LEVEL5_Visualization_Approach

Visualization Approach

To present the analytical insights derived from `fact_shipments_weather`, the following tools are recommended:

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1. Power BI *(Preferred for Business Dashboards)*

- **Why**: Industry-standard BI tools ideal for creating interactive dashboards and sharing insights with non-technical stakeholders.
- **Use Cases**:
  - City-wise average fuel consumption trends
  - Hottest hour per city
  - Rain impact on fuel efficiency
  - Correlation heatmaps (e.g., windspeed vs fuel usage)
  - Daily weather summaries per city

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2. Python (Matplotlib, Seaborn, Plotly)

- **Why**: Suitable for fast iteration, statistical exploration, and custom visualizations in notebooks.
- **Use Cases**:
  - Correlation plots between weather features and fuel usage
  - Time-series visualizations for temperature, windspeed, precipitation
  - Scatter plots for regression or pattern detection

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3. DBeaver

- **Why**: Useful during development for validating analytical SQL queries and previewing data before building visuals.
- **Use Cases**:
  - Quick aggregation checks
  - Validating JOIN logic and distinct groupings
  - Previewing query results before exporting to BI tools

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4. Streamlit *(Optional for Lightweight Demos)*

- **Why**: Allows building an interactive web app to showcase insights from the fact table.
- **Use Cases**:
  - City filter + fuel/temperature overlay
  - Trend explorer with sliders and filters
  - Internal stakeholder demo interface

> These tools collectively cover exploratory, presentation, and stakeholder communication needs, making the analytics pipeline end-to-end complete.