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

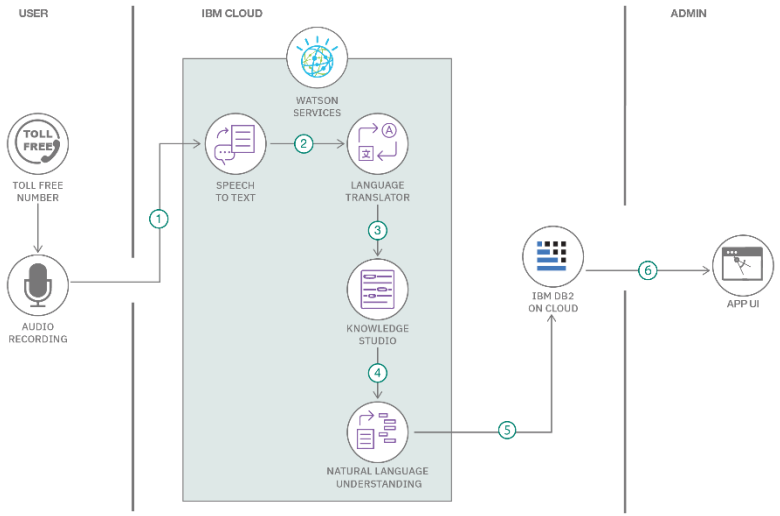
Date	31 January 3035
Team ID	PNT2025TMID09535
Project Name	iRevolution: A data driven exploration of Apple's iPhone impact in India
Maximum Marks	4 Marks

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)

Table-1: Components and Technologies:

Sr. No.	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript, Tableau Embedded
2.	Application Logic-1	Logic for a process in the application	Java / Python / Node.js
3.	Application Logic-2	Logic for a process in the application	Data Cleaning Scripts (Python + MySQL)
4.	Application Logic-3	Logic for a process in the application	Tableau Calculated Fields
5.	Database	Data Type, Configurations etc.	MySQL
6.	Cloud Database	Database Service on Cloud	IBM DB2 or Google Cloud SQL.
7.	File Storage	File storage requirements	Local Filesystem or Cloud Drive
8.	External API-1	Purpose of External API used in the application	Apple Product API (Market Data)
9.	External API-2	Purpose of External API used in the application	Aadhar API (for anonymized segmentation)
10.	Machine Learning Model	Purpose of Machine Learning Model	K-means clustering for adoption patterns
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Kubernetes, Tableau Server

Table-2: Application Characteristics:

Sr. No.	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	ReactJS, NodeJS, ExpressJS, MongoDB, Chart.js

Sr. No.	Characteristics	Description	Technology
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	JWT Authentication, HTTPS, OWASP, IAM (role-based)
3.	Scalable Architecture	Scalability of architecture (3-tier, microservices, modular design)	MERN Stack + Microservices + REST APIs
4.	Availability	Load balancing, distributed systems for high uptime	Nginx, PM2, Cloud Load Balancers (GCP or AWS)
5.	Performance	Performance design (requests/sec, caching, CDN, optimized assets etc.)	Redis Cache, CDN (Cloudflare), Lazy Loading

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