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

Date	28 July 3035
Team ID	PNT2025TMID14671
Project Name	E-Commerce
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
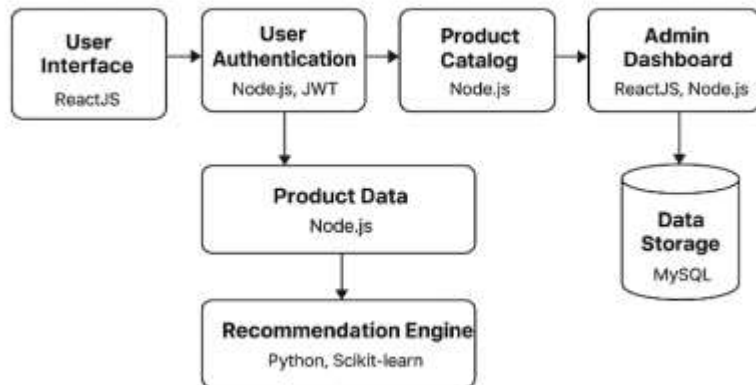
Guidelines:

- 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

SR No	Component	Description	Technology	Deployment (Local/Cloud)	External Interfaces (APIs)	Data Storage	ML Model Interface
1	User Registration Module	Handles user onboarding via form, Gmail, or LinkedIn	ReactJS (Frontend), Node.js (Backend)	Cloud	Google OAuth API, LinkedIn API	MySQL (Cloud RDS)	No
2	User Authentication Service	Validates login and OTP/email verification	Node.js, JWT, Express	Cloud	Email API (SendGrid), SMS OTP API (Twilio)	Redis (for OTP storage)	No
3	Product Catalog Service	Displays products with filtering/search features	ReactJS, Node.js, ElasticSearch	Cloud	Payment Gateway APIs (Stripe/PayPal for product pricing sync if needed)	MongoDB Atlas	No
4	Order Processing Engine	Handles cart, checkout, and order creation	Node.js, Kafka (message queue)	Cloud	Payment Gateway API (Stripe/PayPal)	MySQL (Cloud RDS)	No
5	Recommendation Engine	Suggests products to users based on purchase history	Python (Flask API), Scikit-learn	Cloud	None	MySQL (Cloud RDS)	Yes
6	Admin Dashboard	Allows admin to manage products, users, and orders	ReactJS, Node.js	Cloud	None	MySQL (Cloud RDS)	No
7	Data Analytics & Reporting Service	Generates sales reports and customer insights	Python, Pandas, Power BI Embedded	Cloud	None	MySQL, CSV exports to BI tool	No
8	Notification Service	Sends email/SMS alerts for orders, offers, etc.	Node.js, RabbitMQ	Cloud	Email API (SendGrid), SMS API (Twilio)	Redis (temporary queue)	No

Table-2: Application Characteristics:

SR No	Component	Description	Technology	Deployment (Local/Cloud)	External Interfaces (APIs)	Data Storage	ML Model Interface
1	User Registration Module	Handles user onboarding via form, Gmail, or LinkedIn	ReactJS (Frontend), Node.js (Backend)	Cloud	Google OAuth API, LinkedIn API	MySQL (Cloud RDS)	No
2	User Authentication Service	Validates login and OTP/email verification	Node.js, JWT, Express	Cloud	Email API (SendGrid), SMS OTP API (Twilio)	Redis (for OTP storage)	No
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