Amazon Product System

1.1. Introduction*:*

This High-Level Design Document provides an in-depth overview of the architecture and design principles for the Amazon product System. The system aims to streamline the operations of a retail store that sells various products, including electronics, clothing, and household items, to customers within less time. The scope of this document covers the high-level design of the system, including its major components, data flow, user interfaces, and external integrations, by using new technology's. This project scope is delivery product within less time to customers.

Assumptions and Business Requirements:

This document outlines key assumptions and requirements elements integral to the design process of amazon product system. The purpose is to ensuring accessibility for a wide range of users.

Technology Stack:

Frontend: AngularJS

Backend: MYSQL

Programming language: Java

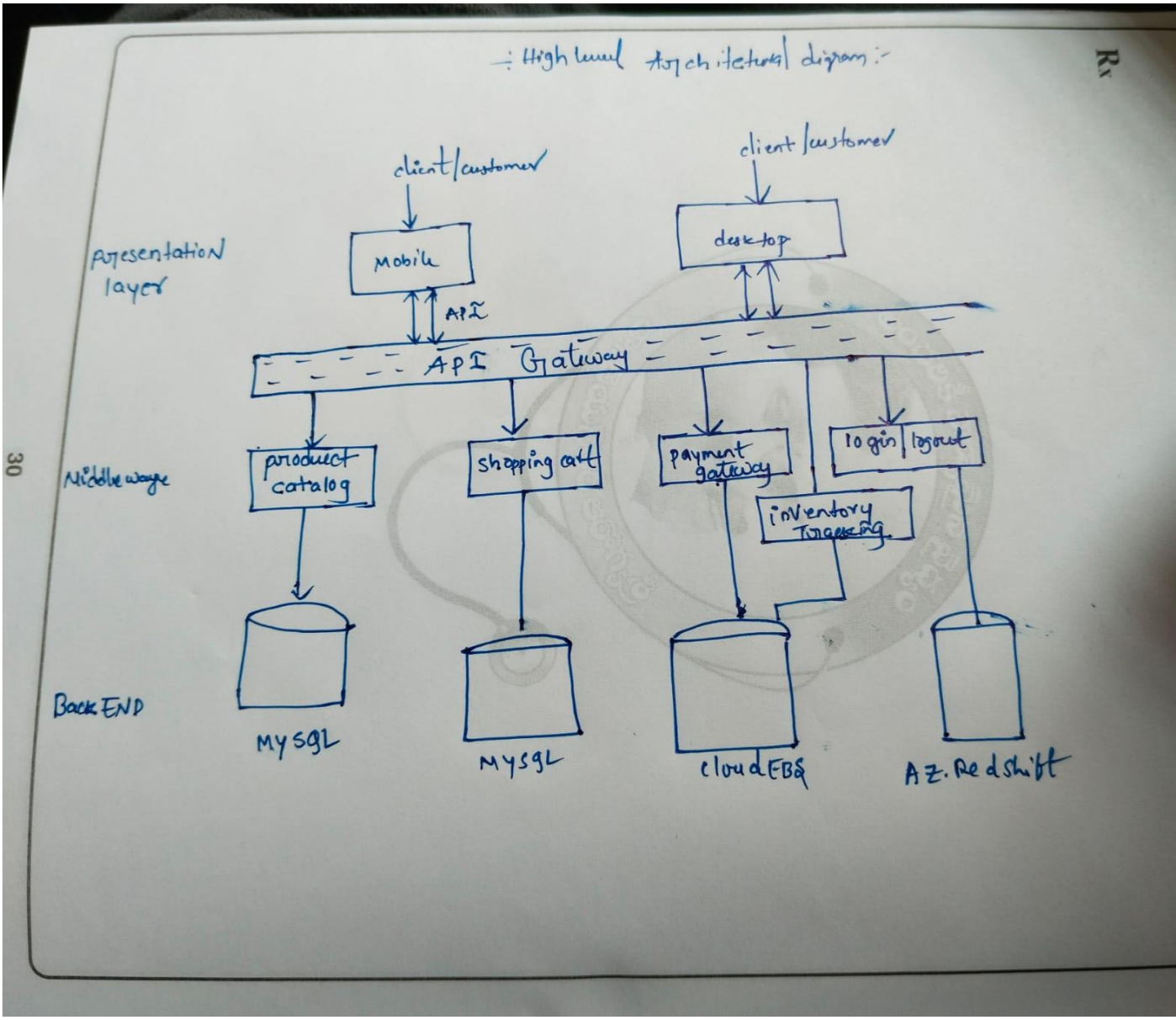
Tools: VS Code, Postman, STS.

End-user Requirements:

Customer will have popper internet connectivity 1mb per second and above android 11versions and ram 4 Gb, memory 16 GB for data security or desktop above windows 7 than the end user can use this app very smoothly without any disruptions.

2.1. Architectural Overview:

The Amazon product System follows a layered architectural pattern, consisting of multiple interconnected components that work together to fulfil the system’s objectives. The architecture ensures separation of concerns and modularity, facilitating scalability, maintainability, and extensibility. The following are the key architectural components.



Presentation Layer:

The presentation layer is responsible for handling user interactions and rendering the user interfaces. It includes front-end components such as 1. product catalog 2.shoppingcart 3.inventory tracking 4.paymentgateway 5.store management and other user interface

That allow customers to interact with the system. The presentation layer communicates with the back-end components to retrieve and display relevant data.

Business Logic Layer:
The business logic layer contains the core functional logic and rules of the Amazon Store System. It processes user requests, applies business rules, and orchestrates interactions between various components. This layer encapsulates domain-specific operations, including product catalog management, order processing, and customer management.

The integration layer enables communication between the Amazon product System and external systems or services. It handles integration with third-party payment gateways, inventory management systems, or any other external systems involved in the retail store's operations. The integration layer ensures seamless data exchange and interoperability between the Amazon product System and external entities.

Data Layer:

The data layer consists of the database and associated components responsible for data storage and retrieval. It stores product information, customer profiles, order details, and inventory records. The data layer interacts with the business logic layer to provide data persistence and retrieval functionality.

User Interface:

The User Interface Component encompasses the front-end elements of the system, enabling customers to interact with the store's products, browse catalogs, add items to the cart, and complete the checkout process. It provides an intuitive and responsive web-based interface that allows customers to search for products, filter based on categories or specifications, view product details, and manage their shopping cart.

Order Processing Component:

The Order Processing Component handles the end-to-end processing of customer orders, ensuring a smooth and timely order fulfilment process. It facilitates the secure capture and validation of customer information, including shipping addresses, payment details, and any

special instructions. The Order Processing Component coordinates with external payment gateways to securely process payments, confirms order placement, and generates order confirmation notifications.

Inventory Management Component:

The Inventory Management Component is responsible for managing the store's inventory, including tracking product availability, and stock levels, and ensuring accurate inventory data. It enables store managers to add new products, update stock quantities, and handle inventory-related operations such as restocking, backorders, or product discontinuation. The Inventory Management Component also supports automated notifications to store managers when inventory thresholds are reached or when specific products require attention.

Customer Management Component:

The Customer Management Component facilitates the management of customer information, including registration, profile updates, and order history. It provides customer account creation and authentication mechanisms, allowing customers to securely access their account details and track their orders. The Customer Management Component supports features such as personalized recommendations, wish lists, and loyalty programs to enhance customer engagement and retention.

Reporting and Analytics Component:

The Reporting and Analytics Component enables store managers to generate reports and gain insights into sales performance, customer behaviour, and product popularity. It provides predefined reports and customizable analytics dashboards, allowing store managers to monitor key performance indicators, track revenue, identify trends, and make informed business decisions. The Reporting and Analytics Component helps store managers optimize product offerings, inventory management, and marketing strategies based on data-driven insights.

User Interface:

The Amazon product System incorporates a user-friendly and intuitive user interface that enables customers to browse products, add items to their cart, and complete the checkout process. The user interface also provides an administrative interface for store managers to manage inventory, track sales, and generate reports. The following describes the key features and functionalities of the user interface*:*

Customer Interface:

Product Browsing: The customer interface allows users to search for products, browse product categories, and filter products based on specifications, price range, or other attributes. It provides a visually appealing display of product listings, including product images, descriptions, and pricing information.

Product Details:

Customers can view detailed information about a specific product, including its specifications, available sizes, colours, and customer reviews. The interface provides an interactive display with zoom capabilities for product images. Shopping Cart Management: Users can add products to their shopping cart, view the cart contents, modify quantities, and remove items as needed. The interface provides a summary of the cart, including the total cost, applicable discounts, and shipping options.

Checkout Process: The interface guides customers through a seamless checkout process, collecting shipping information, payment details, and any special instructions. It verifies the order details, calculates applicable taxes and shipping costs, and provides a summary before confirming the order placement.

Order Processing:

Store managers can access order details, view the status of customer orders, and process order fulfilment. They can update order statuses, track shipment information, and generate invoices or packing slips as required. The interface allows store managers to efficiently handle customer inquiries, refunds, or order cancellations.

Sales Reporting: The administrative interface provides access to sales reports and analytics. Store managers can generate reports to monitor sales performance, track revenue, and identify trends. The interface may include customizable dashboards and visualizations to provide a comprehensive view of sales data, customer behaviour, and product performance.
Customer Management:

The interface allows store managers to manage customer profiles, view customer order history, and track customer interactions. Store managers can update customer information, handle customer inquiries, and provide personalized customer support.

Performance Considerations:

Outlines the high-level performance requirements and considerations for the system. Discusses factors such as response times, throughput, scalability, or resource utilization. This may include performance goals or constraints that influence design decisions.

Security Considerations:

Addresses high-level security requirements and considerations for the system. Discusses authentication, authorization, data protection, or other security mechanisms. Identifies potential vulnerabilities or risks and outlines security best practices.

Error Handling and Exception Management:

Describes the approach to handling errors, exceptions, or unexpected situations in the system. Specifies how errors are detected, reported, logged, and handled within the system.

Summary:

In this amazon product system project aims to create a robust online platform for selling products .Product catalogue , shopping cart, payment gateway, integration. Hysical store management, inventory tracking. The project caters to modern shoppers seeking convenience and variety. Target audiences: Consumers, businesses, and vendors. Context: Digital transformation of retail.