Project Documentation

1.Project Overview & Objectives

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3.Data Collection & Preprocessing

- Data Sources: Data was sourced from global agricultural databases focusing on annual production volumes in tonnes.
- Raw Data Identified:
    - **Cereal Dataset:** Covers Rice, Wheat, and Maize.
    - **Beverage Dataset**: Covers Tea and Green Coffee production.
    - **Fruit Dataset**: Includes Grapes, Apples, Bananas, Avocados, and Oranges.
- **Preprocessing**: Data was curated to ensure integrity and categorized by "Entity" (Region) and "Year" to facilitate time-series and geographical analysis.

4. **Business Questions & Visualizations**

The analysis was structured around eight key business scenarios to answer specific production questions:

Scenario	Business Question	Visualization Type
1 & 2	What is the total global production volume for Rice and Wheat?	KPI Cards
3	How does current Tea production compare to historical scales?	Gauge Chart
4	Which regions lead in Green Coffee production?	Bar Chart
5	How have Wheat, Maize, and Rice	Area Chart

	production levels evolved over time?	
6	What is the regional distribution of major fruit production?	Stacked Bar Chart
7	How has Maize production evolved annually?	Donut Chart
8	Which fruit holds the highest total global production volume?	Bar Chart

5. Dashboard Design Strategy

- Layout Structure: The dashboard was designed with a top-to-bottom hierarchy, placing high-level totals (Cards/Gauges) at the top for immediate visibility, followed by trend analysis (Area Charts) in the center, and regional comparisons (Bar Charts) at the base.
- Interactivity: Key design features include interactive slicers for filtering by Year and Entity to allow for granular data exploration.

6. Key Findings & Strategic Outcomes

- Staple Dominance: Wheat production reached 203 billion tonnes, while rice reached 206 billion tonnes, representing the highest volumes in the study.
- Growth Trends: Maize production showed consistent growth, particularly from the late 1980s onward.
- Market Leadership: Grapes are the leading fruit commodity at 30 billion tonnes.
- Regional Insight: Africa emerged as the primary producer for green coffee, while Europe and Asia are key contributors to global fruit production.

7. Final Recommendations

1. Supply Chain Focus: Optimize logistics for high-growth staples like Wheat and Maize based on historical trajectories.
2. Regional Sourcing: Strengthen partnerships in Africa for Coffee and Asia/Europe for high-volume fruit sectors like Grapes and Apples.
3. Future Forecasting: Utilize the established Power BI framework to update production data annually for proactive market positioning.

8. Project Deliverables Inventory

- Raw Data Report: Detailed catalog of source datasets.
- Power BI Dashboard (.pbix): Interactive visual analytics tool.

- Dashboard Design Template: Blueprint for UI/UX layout.
- Final Data Analysis (DA) Report: This comprehensive documentation of project results.