**Project Design Phase-II**

**Technology Stack (Architecture & Stack)**

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| Date | 26-06-2025 |
| Team ID | LTVIP2025TMID59506 |
| Project Name | ShopEZ:One-Stop Shop for Online Purchases |
| Maximum Marks | 4 Marks |

**Technical Architecture:**

**ShopEZ** is designed with a scalable **3-tier architecture** consisting of:

* **Presentation Layer (Frontend):**  
  A user-friendly interface for customers and sellers to browse, sell, and purchase products.
* **Business Logic Layer (Backend):**  
  Handles product management, cart operations, orders, payments, authentication, and admin controls.
* **Data Storage Layer:**  
  Manages secure storage of user profiles, product listings, order records, and payment details.

The platform also integrates with third-party APIs for secure payments, email/SMS notifications, and image storage (e.g., Cloudinary).

**Table-1 : Components & Technologies:**

| **S.No** | **Component** | **Description** | **Technology** |
| --- | --- | --- | --- |
| **1** | User Interface | Web interface for buyers and sellers | HTML, CSS, JavaScript, React.js |
| **2** | Application Logic-1 | Product listing, cart, checkout, order tracking | Node.js, Express.js |
| **3** | Application Logic-2 | Admin dashboard, seller verification, analytics | React.js, Node.js |
| **4** | Database | Stores users, products, orders, reviews | MongoDB, Mongoose |
| **5** | External Services | Payments, image uploads, email notifications | Stripe/Razorpay, Cloudinary, Nodemailer |

**Table-2: Application Characteristics:**

| **S.No** | **Characteristics** | **Description** | **Technology** |
| --- | --- | --- | --- |
| **1** | Open-Source Frameworks | Frontend and backend built on modern JS frameworks | React.js, Node.js, Bootstrap, Tailwind CSS |
| **2** | Scalable Architecture | 3-tier architecture with RESTful APIs and cloud-ready | Microservices (optional), Express.js |
| **3** | Secure Communication | JWT-based auth, HTTPS, secure payment flow | JWT, HTTPS, Stripe/Razorpay |
| **4** | Cloud-Hosted | Supports deployment to cloud platforms | Vercel, Render, MongoDB Atlas |

**References:**

[**React.js Documentation**](https://react.dev/)

[**Node js Best Practice**](https://nodejs.org/en/learn/getting-started/introduction-to-nodejs)

[**JSON Web Server Referance**](https://www.npmjs.com/package/json-server)

[**https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d**](https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d)