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

Date	24 March 2025
Team ID	PNT2025TMID06810
Project Name	**Global Malnutrition Trends: A Power BI Analysis (1983-2019)**
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Ingestion	Collect malnutrition datasets from WHO, UNICEF, and World Bank Support manual upload of CSV/Excel files
FR-2	ETL (Extract, Transform, Load)	Clean missing values, remove duplicates Normalize data formats across different sources Perform aggregation by country, region, and year
FR-3	Data Storage & Processing	Store raw data in Azure Blob / AWS S3 Load transformed data into PostgreSQL / BigQuery Enable indexing for faster queries
FR-4	Data Enrichment	Merge malnutrition data with GDP, population stats Apply statistical analysis for data validation
FR-5	Machine Learning & Trend Analysis	Implement time-series forecasting for malnutrition trends Apply clustering techniques for regional insights Train regression models to correlate malnutrition with socio-economic factors
FR-6	Data Visualization	Create Power BI dashboards with interactive charts Implement geographic heatmaps for regional comparison

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Performance & Scalability	The system should process large datasets (millions of records) efficiently and support future data growth.
NFR-2	Security & Access Control	Implement role-based access control (RBAC), encryption, and multi-factor authentication (MFA) for data protection.
NFR-3	Usability & User Experience	Dashboards and reports should be user-friendly, intuitive, and support interactive visualizations.
NFR-4	Availability & Reliability	The system should have 99.9% uptime and ensure failover mechanisms for continuous operation.
NFR-5	Data Accuracy & Consistency	Data should be validated, cleaned, and free from inconsistencies before visualization.
NFR-6	Compliance & Data Privacy	Ensure compliance with GDPR, HIPAA, or other applicable data protection regulations.