**Project Design Phase**

**Solution Architecture**

|  |  |
| --- | --- |
| Date | 24-08-2025 |
| Team ID |  |
| Project Name | shopEZ |
| Maximum Marks | 4 Marks |

**Solution Architecture:**

The solution architecture for shopEZ is designed to provide a scalable, secure, and high-performance e-commerce platform for small and medium-sized businesses (SMBs). The architecture is built around a microservices-based approach, with a combination of frontend and backend services.

Components

1. Frontend

- Web Application: A responsive web application built using React or Angular, providing a user-friendly interface for customers.

- Mobile Application: A mobile application built using React Native or Flutter, providing a seamless shopping experience for customers on-the-go.

2. Backend

- API Gateway: An entry point for frontend requests, routing them to appropriate backend services.

- Product Service: A microservice responsible for managing product information, including product descriptions, pricing, and inventory levels.

- Order Service: A microservice responsible for managing orders, including order processing, payment processing, and fulfillment.

- Customer Service: A microservice responsible for managing customer information, including customer profiles, order history, and preferences.

3. Database

- Relational Database: A relational database management system (RDBMS) such as MySQL or PostgreSQL, used for storing structured data.

- NoSQL Database: A NoSQL database such as MongoDB or Cassandra, used for storing unstructured or semi-structured data.

4. Payment Gateway

- Payment Processing: A secure payment gateway such as Stripe or PayPal, used for processing payments and managing transactions.

5. Security

- Authentication: An authentication mechanism such as OAuth or JWT, used for securing API endpoints and protecting sensitive data.

- Authorization: An authorization mechanism such as role-based access control (RBAC), used for controlling access to sensitive data and functionality.

