Project Design Phase

Solution Architecture

Date	12 April 2025
Team ID	SWTID1742751842
Project Name	ShopEZ: One-Stop Shop for Online Purchases
Maximum Marks	4 Marks

Solution Architecture:

This architecture illustrates how the **ShopEZ e-commerce platform** functions across the **User**, **Cloud**, and **Admin/Vendor** networks:

- **Frontend (UI)**: Built with **React**, users interact through a responsive web/mobile interface.

- **Backend (API)**: Developed using **Express.js**, it handles communication between frontend, database, and internal services.

- **Authentication**: Managed via **JWT tokens**, ensuring secure, role-based access.

- **Data Services**: Includes a central **MongoDB** for products, users, and orders.

- **Analytics & Notifications**: Powered by an **Analytics Engine** (for product trends) and **Notification Service**.

- **Admin Panel**: Allows admins to manage data through a **dashboard** linked to business logic and the database.

- **Data Integration Layer**: Connects deployment monitoring, inventory control, and secure access.

Color-coded legends help distinguish **UI components, backend, data, analytics**, and **security elements** for easy understanding.

Solution Architecture Diagram:

User Network

Customer
(Web/Mobile)

React Frontend
(UI)

INTERNAL
CHANNEL

ShopEZ Cloud Infrastructure

Auth (JWT)

Backend API
(Express)

Notification
Service

Analytics Engine
(Product Trends)

MongoDB
(Products, Users,
Orders)

Admin Dashboard

Internal Data Routing/
Business Logic

DATA
INTEGRATION

Admin & Vendor Network

Admin

Admin Panel

Dashboard Data

User Profiles DB

JWT, HTTPS, Role-Based Access

Order &
Inventory Control

Deployment Monitoring

LEGEND
- App Layer: UI, Admin Panel
- Backend/API Infrastructure
- Data Services(DB, Deployment)
- Data store
- Analytics
- Security and Compliance