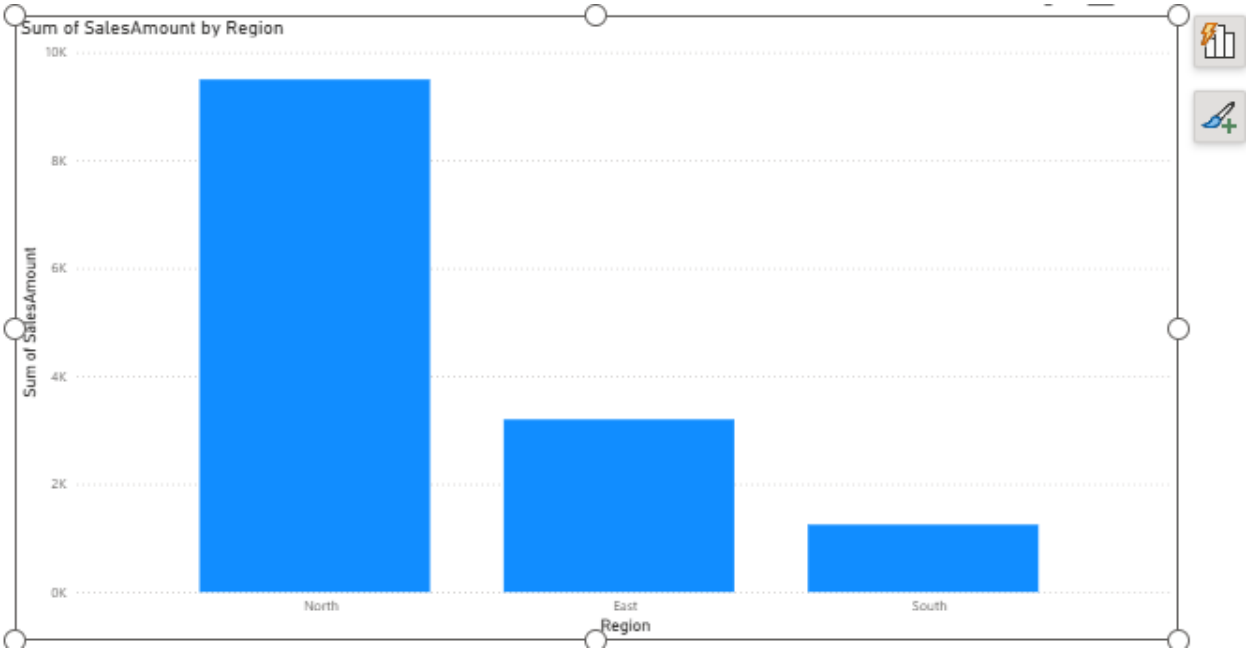
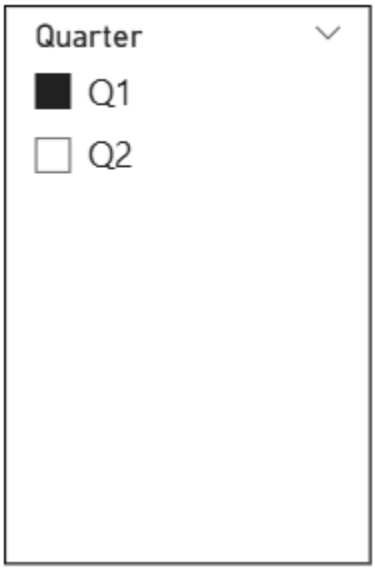
Lesson 6

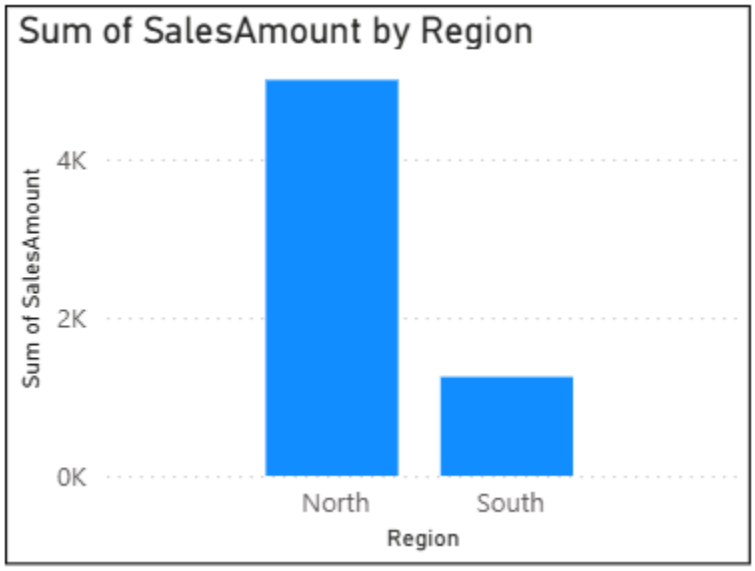
Topic: Creating Basic Visualizations & Adding Interactivity to Visuals
Prerequisites: Download Sales_Interactive.xlsx file.

1. Name three types of visuals you can create in Power BI.
    - pie charts, line charts and maps
2. How do you add a slicer to a report?
    - To add a slicer in Power BI, first select the Slicer icon in the Visualizations pane, then drag a field from the Fields pane into the new slicer visual on your report canvas. We can then customize the slicer's layout and appearance through the Format visual tab in the Visualizations pane, choosing options like list, dropdown, or tile styles, and adjusting fonts, borders, and colors to match your report.
3. What is the difference between a bar chart and a column chart?
    - In Power BI, the primary difference is bar charts use horizontal bars to display data, while column charts use vertical bars. Bar charts are often preferred for categories with long names or to emphasize horizontal comparisons, whereas column charts are ideal for comparing values across categories or showing changes over a period of time, especially with shorter category names.
4. How do you change the color of a visual background?
    - To change a Power BI visual's background color, select the visual, then in the Format pane (paint brush icon), go to the Effects section and expand the Background options. Turn the background toggle to On, select a desired color from the dropdown, and adjust the transparency using the slider.
5. What does "drill-down" mean in a visual?
    - In Power BI, "drill-down" allows you to move from a high-level, summarized view of data to a more granular, detailed level within a single visual. By clicking on a data point, such as a bar or segment, and enabling the drill-down feature, you can explore underlying information within defined data hierarchies, like moving from yearly sales data to quarterly, monthly, or even daily figures. This interactive function helps users discover deeper insights and trends that might not be apparent in the high-level summary, making reports more dynamic and insightful.
6. Create a bar chart showing SalesAmount by Region.

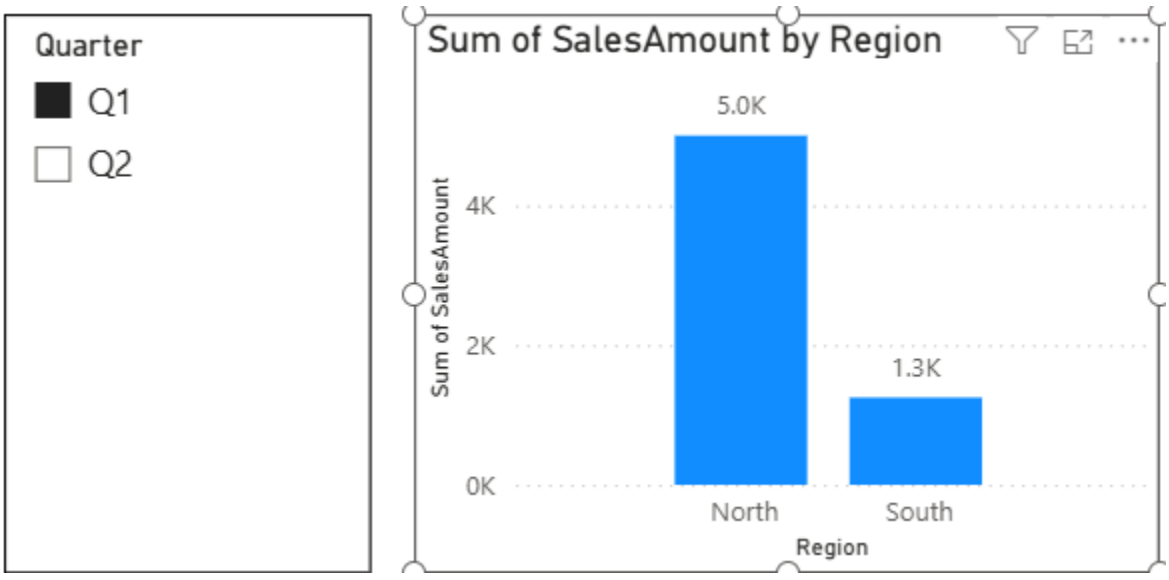


7. Add a slicer for Quarter to filter all visuals on the page.

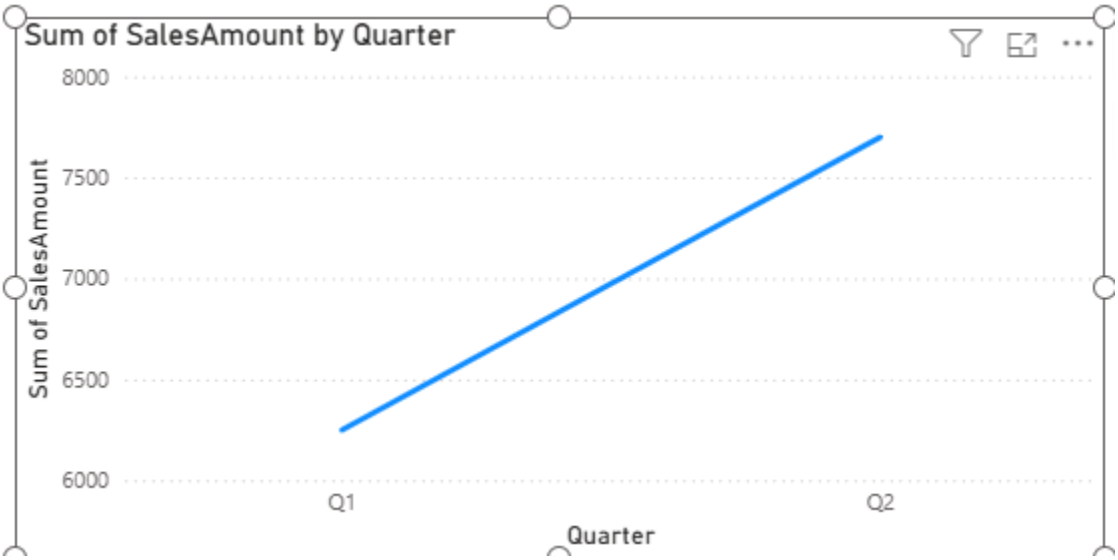




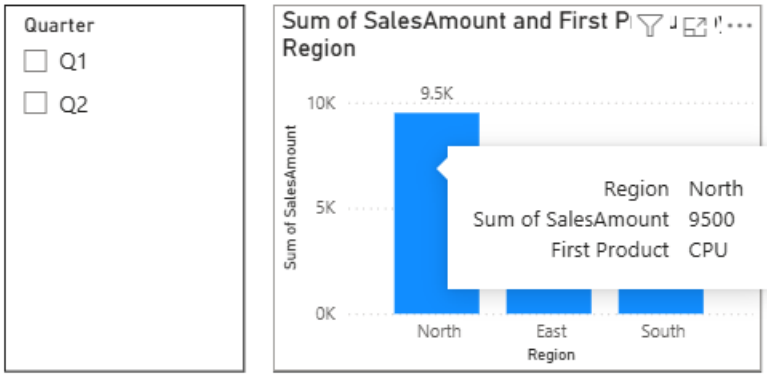
8. Format the bar chart to show data labels.



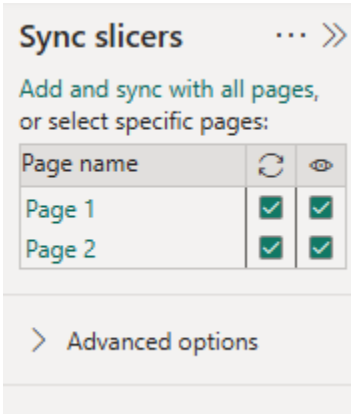
9. Use a line chart to show SalesAmount trends over Quarter.



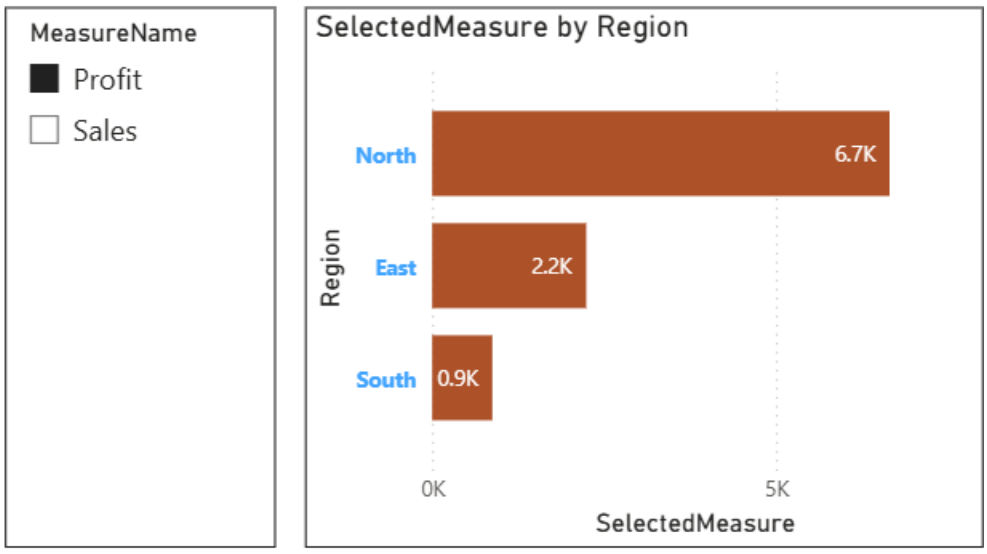
10. Add a tooltip to display Product details when hovering over bars.



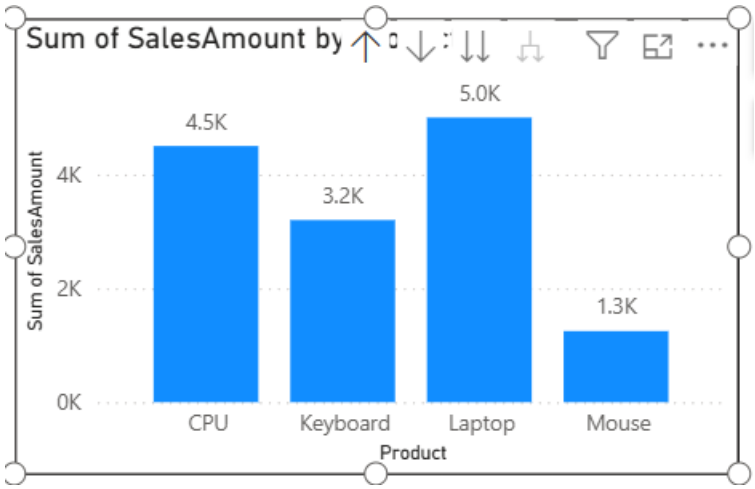
11. Sync slicers across multiple report pages.
    - To sync slicers across multiple Power BI report pages, first, select the slicer you wish to sync. Then, on the View ribbon, click on the Sync slicers option to open the Sync slicers pane. In this pane, check the box for each page you want the slicer to appear on, and also use the Sync (book) icon to apply the selection across those pages, and the Visibility (eye) icon to make the slicer visible on them.



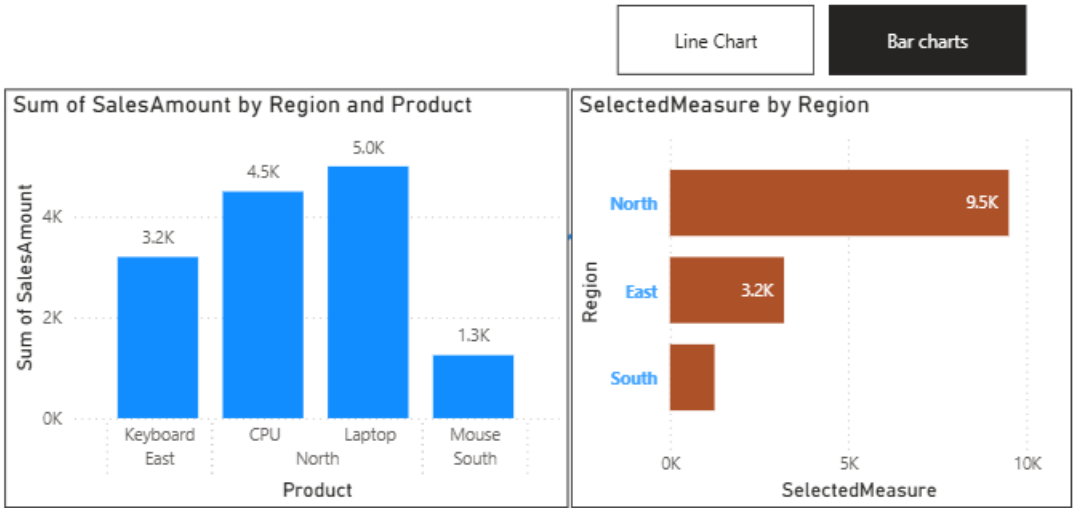
12. Create a custom visual with dynamic measure selection (e.g., Sales vs. Profit).



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



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



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

    1. Optimize the Data Model:

    Reduce Data Volume: Remove unnecessary columns and rows in Power Query. Use data types that require less storage (e.g., integers instead of text where applicable).

    Star Schema Design: Structure your data model with fact tables and dimension tables for efficient querying.

    Aggregations: Pre-aggregate data at the source or use Power BI's aggregation features to reduce the amount of detailed data processed by visuals.

DAX Optimization: Simplify complex DAX measures and calculated columns. Avoid row-by-row calculations where possible and leverage efficient DAX functions.

Relationships: Ensure relationships are correctly defined and avoid bidirectional relationships unless absolutely necessary, as they can impact performance.

2. Optimize Visuals and Report Design:

Limit Visuals per Page: Reduce the number of visuals on a single page to minimize rendering time and query complexity. Consider using bookmarks or drill-through for navigation instead of displaying all information at once.

Choose Efficient Visuals: Prioritize built-in Power BI visuals over custom visuals, as they are generally more optimized for performance.

Simplify Visuals: Reduce the complexity of individual visuals by limiting data points, using aggregations, and simplifying formatting.

Optimize Slicers and Filters: Use dropdown slicers instead of list slicers for large lists. Limit the number of slicers and filters on a page.

Disable Unnecessary Interactions: Turn off cross-highlighting and cross-filtering between visuals where not essential to reduce the number of queries fired.

Utilize New Card Visual with Small Multiples: For displaying multiple related metrics, consider using the new card visual with small multiples to consolidate information into a single, efficient visual.

3. Performance Monitoring and Environment:

Performance Analyzer: Use Power BI Desktop's Performance Analyzer to identify the slowest visuals and queries in your report.

Power BI Premium: If available, leverage Power BI Premium features like query caching and dedicated capacity for improved performance.

Data Gateway Optimization: Ensure your on-premises data gateway is properly configured and sized for efficient data transfer.