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

Date	31 January 2026
Team ID	LTVIP2026TMIDS42166
Project Name	ShopEZ : One-Stop Shop for Online Purchases
Maximum Marks	4 Marks

Technical Architecture:

ShopEZ follows a **3-Tier MERN Architecture**:

1. **Presentation Layer (Frontend)**
    - Built using React.js
    - Handles UI components (Login, Register, Products, Cart, Admin Dashboard)
    - Communicates with backend via REST APIs
2. **Application Layer (Backend)**
    - Built using Node.js & Express.js
    - Handles authentication, product management, cart operations, and order processing
    - Implements business logic and API routing
3. **Data Layer (Database)**
    - MongoDB database
    - Stores Users, Products, Orders, Cart, Admin data

Infrastructure:

- Local development using Node server
- Can be deployed on Render / Vercel / AWS

- GitHub for version control

External Interfaces:

- Payment Gateway (if integrated)
- Email/OTP service (if implemented)

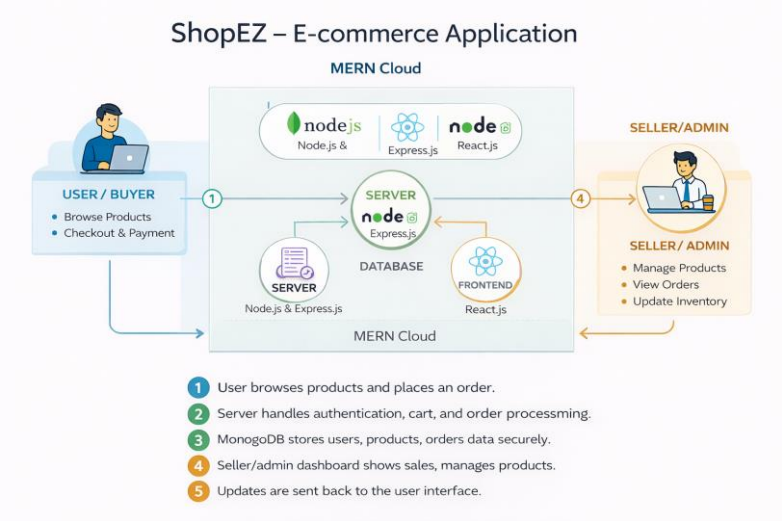

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Logic for a process in the application	Java / Python
3.	Application Logic-2	Logic for a process in the application	IBM Watson STT service
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant

5.	Database	Data Type, Configurations etc.	MySQL, NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	Purpose of External API used in the application	IBM Weather API, etc.
9.	External API-2	Purpose of External API used in the application	Aadhar API, etc.
10.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Technology of Opensource framework
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	Technology used
4.	Availability	Justify the availability of application (e.g. use of load balancers, distributed servers etc.)	Technology used
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN’s) etc.	Technology used

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