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

Date	03 March 2025
Team ID	PNT2025TMID01141
Project Name	Global Malnutrition Trends: A Power BI Analysis (1983-2019)
Maximum Marks	4 Marks

Technical Architecture:

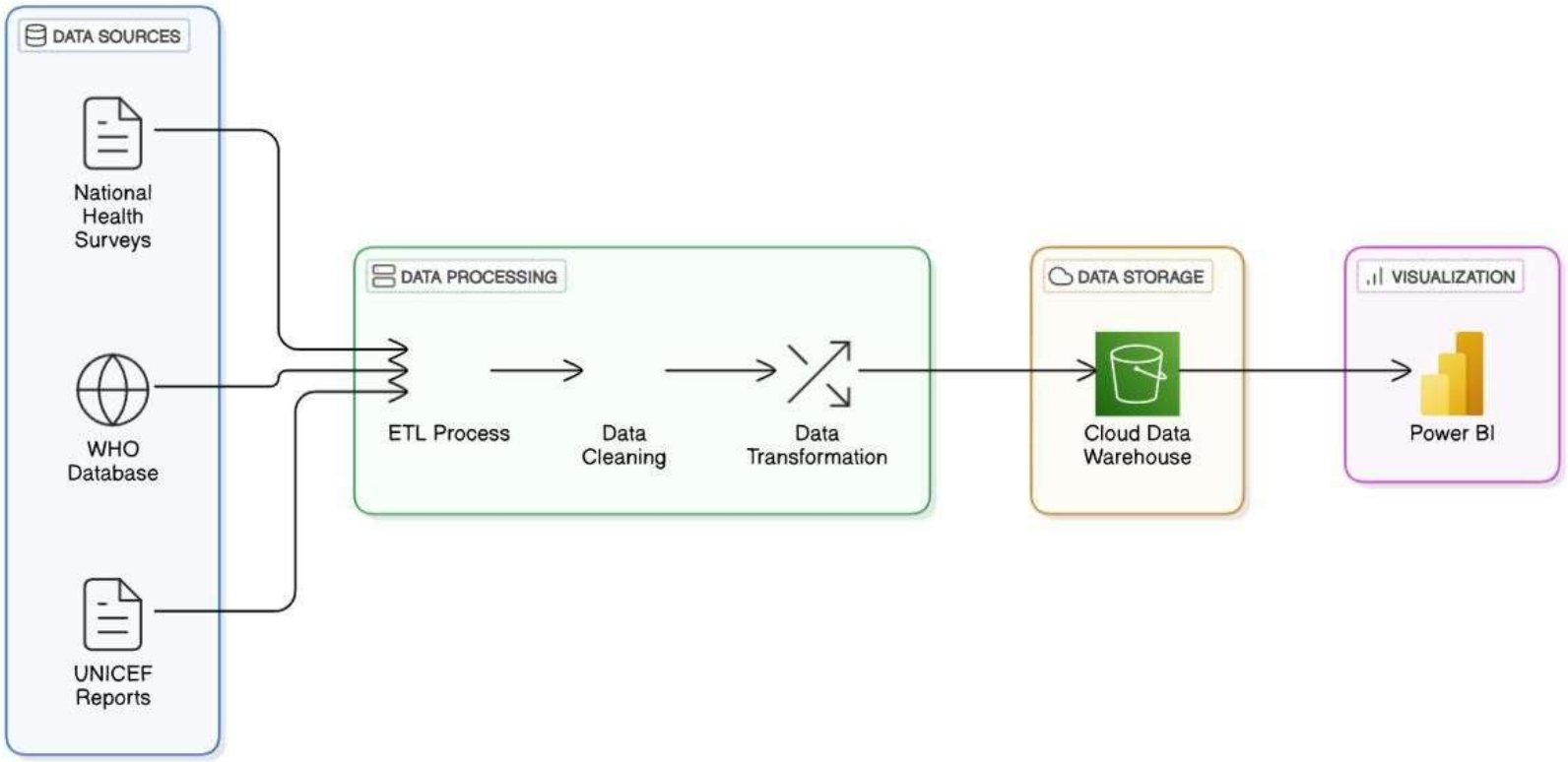

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1	Data Sources	Health surveys, WHO databases, and UNICEF reports	CSV, JSON, API endpoints
2	ETL Process	Extract, transform, and load raw data	Python, Apache Airflow
3	Data Cleaning	Clean and standardize data	Pandas, NumPy
4	DataTransformation	Transform data for analytical modeling	SQL, dbt (Data BuildTool)
5	Cloud Data Warehouse	Store processed and transformed data	Amazon Redshift, BigQuery
6	Visualization Tool	Create interactive dashboards and reports	Microsoft Power BI

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	Libraries and frameworks for data processing and transformation	Python, dbt, Flask
2	Security Implementations	Data encryption, secure API access, and role-based access control	AWS IAM, SSL, OAuth2
3	Scalable Architecture	Cloud-native, scalable components for data ingestion and analytics	Kubernetes, Docker
4	Availability	High availability via distributed data storage and load balancing	AWS S3, ELB
5	Performance	Optimized ETL, caching, and parallel processing for	Redis, Apache