Project Initialization and Planning Phase

Date	30 September 2025
Team ID	SWUID20250181744
Project Title	Global Food Production Trends and Analysis: A Comprehensive Study from 1961 to 2023 Using Power BI
Maximum Marks	3 Marks

Project Proposal (Proposed Solution)

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	To analyze and visualize global food production trends from 1961 to 2023 using Power BI, providing ABC Company with actionable insights on crop performance, regional contributions, and long-term agricultural patterns to aid strategic decision-making.
Scope	The project focuses on collecting, cleaning, and analyzing agricultural production data for key commodities such as rice, wheat, maize, tea, coffee, grapes, apples, bananas, and oranges. The analysis is limited to production quantities (in tonnes) and covers the period 1961–2023 across global regions. The deliverables include a Power BI dashboard, trend visualizations, and a comprehensive analytical report.
Problem Statement	
Description	ABC Company faces difficulty understanding and interpreting global food production data due to its massive scale, fragmented sources, and lack of a unified analytical system. Traditional reports and spreadsheets do not provide the interactive insights required for data-driven planning and forecasting.
Impact	Developing an interactive Power BI dashboard will enable ABC Company to monitor long-term food production trends, identify emerging patterns, and make informed strategic decisions in the agricultural sector. This enhances efficiency, data accessibility, and

	evidence-based planning across teams.
Proposed Solution	
Approach	The project will follow a structured data analytics workflow: 1. **Data Collection:** Acquire datasets from FAO and verified open data sources covering 1961–2023. 2. **Data Preparation:** Clean, normalize, and transform the data using Power Query in Power BI. 3. **Data Modeling:** Build a star schema model with fact and dimension tables (Commodity, Country, Year). 4. **Visualization:** Create Power BI visuals such as bar charts, area charts, KPI cards, and maps. 5. **Dashboard Development:** Integrate visuals into an interactive dashboard with filters and slicers. 6. **Reporting & Testing:** Generate insights, document methodology, and validate performance.
Key Features	• Interactive Power BI dashboard covering 8 major scenarios (rice, wheat, maize, tea, coffee, fruits, regional contributions, and comparative trends). • Real-time filtering by year, country, and commodity. • Trend analysis and performance tracking from 1961–2023. • KPI cards and area charts for high-level insights. • Drill-down and dynamic slicers for flexible exploration. • Comprehensive documentation and demo presentation.

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	Intel Core i7 / Ryzen 7 processor (8 cores)
Memory	RAM specifications	16 GB RAM
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Power BI Desktop for data	Power BI (latest version)

	visualization and analysis	
Libraries	Power Query (in Power BI), DAX (for calculations)	Built-in Power BI tools
Development Environment	Power BI Desktop, Excel for preprocessing, GitHub for version tracking	Microsoft Power BI, Excel, GitHub
Data		
Data	Source, size, format	Kaggle dataset, 2.14MB, csv/excel format