

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

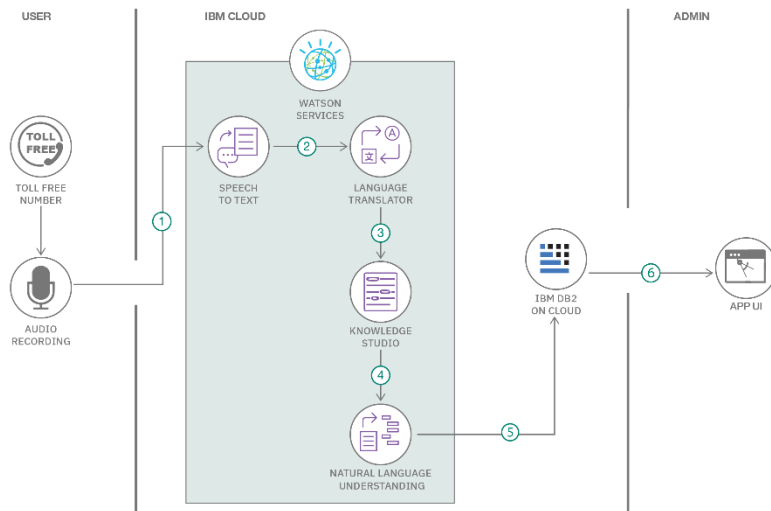
Date	10 January 2026
Team ID	LTVIP2026TMIDS34997
Project Name	Plugging into the Future: An Exploration of Electricity Consumption Patterns Using Tableau
Maximum Marks	4 Marks

Technical Architecture:

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

Example: Order processing during pandemics for offline mode

Reference: <https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/>



Guidelines:

- Include all the processes (As an application logic / Technology Block)
- Provide infrastructural demarcation (Local / Cloud)
- Indicate external interfaces (third party API's etc.)
- Indicate Data Storage components / services
- Indicate interface to machine learning models (if applicable)

S.No	Component	Description	Technology
1.	User Interface	Dashboard interface for viewing electricity consumption trends	Tableau Public
2.	Application Logic-1	Script for data cleaning and formatting	Python (Pandas, NumPy)
3.	Application Logic-2	Data reshaping and exporting for Tableau	Python
4.	Database	Processed CSV/Excel files	Local Filesystem
5.	Cloud Database	N/A – Static files used in Tableau	N/A
6.	File Storage	Stores pre-processed datasets	Local Storage
7.	External API-1	Open energy datasets	data.gov.in, Kaggle
8.	External API-2	Weather correlation data (optional)	OpenWeather API
9.	Machine Learning Model	Optional forecasting model (future scope)	Prophet / Scikit-learn
10.	Infrastructure (Server / Cloud)	Application setup and dashboard hosting	Local preprocessing + Tableau Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description/Technology
1.	Open-Source Frameworks	Python (Pandas, NumPy), Tableau Public
2.	Security Implementations	Tableau's built-in access control and published link privacy
3.	Scalable Architecture	Scalable via Tableau's support for large datasets and filters
4.	Availability	High availability via Tableau Public's cloud-hosted platform

S.No	Characteristics	Description/Technology
5.	Performance	Fast rendering through pre-processed and optimized data, cache-enabled dashboards

References:

<https://c4model.com/>

<https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/>

<https://www.ibm.com/cloud/architecture>

<https://aws.amazon.com/architecture>

<https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d>