**Project Initialization and Planning Phase**

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| 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.

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| **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**

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| **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 visualization and analysis | Power BI (latest version) |
| 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 |