Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	31 January 3035
Team ID	LTVIP2025TMID27587
Project Name	Global Malnutrition Analysis
Maximum Marks	4 Marks

Technical Architecture:

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Interactive dashboards and reports for users	Power BI
2.	Application Logic-1	Data transformation and calculations	Power Query (M language)
3.	Application Logic-2	Data modeling and relationships	DAX (Data Analysis Expressions)
4.	Application Logic-3	Custom measures and KPIs for malnutrition trends	DAX
5.	Database	Stores structured malnutrition data	SQL Database (if connected to Power BI) or Excel
6.	Cloud Database	Cloud storage for Power BI datasets	Power BI Service, Azure SQL Database
7.	File Storage	Stores datasets in various formats	Excel, CSV, SharePoint, OneDrive
8.	External API-1	Connects Power BI to real-time global data	WHO API, UNICEF API (via Power BI Web Connector)
9.	External API-2	Additional government or open data sources	Open Data API, World Bank API
10.	Machine Learning Model	AI-driven insights within Power BI	Power BI AI Insights, Cognitive Services

11.	Infrastructure (Server / Cloud)	Hosting reports and dashboards	Power BI Service, Azure Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Power BI itself is not open-source, but it supports integration with open-source data sources	N/A (Power BI is proprietary)
2.	Security Implementations	Implements role-based access control (RBAC), encryption, and secure cloud authentication	Power BI Security, Azure Active Directory (AAD), Row-Level Security (RLS)
3.	Scalable Architecture	Supports cloud-based scalability with real-time data updates and multi-user access	Power BI Service, Azure SQL, DirectQuery for large datasets
4.	Availability	Ensures high availability using cloud-based hosting and auto-refresh schedules	Power BI Service, Azure Load Balancer, Power BI Gateway
5.	Performance	Optimized with data modeling, DAX measures, caching, and incremental refresh	Power BI Performance Tuning, Aggregations, DirectQuery, Composite Models