VISUALIZING US NATURAL DISASTER DECLARATION – TRENDS AND PATTERNS

Week 7 Documentation

Visualization and Dashboard Design in Power BI

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1. Introduction

Week 7 focused on **visualization principles, dashboard creation, and storytelling with dashboards** in Power BI. Emphasis was placed on chart selection, layout organization, colour conventions, KPI cards, slicers, and storytelling flow.

2. Visualization Principles

2.1 Clarity and Purpose

- Dashboards must be concise and free of unnecessary decorations.
- Each visualization should answer a specific analytical question.
- **Rule:** One problem can be represented by one chart, or multiple charts if needed — but avoid duplicating the same chart (with identical values).

2.2 Titles and Color Palette

- **Title:** Must be clear, unique, and understandable.
- **Color Palette:** Stick to one consistent palette across the dashboard.
- **Color Conventions:**
    - Red → Alerts / negative outcomes.
    - Green → Positive outcomes / good performance.

2.3 KPI Cards

- KPI cards are the **second most important element after the title**.
- Use 2–3 KPI cards to highlight critical metrics (e.g., total revenue, total incidents etc).
- KPI cards must be distinct and not duplicated.

3. Dashboard Layout

3.1 Adding Dashboards

- To add a new dashboard page → click the "+" page icon in Power BI.

3.2 Placement of Key Metrics

- Important details (e.g., total revenue, total disasters) should be displayed in KPI cards at the top.

- Dashboards should be divided into parts:
    - **Quadrants** (four sections).
    - **Levels** (stacked sections).

3.3 Mandatory Charts

- **Pie Chart:** For classification and categorical breakdowns.
- **Line Chart:** For time series analysis (requires a time data type column).

3.4 Enhancing User Experience

- Use **slicers** to allow interactive filtering.
- Include legends for classification and clarity.

4. Storytelling with Dashboards

4.1 Narrative Flow

- Start from the **top-left corner** of the dashboard.
- Each visual should connect logically to the next, creating a flow of insights.
- The dashboard should guide the user step by step, building context as they move across visuals.

4.2 Ending with Insights

- By the end of the dashboard, provide a **prediction or suggestion** based on the data.
- This ensures the dashboard is not just descriptive but also **action-oriented**.

5. Best Practices

- Avoid repeating the same chart with identical values.
- Ensure each chart answers a defined analytical question.
- Maintain consistency in design (titles, colours, layout).
- Use KPI cards strategically to highlight the most important metrics.
- Divide dashboards into logical sections for readability.
- Apply storytelling principles to connect visuals and conclude with actionable insights.

6. Outcome of Week 7

By the end of Week 7:

- Learned how to design dashboards that are concise, clear, and purposeful.
- Understood the importance of titles, color palettes, and KPI cards.
- Practiced storytelling with dashboards, ensuring visuals connect logically and end with predictions or recommendations.