Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	15 March 2025
Team ID	PNT2025TMID07288
Project Name	Global Food Production Trends and Analysis: A Comprehensive Study from 1961 to 2023 Using Power BI
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

Functional Requirements (FRs) in Five Steps

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)	Description	Priority
FR-1	User Registration	Registration through Form	Users can register using their email and password via a form.	High
		Registration through Gmail	Users can sign up using Gmail authentication (OAuth).	High
		Registration through LinkedIn	Users can register via LinkedIn credentials for ease of access.	Medium
FR-2	User Confirmation	Confirmation via Email	Users receive a verification email after registration.	High
		Confirmation via OTP	Users can verify their accounts using an OTP sent via SMS/email.	High
FR-3	Data Collection & Integration	Collect historical food production data	The system integrates datasets from global sources (FAO, World Bank, etc.).	High
		Data Cleaning & Preprocessing	Handle missing values, duplicate data, and ensure consistency.	High
FR-4	Data Visualization & Reporting	Dashboard Design	Create Power BI dashboards to visualize global food production trends.	High
		Report Generation	Generate detailed reports based on country, crop type, and production trends.	High
FR-5	Performance Optimization	Real-Time Data Processing	Optimize queries to ensure dashboards load within 3-5 seconds.	High
		Scalability Implementation	Ensure that the system supports increasing data loads and multiple users.	Medium

Non-functional Requirements: Following are the non-functional requirements of the proposed.

Non-Functional Requirements (NFRs) Table

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	The system should have an intuitive and user-friendly interface, making it easy for users to navigate the Power BI dashboards and reports.
NFR-2	Security	User authentication (OAuth for Gmail/LinkedIn login) and data encryption should be implemented to prevent unauthorized access and ensure data privacy.
NFR-3	Reliability	The system should ensure accurate and consistent data analysis by handling missing values, erroneous data, and large datasets efficiently.
NFR-4	Performance	The Power BI dashboards should load within 3-5 seconds, and data queries should be optimized to provide real-time insights with minimal latency.
NFR-5	Availability	The system should maintain **99.9% uptime**, ensuring users can access reports and analytics at all times with minimal downtime.
NFR-6	Scalability	The solution should support increased data volume (millions of records) and multiple users accessing the system simultaneously without performance degradation.