Project Design Phase-II
Technology Stack (Architecture & Stack)
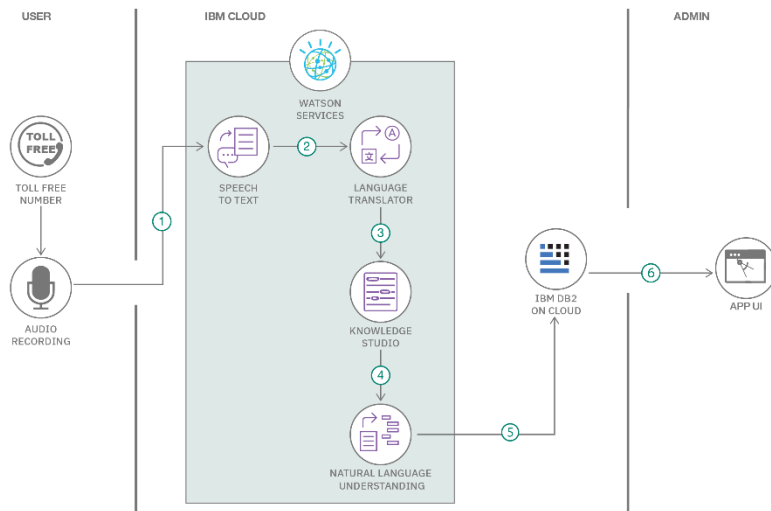
Date	30 June 2025
Team ID	LTVIP2025TMID55781
Project Name	HouseHunt: Finding Your Perfect Rental Home
Maximum Marks	4 Marks

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 & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Interface for renters, owners, admin (web-based)	HTML, CSS, JavaScript, React.js
2.	Application Logic-1	Backend logic for auth, property & booking routes	Node.js, Express.js
3.	Application Logic-2	Email confirmation logic	Nodemailer API
4.	Application Logic-3	Image upload and URL validation	Cloudinary API
5.	Database	Stores users, properties, bookings	MongoDB
6.	Cloud Database	Cloud-hosted database	MongoDB Atlas
7.	File Storage	Image storage (URL or upload)	I Cloudinary, FileSystem (for testing)
8.	External API-1	Email service for confirmation	Nodemailer / Mailgun
9.	External API-2	Google OAuth for social login	Google Auth API
10.	Machine Learning Model	Not applicable currently (Can be added for future)	_
11.	Infrastructure (Server / Cloud)	Deployment environment	Localhost, Render / Vercel / Railway .

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	React.js, Express.js, Node.js, MongoDB, Mongoose	JavaScript/Node ecosystem
2.	Security Implementations	JWT authentication, bcrypt password hashing, HTTPS, CORS, role-based access	JWT, bcrypt, CORS, Helmet.js

S.No	Characteristics	Description	Technology
3.	Scalable Architecture	Follows 3-tier architecture (Frontend, Backend, Database)	MERN Stack (React, Node, MongoDB)
4.	Availability	Cloud-hosted backend and DB with auto-restarts; supports 99.9% uptime	MongoDB Atlas, Render/Vercel, Cloudinary
5.	Performance	Backend APIs respond under 400ms; uses cache headers and optimized queries	Axios, MongoDB Indexing, DevTools

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