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

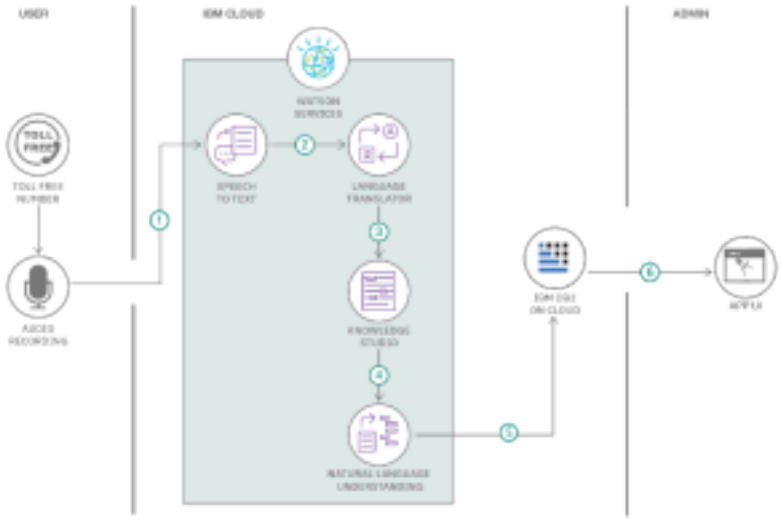
Date	03 October 2022
Team ID	Team-592333
Project Name	Microbe Mapper: Visual Recognition Of Micro-Organisms
Maximum Marks	4 Marks

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:

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

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI for user interaction	HTML, CSS, JavaScript (React.js)
2.	Application Logic-1	Backend logic for microorganism classification	Python (TensorFlow/Keras for machine learning)
3.	Application Logic-2	Integration with IBM Watson Speech to Text service	Utilizes IBM Watson STT service
4.	Application Logic-3	Integration with IBM Watson Assistant for	Utilizes IBM Watson Assistant service

		conversational interactions	
5.	Database	Storage for data	MySQL, NoSQL, or MongoDB (for NoSQL)
6.	Cloud Database	Database service on IBM Cloud	IBM DB2, IBM Cloudant
7.	File Storage	Storage for files/images	IBM Block Storage or other cloud-based storage service
8.	External API-1	Integration with IBM Weather API for weather-related data	Utilizes IBM Weather API
9.	External API-2	Integration with Aadhar API for additional data (if required)	Aadhar API or any relevant third-party service
10.	Machine Learning Model	Object recognition model for microorganism classification	Utilizes TensorFlow/Keras
11.	Infrastructure (Server / Cloud)	Application Deployment on Cloud	Deployment on IBM Cloud using Kubernetes for orchestration

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	React.js (frontend), Python (backend), TensorFlow/Keras (ML)	React.js, Python, TensorFlow/Keras
2.	Security Implementations	Encryption, Access controls, IAM controls	SHA-256, Encryption, IAM Controls

3.	Scalable Architecture	Microservices architecture for scalability	Utilizes microservices architecture

S.No	Characteristics	Description	Technology
4.	Availability	Utilizes load balancers, distributed servers for improved availability	Load balancers, Distributed servers
5.	Performance	Optimized for high request rates, utilizes caching, CDN for improved performance	Caching, CDN utilization

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