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

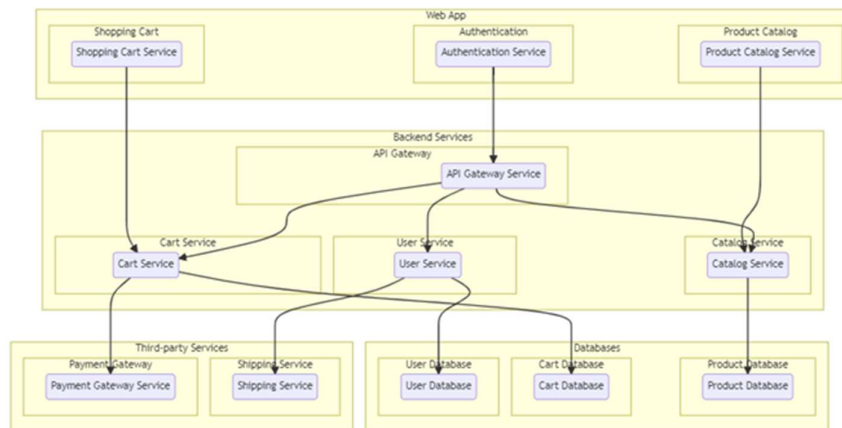| Date	19 February 2026
Team ID	LTVIP2026TMIDS78575
Project Name	shopsmart: your digital grocery store experience
Maximum Marks	4 Marks

Technical Architecture:

Table-1: Components & Technologies:

S. No	Component	Description	Technology
1.	User Interface	Web application where users and admin interact (Product browsing, cart, dashboard)	React.js, HTML5, CSS3, JavaScript
2.	Application Logic-1	Authentication & Authorization (Login, Register, JWT validation)	Node.js, Express.js, JWT, bcrypt
3.	Application Logic-2	Product Catalog Management (CRUD operations for products)	Express.js, REST APIs, Node.js
4.	Application Logic-3	Cart & Order Processing Logic	Node.js , Express.js,
5.	Database	Stores Users, Products, Cart, Orders, Reviews	MongoDB, Mongoose
6.	Cloud Database	Database hosting in cloud	MongoDB Atlas
7.	File Storage	Product images storage	Cloudinary / Local File System
8.	External API-1	Payment Gateway Integration	Stripe API / Razorpay API
9.	External API-2	Email Notification Service	Nodemailer / SendGrid
10.	Machine Learning Model	Product Recommendation (future enhancement)	Recommendation Algorithm
11.	Infrastructure (Server / Cloud)	Application deployment	Local Server (Development), Render / Vercel / AWS (Production)

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Frontend and Backend frameworks used	React.js, Node.js, Express.js
2.	Security Implementations	Password hashing, JWT authentication, role-based access control	bcrypt, JWT, CORS, Helmet
3.	Scalable Architecture	3-Tier Architecture (Frontend – Backend – Database)	REST Architecture, MongoDB
4.	Availability	Hosted on cloud with uptime reliability	MongoDB Atlas, Cloud Hosting
5.	Performance	Fast API response and optimized queries	Express Middleware, Indexed MongoDB