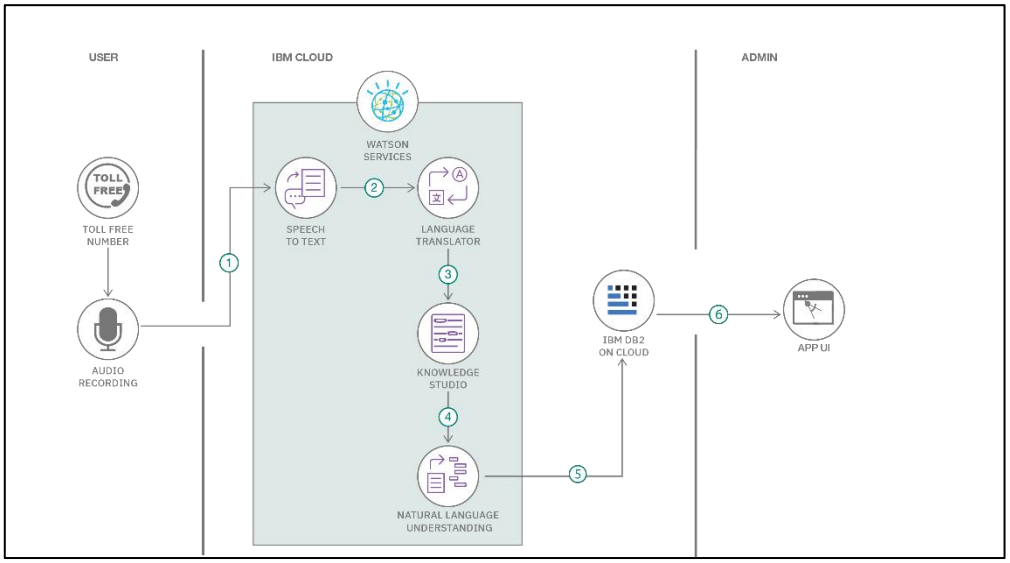
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	26 MARCH 2025
Team ID	PNT2025TMID06667
Project Name	Project - Power BI Inflation Analysis Journeying Through Global Economic Terrain.
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2



S.No	Component	Description	Technology
1	User Interface	How users interact with the system via dashboards and reports	Power BI Web UI, Power BI Embedded, React.js

2	**Application Logic-1**	Logic for real-time data processing	Python, DAX (Power BI)
3	**Application Logic-2**	Logic for predictive analytics and forecasting	Machine Learning Models (ARIMA, LSTM, Prophet)
4	**Application Logic-3**	Logic for correlation analysis (inflation vs. GDP, interest rates, etc.)	Power BI Data Model, SQL Queries
5	**Database**	Data storage and management	Azure SQL, Google BigQuery, MySQL
6	**Cloud Database**	Cloud-based storage for scalable data management	Microsoft Azure Data Lake, AWS S3, Google Cloud Storage
7	**File Storage**	Storage for financial datasets and historical inflation reports	Azure Blob Storage, AWS S3
8	**External API-1**	API integration for real-time inflation data	World Bank API, IMF API, OECD API
9	**External API-2**	API for currency exchange rates and financial news	Forex API, Financial Market APIs
10	**Machine Learning Model**	AI-driven inflation trend forecasting	ARIMA, LSTM, Prophet for time-series analysis
11	**Infrastructure (Server/Cloud)**	Application Deployment and scalability	Microsoft Azure, AWS, Google Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Python, Pandas, NumPy, Scikit-Learn, TensorFlow
2.	Security Implementations	Security & access controls for data protection	SHA-256 encryption, IAM Controls, OWASP Compliance
3.	Scalable Architecture	Justifies scalability of architecture (cloud-based, API integration, and modular services)	Microsoft Azure, AWS Lambda, Power BI Embedded
4.	Availability	Ensuring high availability using cloud infrastructure)	Load Balancers, Distributed Servers, Power BI Service
5.	Performance	Optimization for handling large datasets & real-time updates	Power BI DirectQuery, Data Caching, CDNs, API Rate Limiting