

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

Date	27 June 2025
Team ID	LTVIP2025TMID53065
Project Name	ShopSmart:Your Digital Grocery Store Experience
Maximum Marks	4 Marks

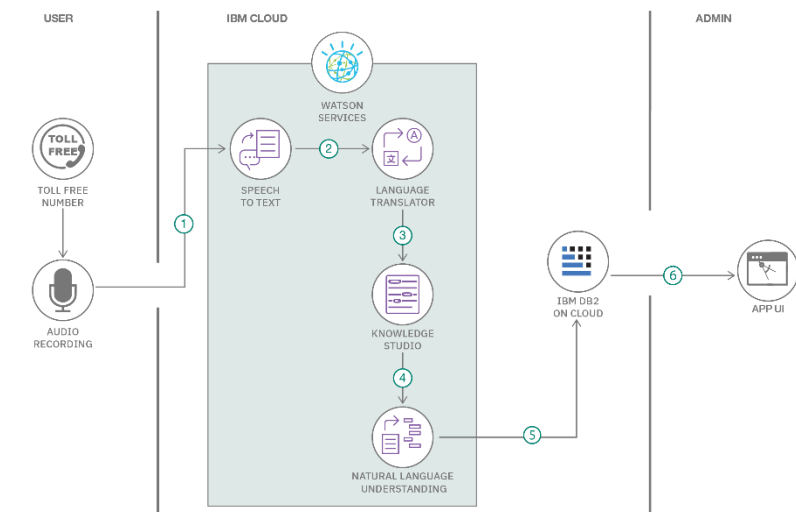
**Technical Architecture:**

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.) -

**1 : Components & Technologies:**

Indicate Data Storage components / services

Indicate interface to machine learning models (if applicable)

**Table**

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.

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.)
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**Table-2: Application Characteristics:**

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>