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

Date	5 February 2025
Team ID	LTVIP2025TMID55302
Project Name	OderGo – Food Ordering MERN App
Maximum Marks	4 Marks

Technical Architecture:

OderGo is a full-stack cloud-based food ordering system that supports user authentication, restaurant listings, item filtering, cart management, and order processing. It follows a three-tier architecture with a responsive frontend, an Express.js-based backend API, and a MongoDB NoSQL database hosted on the cloud. External APIs such as Google Maps are integrated for enhanced location-based services.

Architecture Diagram:

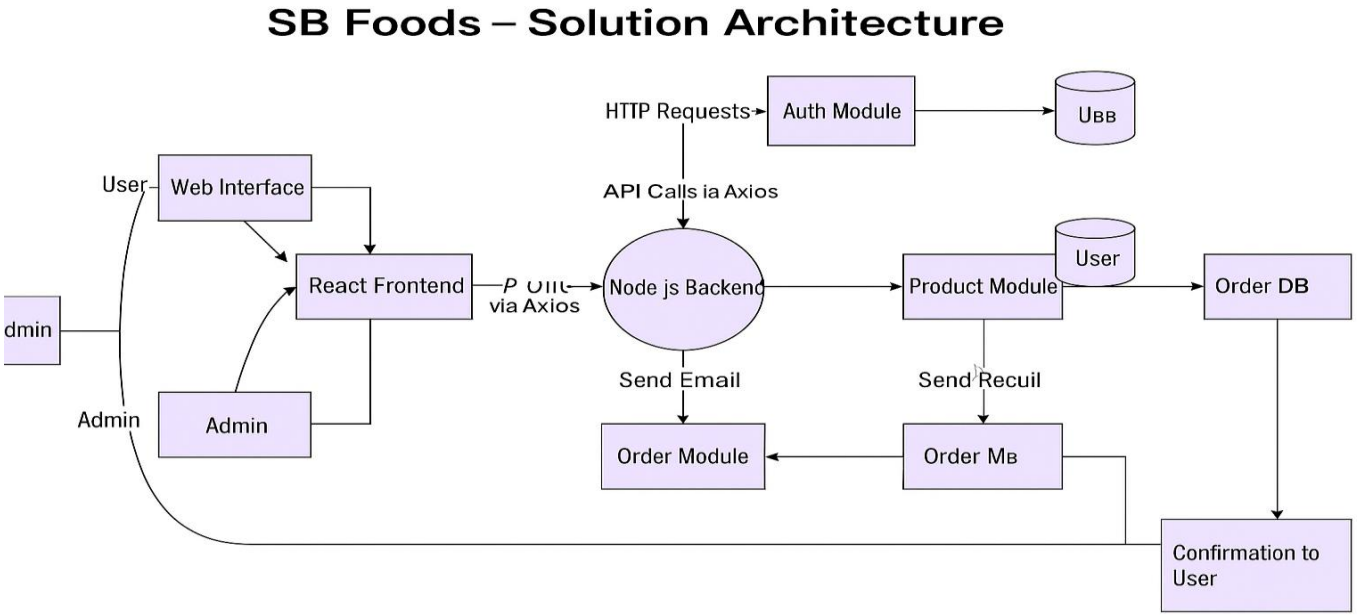

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI for users, restaurants, and admins	React.js, HTML5, CSS3, Bootstrap
2.	Application Logic-1	Backend logic for authentication and order flow	Node.js, Express.js
3.	Application Logic-2	Cart and checkout logic, token-based middleware	Express.js with JWT
4.	Application Logic-3	Admin dashboard for managing restaurants and menus	Node.js controllers, Express routing
5.	Database	NoSQL data store for users, items, orders	MongoDB
6.	Cloud Database	Cloud-hosted database	MongoDB Atlas
7.	File Storage	Images for food items and restaurant logos	Cloudinary / Local filesystem
8.	External API-1	Location-based services	Google Maps API
9.	External API-2	Food image optimization	Cloudinary API
10.	Machine Learning Model	(Optional future extension) Food recommendation engine	TensorFlow.js / Custom ML model (planned)
11.	Infrastructure (Server / Cloud)	Application deployment and environment :	Local for dev, Render/Vercel for deployment

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	MERN Stack components	React.js, Node.js, Express.js, MongoDB
2.	Security Implementations	JWT authentication, password hashing, role-based access	bcrypt, JWT, Helmet.js, CORS, HTTPS.
3.	Scalable Architecture	Modular design with API-based routing and service separation	3-tier architecture, Express.js, MongoDB Atlas
4.	Availability	Frontend/backend deployed on scalable platforms, cloud DB with replicas	Vercel, Render, MongoDB Atlas (multi-region)
5.	Performance	Backend caching, image CDN, optimized queries, pagination	Cloudinary CDN, Axios, efficient Mongo queries

References:

- https://c4model.com/
- https://www.ibm.com/cloud/architecture
- https://aws.amazon.com/architecture
- https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic