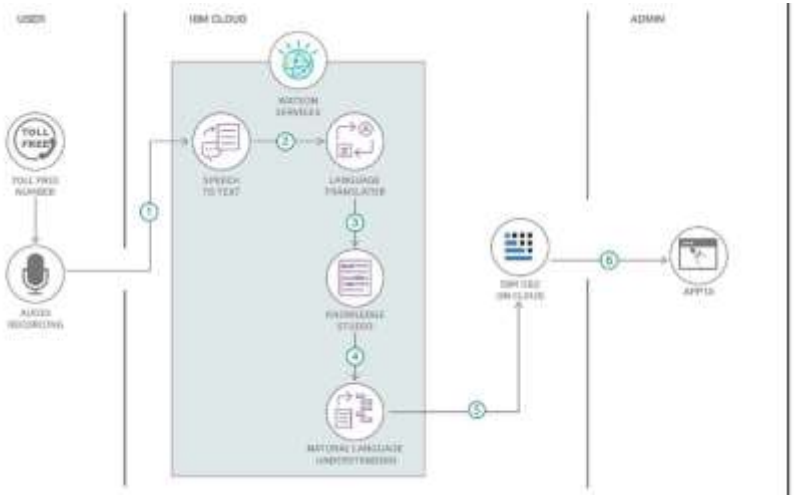
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	June 2025
Team ID	LTVIP2025TMID57442
Project Name	Learning Online platform
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.) Table-1 : Components & Technologies:
Indicate Data Storage components / services
Indicate interface to machine learning models (if

Table-2: Application Characteristics: applicable)

S.No	Component	Description	Technology
1	User Interface	How user interacts with the application (e.g., Web UI)	HTML, CSS, JavaScript, React.js
2	Application Logic-1	User registration and login process	Node.js, Express.js
3	Application Logic-2	Complaint submission and tracking	Node.js, Express.js
4	Application Logic-3	Real-time chat between user and agent	Socket.io (optional), Express.js
5	Database	Stores complaint, user, agent data	MongoDB
6	Cloud Database	Cloud-hosted scalable database	MongoDB Atlas
7	File Storage	Store user-uploaded complaint images	MongoDB GridFS / Base64 (optio
8	External API-1	Email service for notifications	Nodemailer

9	External API-2	OTP verification (if implemented)	Twilio / Firebase OTP
10	Machine Learning Model	(Not used currently, optional)	(N/A)
11	Infrastructure (Server / Cloud)	Local development environment	Node.js server, localhost

S.No	Characteristics	Description	Technology Used
1	Open-Source Frameworks	Use of free, community-maintained frameworks	React.js, Node.js, Express.js
2	Security Implementations	Password hashing, secure Mongo URI, role-based access	bcrypt.js, dotenv
3	Scalable Architecture	Modular frontend/backend, MongoDB Atlas handles scaling	Express.js, MongoDB Atlas
4	Availability	Can be deployed on cloud servers or local servers for 24/7 availability	MongoDB Atlas, Vercel (optional)
5	Performance	REST APIs, optimized frontend, lazy loading	Axios, React.js, Express.js

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/howto-draw-useful-technical-architecture-diagrams-2d20c9fda90d