**Case Study: eCommerce System**

Background:

You have been hired as a software architect to design an eCommerce system for a growing online retail company. The company currently operates in a single country but has plans for international expansion. The goal is to create a scalable and user-friendly eCommerce platform that can handle a large number of products and transactions.

User Requirements:

**1. User Stories:**

a. **As a Customer:**

- I want to browse products by category.

- I want to search for products by name or keywords.

- I want to view detailed product information, including images, prices, and specifications.

- I want to add products to my shopping cart.

- I want to view and edit the contents of my shopping cart.

- I want to proceed to checkout and place an order.

- I want to track the status of my orders.

b. **As an Administrator:**

- I want to add, edit, or remove products from the catalog.

- I want to manage product categories.

- I want to view and manage customer orders.

- I want to generate sales reports.

- I want to manage user accounts and permissions.

c. **As a System Manager:**

- I want to ensure the system can handle high traffic during peak times.

- I want to monitor system performance and receive alerts for critical issues.

- I want to ensure data security and compliance with regulations.

- I want to have a backup and recovery plan in case of system failures.

**Applying C4 Model:**

1. Context Diagram:

* Identify external systems and actors interacting with the eCommerce system.

2. Container Diagram:

* Decompose the system into containers (web application, mobile app, backend services, database, etc.).

3. Component Diagram:

* Break down each container into components (authentication service, product catalog service, payment service, etc.).

4. Class Diagram (Optional):

* Optionally, create a class diagram to represent the key classes and their relationships within the system.

5. Sequence Diagram (Optinal):

* Develop sequence diagrams for critical user interactions, such as placing an order or searching for a product.