Part 1: Maps & Geocoding

Task 1: Basic Map Showing Sales by Country

1. Load `sales_with_geodata.csv`.
   (It should have columns like `Country, Region, City, Latitude, Longitude, Sales, Category`.)
2. Insert **Map visual** →
   - o Location: `Country`
   - o Size: `SUM(Sales)`
   - o Tooltip: `Country, Total Sales`.

Task 2: Use Latitude and Longitude for Precise Mapping

- Insert another **Map visual**.
- Drag:
  - o Latitude → `Latitude` column
  - o Longitude → `Longitude` column
  - o Size → `SUM(Sales)`
  - o Tooltip → `City, Sales`.
    This ensures exact city placement, avoiding country-level ambiguity.

Task 3: Plot Total Sales by City

- Use **Map or Filled Map**.
- Location: `City`
- Size: `SUM(Sales)`
- Tooltip: `City, Sales`.
  If duplicates exist, Power BI will ask for **Country/Region** hierarchy → add them to avoid conflicts.

Task 4: Region-wise Sales Heatmap (Shape Map)

1. Enable Shape Map: *File → Options → Preview Features → Shape Map Visual*.
2. Add **Shape Map** visual.
3. Location → `Region`
4. Color saturation → `SUM(Sales)`
5. Format → Map settings → Select map (World, Country, Region).
   This gives a heatmap by shading regions based on sales.

Task 5: Map Drill-Down (Country → Region → City)

- Create a hierarchy: `Country → Region → City`.
- Insert a Map visual.
- Drag hierarchy into **Location**.
- Turn on **Drill Mode** (bottom toolbar).
  Now user can drill down from Country → Region → City interactively.

Part 2: Formatting & Annotations

Task 6: Customize Map Visual – Titles, Colors, Labels

- Select map → Format pane →
  - Title: Rename (e.g., *"Global Sales by Country"*)
  - Data colors: Custom palette
  - Category labels: Turn ON (shows city names).

Task 7: Conditional Formatting for Bubble Colors

- In Format → Data colors → Click **fx** → Conditional formatting.
- Base on field: `Sales`
- Gradient: Green → Red (High → Low).
  This highlights strong vs weak sales cities.

Task 8: Add Annotations to Highlight Key Cities

- Use **Text Box / Shapes** in report page.
- Place next to important cities (e.g., "Highest Sales City: New York").
- Optionally add **Smart Narrative visual** → Auto summary of sales.

Task 9: Create a Tooltip Page with Detailed Info

1. Add new Page → Page Information → Enable *Tooltip*.
2. Add visuals: Card (Sales), Table (Product breakdown), etc.
3. On Map visual → Format → Tooltip → Set to custom tooltip page.
   Hovering over a city will show full sales info.

Task 10: Add a Slicer to Filter the Map by Category

- Insert **Slicer** → Field: `Category`.
- Connect it to map visuals.
  Now you can view sales geography by category (e.g., Electronics, Clothing).