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

Date	12 March 2025
Team ID	PNT2025TMID02713
Project Name	Power BI Inflation Analysis: Journeying Through Global Economic Terrain
Maximum Marks	4 Marks

S.No	Component	Description	Technology
1.	User Interface	Web-based or desktop Power BI dashboards for visualization	Power BI Service, Power BI Desktop, HTML, CSS, JavaScript (for embedded reports)
2.	Application Logic-1	Data extraction and preprocessing logic	Python (Pandas, NumPy), SQL, Power Query

3.	Application Logic-2	Data modelling and analysis using DAX	Power BI DAX, R

Technical Architecture:

The deliverable shall include the architectural diagram along with details in Table 1 & Table 2.

Example Use Case: Using Power BI for inflation analysis by collecting, processing, and visualizing global economic data from multiple sources such as the IMF, World Bank, and real-time financial APIs.

Table-1 : Components & Technologies:

4.	Database	Stores processed and raw data	MySQL, PostgreSQL, Azure SQL Database
5.	Cloud Database	Cloud-based storage and access	Microsoft Azure, AWS RDS, Google Big Query
6.	File Storage	Storing CSVs, JSON, and historical data	Azure Blob Storage, AWS S3
7.	External API-1	Economic and inflation data sources	IMF API, World Bank API, Federal Reserve API, OECD API
8.	Machine Learning Model	Forecasting future inflation trends	Scikit-Learn, TensorFlow, Power BI AI Insights
9.	Infrastructure (Server / Cloud)	Deployment on local systems or cloud	Power BI Service (Cloud), Power BI Report Server (Local), Kubernetes for scaling

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Libraries for data processing and visualization	Technology of Opensource framework
2.	Security Implementations	Data encryption, access control, and firewall protection	AES-256, SSL/TLS, IAM, RBAC, OWASP Standards
3.	Scalable Architecture	Ensuring scalability for large datasets	Cloud-based deployment, microservices
4.	Availability	Load balancing and redundancy for high uptime	Azure Load Balancer, AWS Auto Scaling
S.No	**Characteristics**	**Description**	**Technology**
5.	Performance	Optimizing Power BI reports and query execution	Caching (Redis), CDN, Power BI Direct Query

References:

- C4 Model for Architecture
- IBM Cloud Architecture
- AWS Architecture
- Power BI Best Practices