**1. Data Import & Cleaning**

* **Import the dataset** (from CSV/Excel or paste into Power BI).
* **Transform columns**:
  + Split "Altitude" ranges into Min Altitude and Max Altitude.
  + Convert sensory and numeric columns (e.g. Aroma, Flavor) to Decimal Number.
  + Format dates like Grading Date, Expiration to Date type.
  + Remove special characters from column names.

**2. Data Modeling**

* No need for a complex STAR schema unless more datasets are added.
* Create calculated columns:
  + Total Cup Points Check = Sum of all sensory scores.
  + Altitude Average = (Min Altitude + Max Altitude) / 2 (if applicable).
* Create measures for:

DAX

CopyEdit

Avg\_TotalCupPoints = AVERAGE('CoffeeData'[Total Cup Points])

Defect\_Impact\_Score = SUM('CoffeeData'[Category One Defects]) + SUM('CoffeeData'[Category Two Defects])

**3. Key Visualizations**

**📊 Dashboard 1: Sensory Attributes**

* **Radar/Spider Chart**: Compare Aroma, Flavor, Aftertaste, Acidity, etc.
* **Stacked bar/clustered chart**: Total Cup Points by Country.
* **Matrix Table**: Processing Method × Country with Avg Total Cup Points.

**🌎 Dashboard 2: Geographic & Processing Analysis**

* **Map visualization**: Coffee quality score by Country or Region.
* **Treemap/Pie chart**: Distribution of Processing Methods.
* **Line chart**: Coffee Quality Trends over Grading Years.

**⚠️ Dashboard 3: Defect Analysis**

* **Bar chart**: Count of Category One vs Two Defects by Country.
* **Scatter plot**: Defects vs. Total Cup Points (see correlation).
* **Heatmap**: Defect categories vs Processing Methods.

**🧠 Dashboard 4: What-If & Correlation**

* Add **What-If parameter slicers** for:
  + Altitude
  + Moisture %
* Use **Correlation Matrix** visuals (via custom visual or R integration) to evaluate relationships between sensory attributes and quality.

**4. Filters & Slicers**

Add dynamic slicers:

* Country of Origin
* Processing Method
* Harvest Year
* Coffee Variety
* Score Range (Total Cup Points)

**5. Insights & KPI Cards**

* **KPI Cards** for:
  + Highest scoring origin
  + Average Cup Score
  + Most common processing method
* Add **Tooltips** with key metrics on hover.

**🧠 Answers to Research Questions**

1. **Key Determinants of Coffee Quality**: Use correlation matrix and scatter plots.
2. **Processing/Region Influence**: Use matrix and map visualizations.
3. **Defect Impact**: Plot Total Cup Points vs Defect Count.
4. **Interaction Effects**: Use tooltips, DAX measures, and What-If sliders.

**✅ Deliverables**

You’ll end up with:

* A clean Power BI report with 4 interactive dashboards.
* Measures and KPIs to answer core research questions.
* Slicers to simulate "what-if" scenarios.
* Custom visuals to enhance storytelling.

Would you like me to help you create this Power BI report from scratch, provide DAX formulas, or guide you through building a specific dashboard?

4o

**You said:**