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

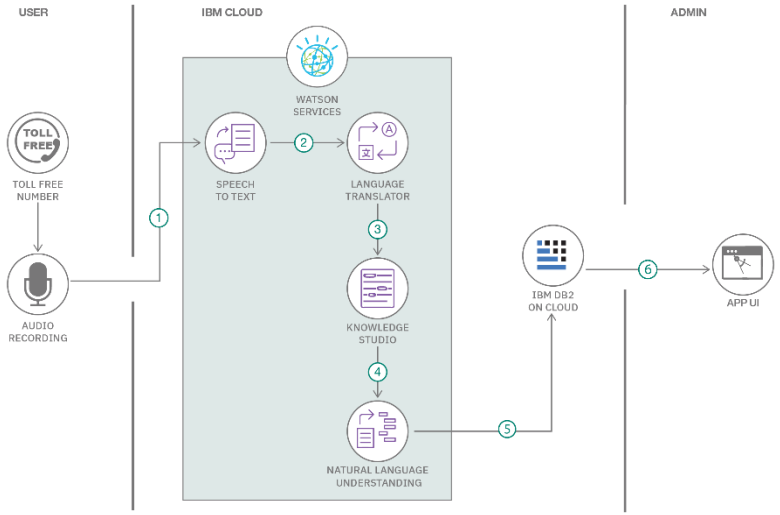
Date	24 June 2025
Team ID	LTVIP2025TMID59024
Project Name	Flight finder-navigating your air travel options
Maximum Marks	4 Marks

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/



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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	Web interface to search and book flights	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Backend logic for login, registration, booking, etc.	Java / Python
3.	Application Logic-2	model loading and prediction for flight price suggestions	IBM Watson STT service
4.	Application Logic-3	Authentication & session management	IBM Watson Assistant
5.	Database	Store user data, flight data, and bookings	MySQL, etc.
6.	Cloud Database	Optional cloud-based backup or live data	IBM DB2, IBM Cloudant etc.
7.	File Storage	Local storage for CSV/Excel flight datasets	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	Flight data APIs (if integrated live)	IBM Weather API, etc.
9.	External API-2	Email confirmation service	Aadhar API, etc.
10.	Machine Learning Model	predict flight pricing or recommend best options	Object Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Hosting the app for public access	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Use of open-source tools & libraries	Flask, Pandas, Scikit-learn, Bootstrap
2.	Security Implementations	Secure login, password hashing, email verification	bcrypt, JWT, HTTPS, Flask-Login, Gmail OAuth
3.	Scalable Architecture	Modular codebase, separation of frontend/backend, scalable DB	3-tier architecture, Microservices used
4.	Availability	High availability via cloud hosting	Load balancing (Render, Heroku Dynos, etc.)

S.No	Characteristics	Description	Technology
5.	Performance	Efficient queries, ML model caching, optimized routing	MongoDB indexing, Python caching, CDN (optional)

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