2.2. Student Handout

Student Handout: Advanced Visualizations in Power BI

Introduction to Advanced Visualizations

Advanced visualizations in Power BI are complex and interactive visuals that go beyond basic charts. They help present complex data in a simplified manner, allow dynamic interaction, and enable storytelling with data.

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1. Tree Maps, Waterfall Charts, and Gauge Charts

Tree Maps

- **Definition**: Displays hierarchical data using nested rectangles. The size of each rectangle represents the value of that category.
- **Examples**:

1. Visualizing company revenue by department.
2. Displaying market share by product category.
3. Showing population distribution by region.

Waterfall Charts

- **Definition**: Illustrates how an initial value is affected by a series of positive or negative changes.
- **Examples**:

1. Analyzing profit changes over a fiscal year.
2. Tracking budget allocations and expenditures.
3. Understanding changes in inventory levels.

Gauge Charts

- **Definition**: Shows progress toward a goal, similar to a speedometer.
- **Examples**:

1. Monitoring sales targets.
2. Tracking project completion status.
3. Measuring customer satisfaction scores.

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2. Maps and Geographic Data Visualizations

- **Definition**: Plots data points on a map to show geographic data concentrations.
- **Examples**:

1. Displaying sales distribution across different states.
2. Mapping customer locations for a retail chain.
3. Visualizing the spread of a marketing campaign.

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3. Using Custom Visuals from Power BI Marketplace

- **Definition**: Download custom visuals from the Power BI Marketplace to enhance reports.
- **Examples**:

1. Using a Sankey Diagram to show data flow between categories.
2. Implementing a Radar Chart for performance analysis.
3. Applying a Heat Map for density visualization.

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4. Creating Interactive Reports and Dashboards

- **Definition**: Allows users to interact with visuals to filter data and explore different aspects.
- **Examples**:

1. Clicking on a region to filter sales data by location.
2. Selecting a product category to view detailed sales metrics.
3. Interacting with time filters to analyze trends over specific periods.

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5. Linking Visuals with Drill-Throughs and Cross-Filtering

- **Definition**: Drill-throughs enable detailed data exploration, while cross-filtering updates visuals based on selections.
- **Examples**:

1. Drilling through a sales chart to view individual transactions.
2. Cross-filtering a dashboard by selecting a specific product.
3. Exploring customer demographics by clicking on a region.

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6. Using Bookmarks and Page Navigation for Storytelling

- **Definition**: Bookmarks save report states, allowing users to navigate through a data narrative.
- **Examples**:

1. Creating bookmarks for different stages of a sales funnel.
2. Navigating through quarterly performance highlights.
3. Presenting a step-by-step analysis of a marketing campaign.

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7. Enhancing Visuals with Tooltips and Conditional Formatting

- **Definition**: Tooltips provide additional information on hover, while conditional formatting changes visual appearance based on data.
- **Examples**:

1. Displaying profit margins in tooltips for sales figures.
2. Highlighting top-performing products with conditional formatting.
3. Showing additional metrics in tooltips for customer satisfaction scores.

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8. Customizing Tooltips for Deeper Insights

- **Definition**: Customize tooltips to show detailed information or additional visuals.

- **Examples**:

1. Including profit and loss details in sales tooltips.
2. Displaying customer feedback scores in tooltips for service metrics.
3. Showing related product recommendations in tooltips for sales data.

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9. Best Practices for Designing Effective Visual Reports

- **Guidelines**:
- Keep visuals simple and uncluttered.
- Use consistent colors for clarity.
- Tell a story with bookmarks, drill-throughs, and tooltips.

Hands-On Exercise: Building a Dynamic Dashboard

1. **Create a Tree Map** to show sales by product category.
2. **Add a Waterfall Chart** to illustrate sales changes over time.
3. **Use a Gauge Chart** to display progress toward sales targets.
4. **Add a Map** to visualize sales by region.
5. **Use Bookmarks** to guide users through the data narrative.

Conclusion

By mastering advanced visualizations in Power BI, you can create dynamic, interactive, and insightful reports that facilitate better decision-making. Choose the right visual for your data and always consider your audience's needs.