SOFTWARE REQUIREMENTS SPECIFICATION

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1.ABSTRACTION:

Online shopping platforms, which provide customers with ease, accessibility, and a wide selection of goods at their fingertips, have become essential to contemporary commerce. This abstract presents a feature-rich e-commerce platform that aims to simplify the user's shopping experience while giving retailers a strong online storefront on which to market and sell their goods. To improve the entire shopping experience, the system incorporates user-friendly interfaces, safe payment channels, tailored recommendations, and effective order management. Furthermore, sophisticated features that guarantee smooth transactions and client delight include order tracking, real-time inventory updates, and customer assistance systems. We explain the online shopping system's architecture and features in this abstract, emphasizing how it could transform e-commerce and promote economic growth in the digital era.

2.OBJECTIVE :

The objective of a online shopping system to create a smooth and practical platform for customers to peruse, choose, and buy goods and services online is the aim of an online shopping system. The method attempts to remove geographical restrictions by utilizing digital technology, enabling customers to purchase from any location at any time. The main objective is to improve the entire shopping experience by offering an intuitive interface, safe payment methods, tailored suggestions, and effective order processing procedures. Furthermore, the system aims to empower retailers by giving them a strong platform to exhibit their goods, connect with more customers, and efficiently handle their inventories.

3.SCOPE:

- ✓ An online shopping system's scope includes a number of different things, such as database management, payment gateway integration, website and mobile application development, logistics coordination, and customer support services.
- ✓ It entails building an all-encompassing ecosystem that meets the requirements of merchants and customers, guaranteeing a seamless and safe transaction experience from browsing to delivery.
- ✓ In addition, the scope can include adding functions like product reviews, user verification, promotions, analytics, and offers to improve the shopping experience and boost sales. A successful e-commerce platform requires careful consideration of technological, operational, and strategic factors, all of which are included in the broad scope of an online shopping system.

4.INTRODUCTION:

In today's fast-paced digital era, the landscape of retail has undergone a significant transformation with the advent of online shopping systems. The emergence of these systems has revolutionized the way consumers browse, select, and purchase products, offering unparalleled convenience and accessibility. An online shopping system is a virtual marketplace where users can explore an extensive range of goods or services from the comfort of their homes or on-the-go via their smartphones or computers. This introduction serves to shed light on the profound impact of online shopping systems on the retail industry, elucidating their evolution, functionalities, and widespread

adoption globally.

Gone are the days of traditional brick-and-mortar stores being the sole avenue for retail transactions. Today, consumers are increasingly turning to online platforms to fulfill their shopping needs, driven by factors such as convenience, variety, and competitive pricing. At the heart of this shift lies the online shopping system, which acts as a digital storefront where merchants can showcase their offerings and consumers can browse and purchase with ease. With features ranging from secure payment gateways to personalized recommendations and seamless order fulfillment, these systems have become indispensable tools for both consumers and merchants alike. This introduction aims to explore the multifaceted nature of online shopping systems, highlighting their role in shaping the future of commerce and catering to the evolving needs of modern-day consumers.

5. SPECIFIC REQUIREMENTS:

5.1 Functional Requirements:

Functional requirements for an online shopping system outline the specific functionalities and features that the system must have to meet the needs of its users. Here are some typical functional requirements for an online shopping system:4

5.1.1 User Registration and login:

It should be possible for users to create an account with the required information (name, email address, and password), and

it should be safe for them to log in with those details.

5.1.2 Search Product:

- A product catalog should be accessible for users to peruse.
- It is recommended to arrange products into categories and subcategories to facilitate effortless browsing.
- Product searches using filters or keywords should be possible for users

5.1.3 Product details:

- Every product should have comprehensive details available to users, such as its price, availability, description, and pictures.
- It should be possible for customers to see product ratings and reviews.

5.1.4 Add to cart:

- The following features should be available to users: adding products to their shopping cart; seeing and editing the contents of their cart; and removing things from their cart.

5.1.5 Checkout Process:

- A smooth checkout procedure ought to be walked users through.
- The ability to enter shipping and invoicing details should be available to users.
- A variety of payment methods, such as credit/debit cards, PayPal, UPI, and others, should be available to users.

5.1.6 Order &Account Management:

- Customers ought to be able to see the status and history of their orders.
- Users ought to have the ability to modify the details on their profiles, such as their name, email address, password, and

shipping address.

- It should be possible for users to control how they want to be contacted, including whether or not to receive newsletters and advertising emails.

5.2 Non-Functional Requirements:

Non-functional requirements define the quality attributes of a system, such as performance, security, usability, reliability, and scalability. Here are some non-functional requirements for an online shopping system:

5.2.1 Performance:

- It should be quick for users to browse products, add items to their carts, and check out of the system.
- There shouldn't be much of a performance drop when a lot of users are using the system at once.
- In order to provide a seamless user experience, page load times should be improved.

5.2.2 Scalablity:

- The system should support adding extra servers or resources to manage higher load during peak times, such holidays or promotions.
- The system should be able to scale horizontally and vertically to accommodate increases in traffic and data volume.

5.2.3 Reliability:

- The system must to possess failover capabilities to provide ongoing operation in the event of server failures or other issues. It should also be highly available, with low downtime for maintenance or updates.

- Transactions should be processed precisely and consistently, and data integrity must be upheld.

5.2.4 Security:

- Strong encryption techniques should be used by the system to safeguard sensitive user data, including financial and personal information.
- Access controls and user authentication should be in place to prevent unwanted access.

5.2.5 Usablity:

- The user interface should have clear labels, instructions, and feedback messages, and it should be simple to use.
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5.2.6 Maintainability:

- The system should include comprehensive documentation that provides developers and administrators with precise instructions on how to upgrade and maintain the system.
- To make maintenance and upgrades easier, it should follow best practices for coding and apply the concepts of modular design.

6.DESIGN:

6.1 Low level Design:

Designing a low-level design (LLD) for an online shopping system involves breaking down the system's components into smaller modules and defining their interactions and functionalities. Here's a basic LLD for an online shopping system:

6.1.1 User Interface (UI) Layer:

- In charge of introducing the administrator and customer to the user interface.
- Contains webpages for managing shopping carts, examining product details, perusing products, and placing orders.
- Makes use of JavaScript, HTML, CSS, and front-end frameworks such as Angular or React.

6.1.2 Application Layer:

- Manages user request processing and business logic.
- Contains modules for order processing, data validation, product administration, and user authentication.
- Uses algorithms and business rules to implement features like product recommendations and search capabilities.

6.1.3 Database Layer:

- Manages and keeps track of user, product, order, and transaction data.
- Makes use of an Oracle, PostgreSQL, or MySQL relational database management system (RDBMS).
- Has tables for customers, goods, orders, order information, and other pertinent entities.

6.1.4 Integration Layer:

- Connects with other systems and the application layer; • Integrates with payment gateways, shipping companies, and inventory management systems, among other third-party services.
- Puts protocols and APIs for data interchange and interaction into

6.1.5 Testing Layer:

- Contains tools and modules for evaluating the system's performance, security, and functionality.
- Uses end-to-end, integration, and unit testing to make sure the software is up to par.

6.2 High level design:

An online retail system's high-level design (HLD) provides a conceptual overview of the system's architecture, parts, and interactions. This is a high-level online retail system design:

6.2.1 Client-Side Application:

- The client-side program is in charge of managing user interactions and displaying the user interface.
- Users interact with it through web or mobile applications to browse products, add items to their carts, and finish their purchases.
- APIs are used by the client-side application to interface with the server-side components.

6.2.2 Web Server:

- The web server receives HTTP requests from clients and forwards them to the relevant parts of the system; it also hosts the client-side application and provides static assets like HTML, CSS, and JavaScript files.

6.2.3 Application Server:

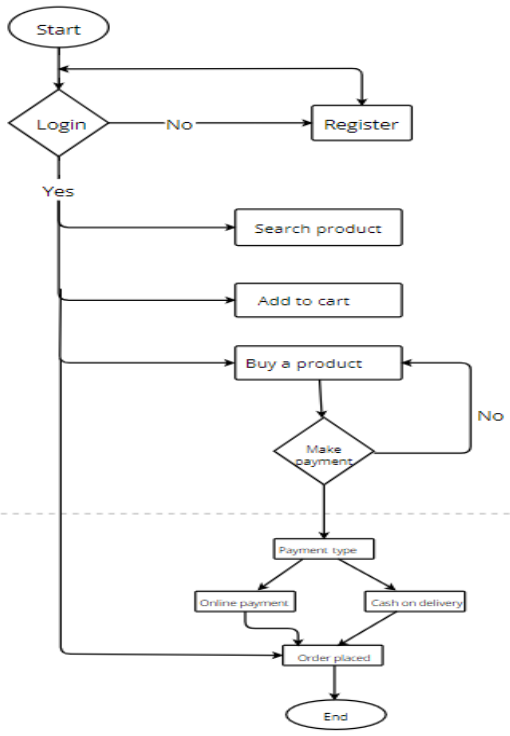
- The application server manages user authentication, shopping cart operations, product catalog management, order processing, and other essential features. It is in charge of putting the online shopping system's business logic into practice.

- To collect and store information about users, products, orders, and transactions, the application server communicates with the database server.

6.2.4Database Server:

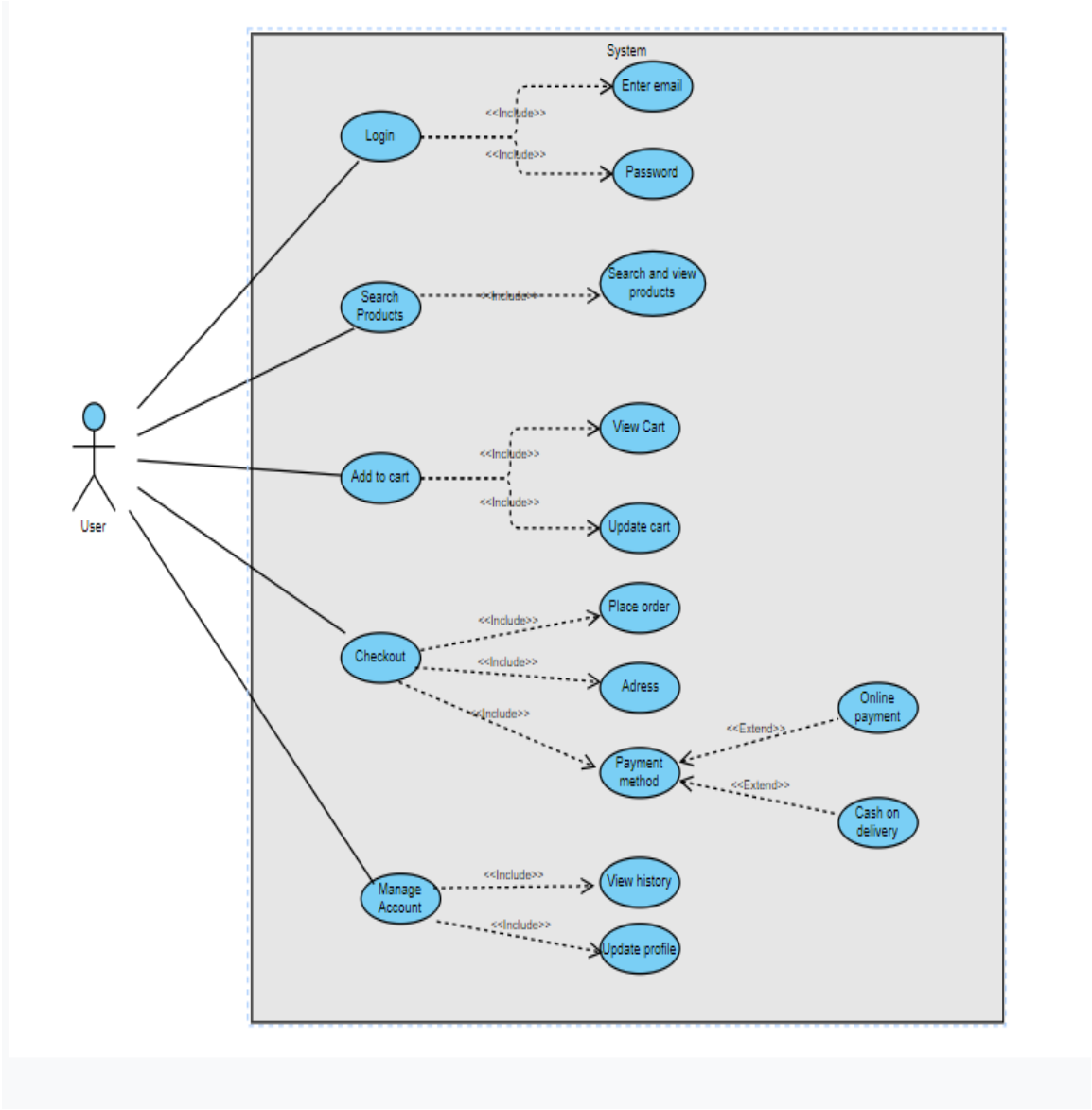
- The online shopping system's persistent data is stored and managed by the database server, which is made up of one or more relational databases that hold data on products, user profiles, order histories, and inventory.
- To support the system's operations, the database server guarantees data integrity, dependability, and scalability.

7.FLOWCHART:

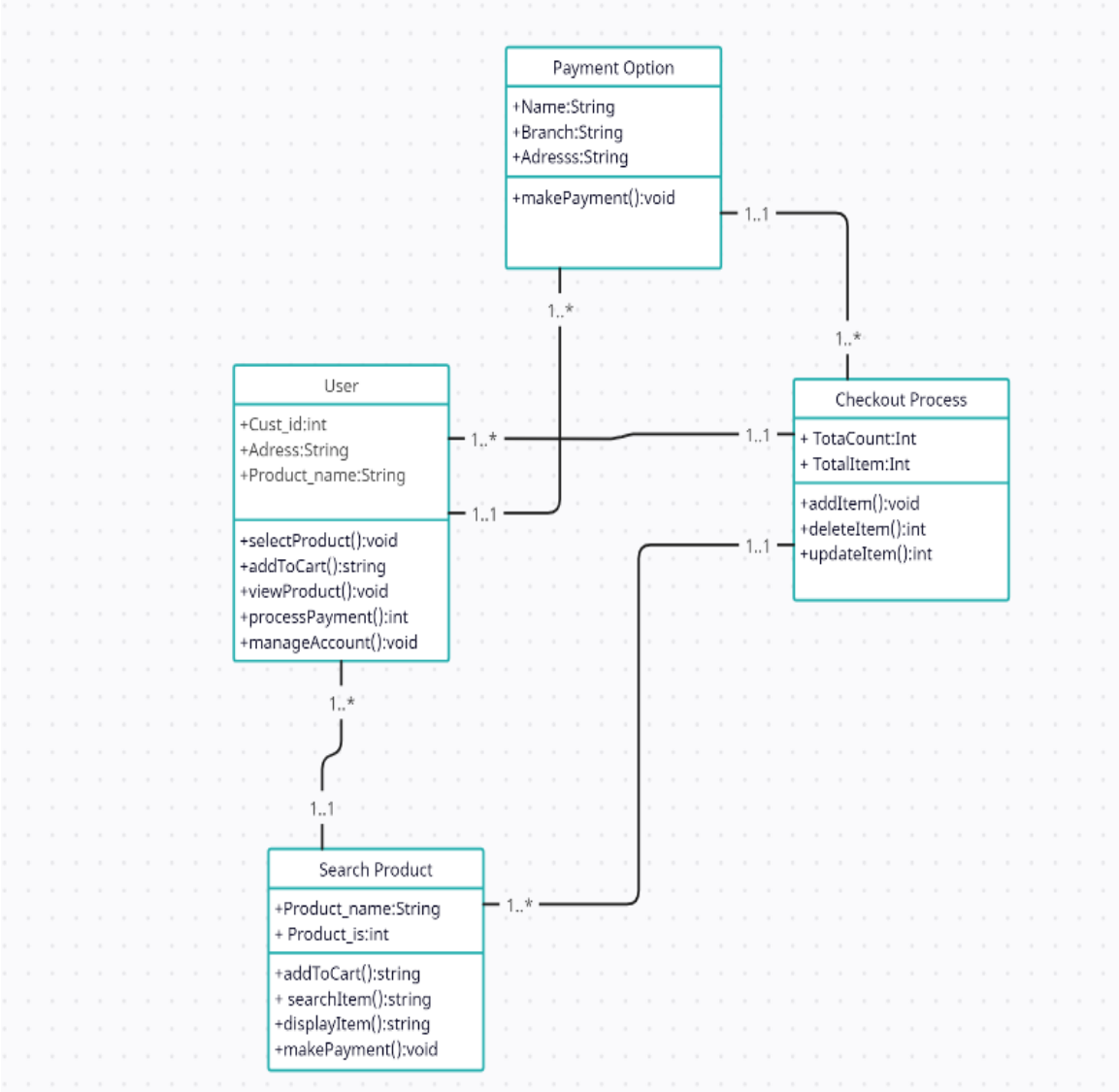


8.DIAGRAM:

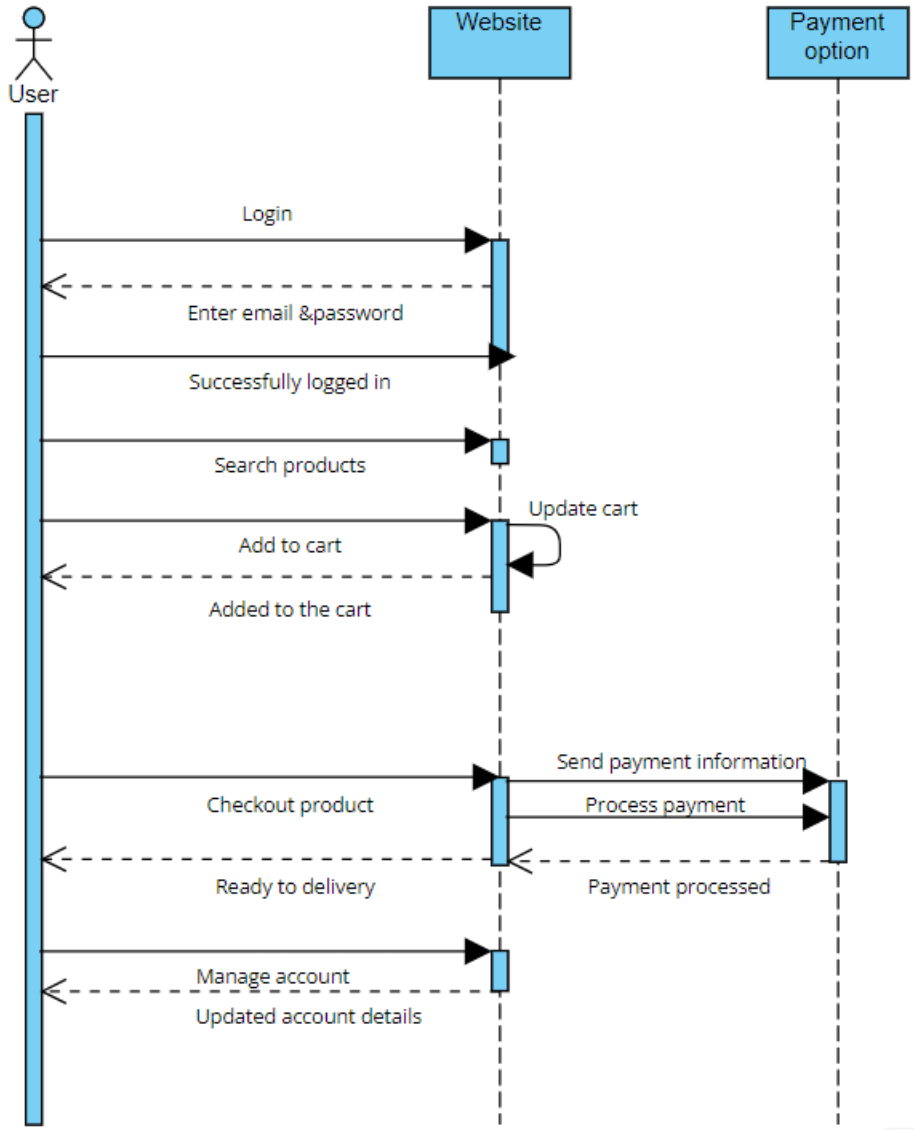
8.1 Use Case Diagram:



8.2 Class Diagram:



8.3 Sequence Diagram:



9.TEST CASES:

Test cases for an online shopping system aim to verify that the system functions correctly, meets user requirements, and provides a satisfactory user experience. Here are some examples of test cases for different functionalities of an online shopping system:

9.1 User Registration:

- Test Case 1: Verify that users can successfully register with valid details (name, email, password).
- Test Case 2: Verify that users cannot register with invalid or duplicate email addresses.
- Test Case 3: Verify that users receive a confirmation email after successful registration.

9.2 User login:

- Test Case 5: Verify that registered users can log in with valid credentials.
- Test Case 6: Verify that the system displays appropriate error messages for login failures.
- Test Case 7: Verify that users can reset their password using the "forgot password" functionality.

9.3 Search products:

- Test Case 9: Verify that users can browse products by category, brand, or search keywords.
- Test Case 10: Verify that product details (name, description, price, images) are displayed correctly.
- Test Case 11: Verify that users can filter products based on various criteria (price range, size, color).

- Test Case 12: Verify that users can sort products by price, popularity, or other attributes.

9.4 Add to cart:

- Test Case 13: Verify that users can add products to the shopping cart from the product details page.
- Test Case 14: Verify that users can view and edit the contents of their shopping cart.
- Test Case 15: Verify that users can remove items from the shopping cart.
- Test Case 16: Verify that the total price and quantity in the shopping cart are calculated correctly.

9.5 Checkout process:

- Test Case 17: Verify that users can proceed to checkout from the shopping cart.
- Test Case 18: Verify that users can enter shipping and billing information during checkout.
- Test Case 19: Verify that users can select a shipping method and payment option.
- Test Case 20: Verify that users receive an order confirmation after completing the checkout process.

9.6 Order& Account management:

- Test Case 21: Verify that users can view their order history and details of past orders.
- Test Case 22: Verify that order status is updated correctly (e.g., processing, shipped, delivered).
- Test Case 23: Verify that users receive email notifications for order status updates.
- Test Case 24: Verify that users can view and update their

profile information (name, email, address, etc.).

- Test Case 25: Verify that changes to user profile information are saved correctly.
- Test Case 26: Verify that changes to user profile information are saved correctly.
- Test Case 27: Verify that users receive a confirmation email after updating their profile or password