g., keep it hidden on other pages but still apply the filter.

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### 5. Test It

- Go to another synced page.
- The data updates based on your slicer selection from the first page!



## 12. Create a custom visual with dynamic measure selection (e.g., Sales vs. Profit).

### Step 1: Create a Table for Measure Names

Create a new table (manually) with measure names:

1. Go to Modeling tab → click “New Table”
2. Enter this DAX code:

DAX

Measure Selector = DATATABLE(

    "MeasureName", STRING,

    {

```
    {"Sales"},  
    {"Profit"}  
}  
)
```

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## Step 2: Create a Slicer

1. Add a Slicer to the report.
  2. Use the MeasureName field from the new Measure Selector table.
  3. Now the user can pick Sales or Profit from the slicer.
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## Step 3: Create a Dynamic Measure with SWITCH()

Now create a dynamic measure using SWITCH() to respond to slicer selection:

Go to Modeling → New measure and paste:

DAX

Selected Measure Value =

SWITCH(

    SELECTEDVALUE('Measure Selector'[MeasureName]),

    "Sales", SUM(SalesData[SalesAmount]),

    "Profit", SUM(SalesData[ProfitAmount])

)

Replace SalesData with your actual table name

SalesAmount and ProfitAmount are your actual columns or base measures

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## Step 4: Use in Visual

1. Create a Bar Chart or Line Chart
2. Add Region (or any dimension) to the X-axis
3. Use the Selected Measure Value measure in the Y-axis (Values)

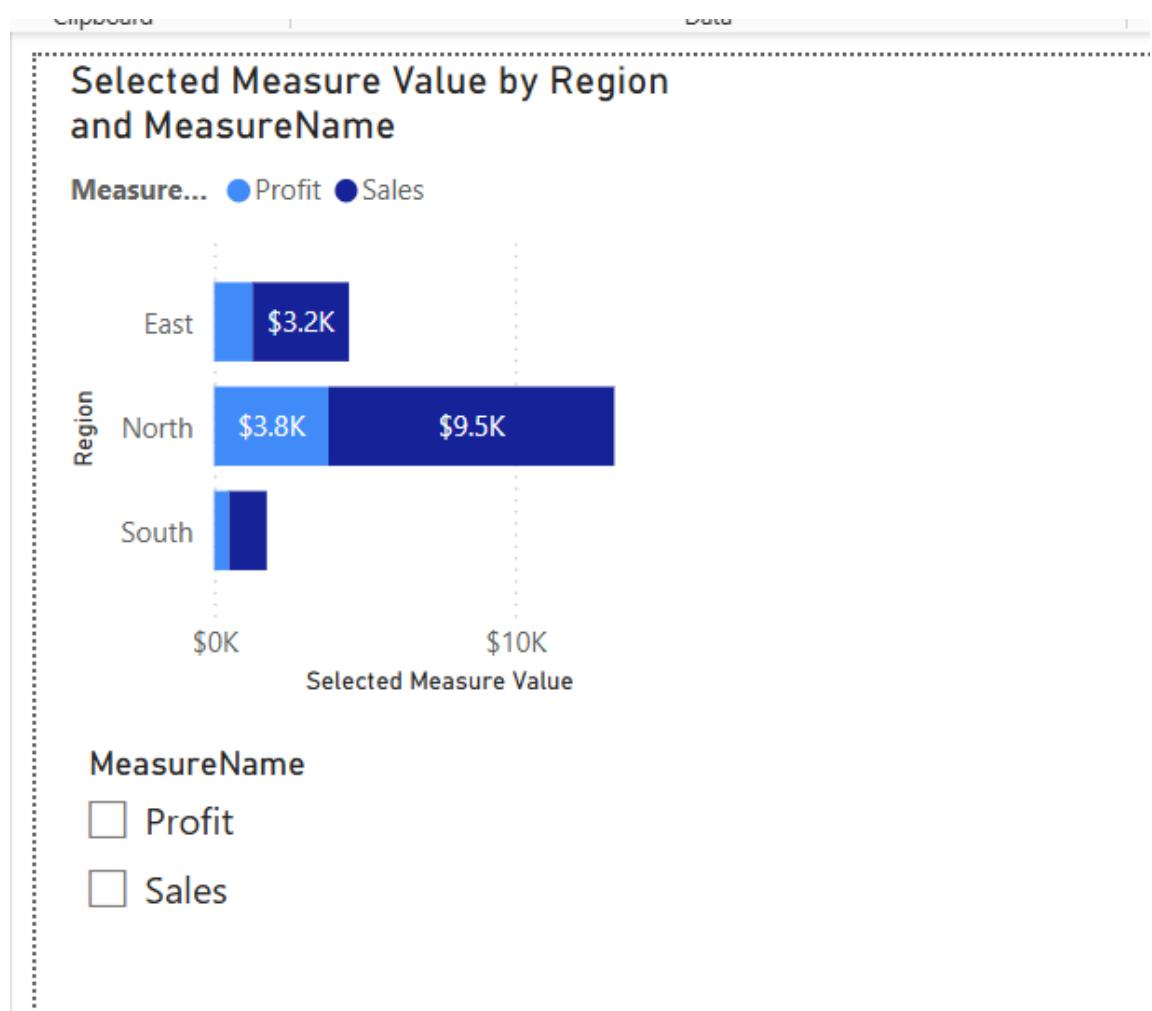
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Now:

- When users select Sales or Profit in the slicer,
  - The visual will update dynamically with the chosen metric.
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Optional:

- Format numbers as currency
- Add more KPIs (like Cost, Revenue) to the measure table
- Hide the Measure Selector table from report view if needed



### 13. Implement a hierarchy for Region > Product > Quarter drill-down.

1. Open Fields Pane
- In Power BI, go to the Fields pane on the right side.
  - Locate your data table (e.g., SalesData).

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- ◆ 2. Create a Hierarchy
  - Right-click on the Region field → click "Create hierarchy"
    - This creates a hierarchy with Region as the top level
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- ◆ 3. Add Levels to Hierarchy
- Drag Product into the new hierarchy (drop it below Region)
- Then drag Quarter into the hierarchy (below Product)

You now have:

Region > Product > Quarter

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- ◆ 4. Use the Hierarchy in a Visual
  - Insert a Bar Chart (or Column Chart, Matrix, etc.)
  - Drag the full hierarchy into the Axis area
  - Drag a measure (like SalesAmount) into the Values area
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#### ◆ 5. Enable Drill Features

Above the chart:

- Click “Drill Down” arrow (single down arrow) to drill one level at a time
  - Use double arrow to drill all levels at once
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Now:

- Clicking on a bar in Region level shows products in that region
- Clicking again shows quarters under that product

## 14. Use bookmarks to toggle between two visuals in the same space.

## 1. Create Your Two Visuals

- Add two visuals (e.g., a Bar Chart and a Line Chart) to the same report page.
  - Place them in the same position, one on top of the other.
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### ◆ 2. Open the Selection Pane

- Go to View → Selection Pane
  - Rename your visuals (e.g., “Bar Chart” and “Line Chart”) to identify them easily.
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### ◆ 3. Create First Bookmark

- In the Selection Pane, hide the Line Chart (click the eye icon next to it).
  - Go to View → Bookmarks Pane
  - Click Add and rename this bookmark as “Show Bar”
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### ◆ 4. Create Second Bookmark

- In the Selection Pane, hide the Bar Chart and show the Line Chart
  - Click Add in the Bookmarks Pane and rename as “Show Line”
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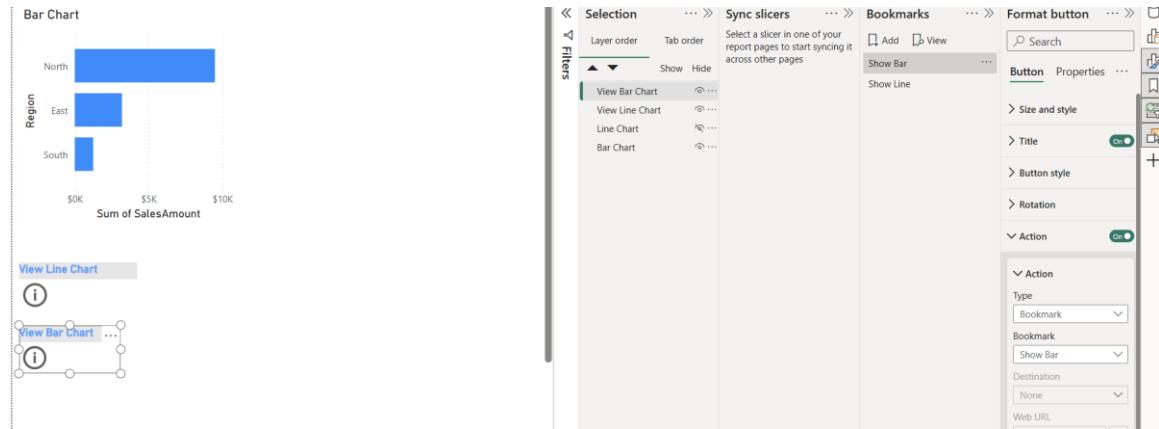
### ◆ 5. Add Toggle Buttons

- Insert two buttons or shapes from the Insert tab
  - Label them: “View Bar Chart” and “View Line Chart”
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### ◆ 6. Assign Bookmarks to Buttons

- Select the “View Bar Chart” button → go to Format → Action → Turn On
- Set action type to Bookmark → choose Show Bar

- Repeat for “View Line Chart” → assign Show Line bookmark



## 15. Optimize a slow-rendering report with 10+ visuals.

### 1. Use Aggregated Data

- Pre-aggregate data in your source or Power Query, reducing row count.
  - Avoid detailed row-level data if not needed.
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### ◆ 2. Limit Visuals per Page

- Split report across multiple pages with fewer visuals per page.
  - Avoid overcrowding one page.
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### ◆ 3. Simplify DAX Measures

- Optimize DAX formulas for efficiency.
  - Avoid complex or repeated calculations in visuals; use calculated columns or aggregated tables instead.
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### ◆ 4. Disable Auto Date/Time

- Go to File → Options → Data Load → uncheck Auto Date/Time to speed up model.
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### ◆ 5. Use Import Mode Instead of DirectQuery

- Import data when possible for faster interaction.

- DirectQuery can slow down visuals due to real-time queries.
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- ◆ 6. Reduce Data Model Size

- Remove unnecessary columns or tables.
  - Use numeric keys instead of text for relationships.
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- ◆ 7. Turn off Unnecessary Interactions

- Use Edit Interactions to disable filtering between visuals that don't need it.
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- ◆ 8. Optimize Visuals

- Avoid using too many complex visuals.
  - Use simple visuals like tables or cards where possible.
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- ◆ 9. Use Bookmarks or Drillthrough

- Show detailed visuals only on demand using bookmarks or drillthrough pages.
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- ◆ 10. Enable Query Reduction Options

- Go to File → Options → Query Reduction to reduce queries sent to the data source.