Project Design Phase-II
Technology Stack (Architecture & Stack)
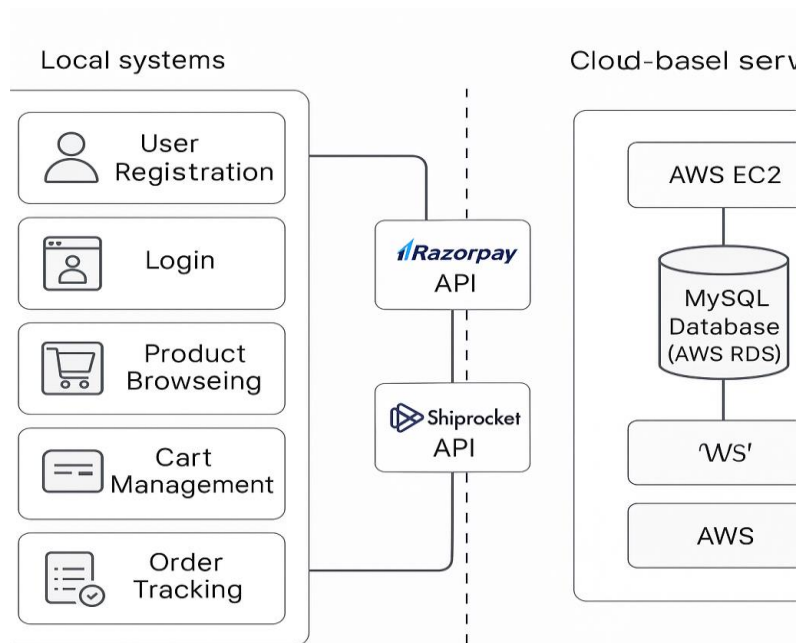
Date	28 july 2025
Team ID	PNT2025TMID14651
Project Name	ShopEZ: E-commerce Application
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Reference:https://react.dev

https://razorpay.com/docs

Guidelines

• Include all the core processes such as **User Registration, Login, Product Browsing, Cart Management, Checkout, and Order Tracking** as application logic blocks.

• Clearly **show infrastructure separation** between **local systems (frontend)** and **cloud-based services** like AWS EC2, RDS, and S3.

• Indicate **external interfaces**, including:

  • **Razorpay API** for payment processing
  • **Shiprocket API** for shipping and order tracking

• Include **data storage components**:

  • **MySQL database (AWS RDS)** for storing user, product, and

S.No	Component	Description	Technology
1.	User Interface	Web and mobile interface for customers to register Log in,browse products,manage cart,and track orders	HTML, CSS, JavaScript / Angular Js / React Js ,Bootstrap
2.	Application Logic-1	Handles user registration ,login authentication ,and profile management	PHP/Node.js/java
3.	Application Logic-2	Handels producr browsing,searching,and filtering logic	PHP/Node.js
4.	Application Logic-3	Handles cart management ,checkout,and order placement	PHP/Node.js
5.	Database	Stores customer details,product catalog ,order,and cart data	MYSQL
6.	Cloud Database	Cloud-hosted database for scalability and remote access	AWS RDS/Azure SQL Database
7.	File Storage	Stores product images and related media	AWS S3/Local filesystem
8.	External API-1	Payment gateway integration	Razorpay/paypal APL
9.	External API-2	Shipping /tracking integration	Shiprocket API/FesEx API
10.	Machine Learning Model	Product recommendation engine	TensorFlow/Scikit-learn
11.	Infrastructure (Server / Cloud)	Hosting application on cloud servers	AWS EC2/Azure App Service

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Frameworks used for UI and backend	React.js/Bootstrap/Laravel/Express.js
2.	Security Implementations	Encryption for passwords,secure payment processing,authentication controls	SHA-256,HTTPS/SSL,JWT ,Authetication, OWASP practies
3.	Scalable Architecture	Three-tier architecture with separation of UI,application logic,and database for easyscaling	AWS Auto Scaling /Kubernetes

S.No	Characteristics	Description	Technology
4.	Availability	High availability via load balancing and cloud redundancy	AWS Load Balancer /Cloudflare
5.	Performance	Use of caching and CDN for faster load times	Redis Cache,cloudflare CDN

References:

React.js Documentation – https://react.dev

Bootstrap Documentation – https://getbootstrap.com

MySQL Documentation – https://dev.mysql.com/doc

AWS Cloud Documentation – https://docs.aws.amazon.com

Razorpay API Documentation – https://razorpay.com/docs

Shiprocket API Documentation – https://apidocs.shiprocket.in

OWASP Security Guidelines – https://owasp.org/www-proje