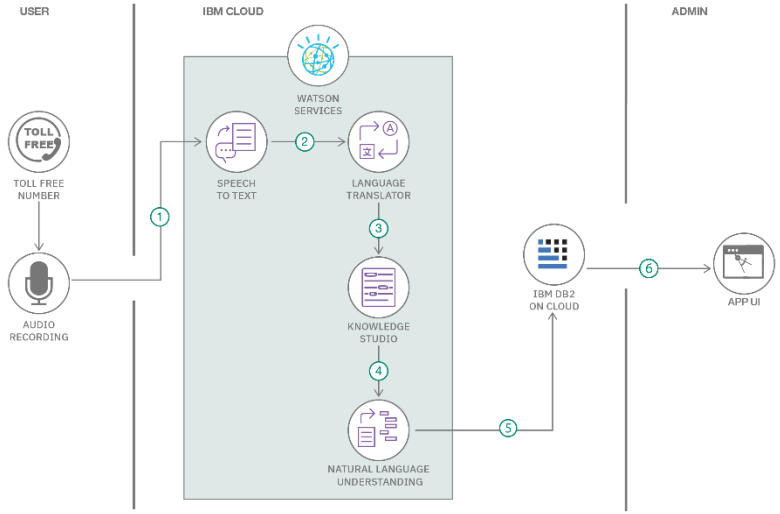
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	20 June 2025
Team ID	LTVIP2025TMID60795
Project Name	Pattern Sense: Classifying Fabric Patterns Using Deep Learning
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



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	Web interface for image upload and result display	HTML, CSS, JavaScript
2	Application Logic-1	Image preprocessing (resize, normalize)	Python (OpenCV, NumPy)
3	Application Logic-2	Pattern classification logic	TensorFlow / Keras
4	Database	Metadata and feedback storage	SQLite / MongoDB
5	File Storage	Storage of uploaded and processed images	Local Filesystem / AWS S3
6	Machine Learning Model	Fabric pattern classification	CNN Model trained using TensorFlow
7	Infrastructure (Server / Cloud)	Model and UI deployment	Flask on Local / AWS EC2

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	TensorFlow, Flask, OpenCV	
2	Security Implementations	Image validation, basic auth, IAM on cloud	
3	Scalable Architecture	Model server and UI can scale independently	Microservices on Docker/Kubernetes
4	Availability	Deployed on cloud with uptime guarantees	AWS EC2 with monitoring
5	Performance	Optimized model and API response under 3s	Flask + TensorFlow Lite + CDN