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

Date	19 June 2025
Team ID	LTVIP2025TMID56954
Project Name	FreelanceFinder: Discovering Opportunities, Unlocking Potential
Maximum Marks	4 Marks

Technical Architecture:

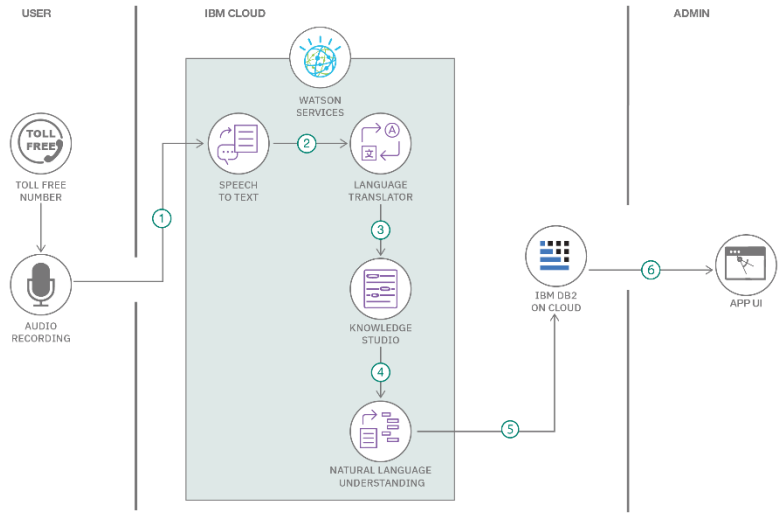
The SB Works application is a full-stack freelancing platform built using the **MERN stack** (MongoDB, Express.js, React.js, Node.js) and hosted in the cloud. It enables seamless interaction between freelancers and clients, featuring registration, bidding, real-time chat, project tracking, and admin oversight.

Key Architecture Elements Include:

- **Web-based user interface** (React.js)
- **RESTful APIs** for business logic (Node.js + Express.js)
- **NoSQL cloud-based database** (MongoDB Atlas)
- **Cloud deployment** (e.g. Vercel for frontend, Render/Heroku for backend)
- **JWT-based authentication** for secure sessions
- **Real-time chat** using Socket.io
- **Admin panel** to manage and resolve disputes
- **Optional third-party integrations** for email verification and file uploads (e.g., SendGrid, Cloudinary)

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

Component		Description
User Interface	-	Web UI using React.js, HTML, CSS, and Bootstrap
Application Logic	-	Backend with Node.js and Express.js handling registration, bidding, chat, admin
Real-time Communication	-	Implemented using Socket.io for freelancer-client chat
Database	-	MongoDB Atlas used for storing users, projects, applications
File Storage	-	Cloudinary/AWS S3 used for managing project and profile media
Authentication	-	JWT used for secure login, bcrypt for password hashing
Email Services	-	SendGrid/Nodemailer used for email verification and communication

Component		Description
Social Login	-	Google OAuth for third-party authentication (optional)
Admin Dashboard	-	AdminBro or custom panel for oversight and dispute resolution
Infrastructure	-	Frontend on Vercel, backend on Render/Heroku, CI/CD enabled

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	All stack components are open-source	React.js, Node.js, Express.js, MongoDB
2.	Security Implementations	JWT Auth, password hashing, validation, admin access controls	bcrypt.js, JWT, Helmet, CORS, OWASP
3.	Scalable Architecture	Modular MVC architecture with REST APIs and NoSQL DB for horizontal scaling	MERN stack, RESTful APIs, Docker (optional)
4.	Availability	Deployed to cloud with high uptime, monitored logs	Vercel, Render, UptimeRobot
5.	Performance	Optimized queries, async operations, static asset delivery, CDN-ready	MongoDB indexing, lazy loading, caching

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