E-Commerce Website

A PROJECT REPORT

Submitted by

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In fulfillment for the award of the degree

of

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LDRP INSTITUTE OF TECHNOLOGY AND RESEARCH GANDHINAGAR

CE-IT Department

CERTIFICATE

This is to certify that the Project Work entitled **E-Commerce Website** has been carried out by **Smit Patel [20BECE30184]** under my guidance in fulfilment of the degree of Bachelor of Engineering in Computer Engineering in LDRP-ITR of Kadi Sarva Vishwavidyalaya University during the academic year 2023-2024.

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Presentation for Project-I

1. Name & Signature of Internal Guide	
2. Comments from Panel Members	
3. Name & Signature of Panel Members	

ACKNOWLEDGEMENT

I sincerely feel the credit of the project work could not be narrowed down to only on individual. The development of this project involves many valuable contributions. Getting the opportunity for this project of "**E-Commerce Website**" as fulfilment of B.E (computer engineering) has been brightening experience for the near future to come and a focus on excellence in this venture, we are constantly guided and encouraged by **Prof. Pinkal Chauhan** who is our internal guide.

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ABSTRACT

The business to consumer aspect of E-commerce (electronic commerce) is the most visible business use of the Word Wide Web. The primary goal of an e-commerce site is to sell goods and services online. This project is a web-based shopping system for an existing shop. The project objective is to deliver the online shopping application. This project is an attempt to provide the advantages of online shopping to customers of a real shop and for the seller of the goods too to increase the profit margins of their respective shops or business. The project aims to develop a dynamic and user-centric e-commerce website that provides an intuitive and seamless shopping experience for customers. The website will be designed to cater to a wide range of products and will incorporate essential features such as user authentication, product catalogue, shopping cart, payment gateway integration, and order management system.

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1. INTRODUCTION:

1.1 Introduction

In the digital age, where convenience and accessibility are paramount, e-commerce websites have revolutionized the way we shop and conduct business. Offering a virtual marketplace at our fingertips, these platforms have transformed the traditional retail landscape, allowing consumers to browse, compare, and purchase products and services with unparalleled ease. With a wide range of of options, secure payment gateways, and doorstep deliveries, e-commerce websites have seamlessly integrated technology into our daily lives, catering to diverse needs and preferences. In keeping in mind all these things and understanding the importance of E-commerce Websites we are here to develop one such E-Commerce website which can be used by anybody for their different purposes.

1.2 Scope

The project aims to explore the extensive scope of an e-commerce website in the modern business landscape. In today's digital era, e-commerce platforms have transcended geographical boundaries, offering a vast market reach and unlimited potential for growth. The scope of this project encompasses creating a user-centric website that not only facilitates seamless online shopping experiences but also empowers businesses to tap into global markets, enhance brand visibility, and drive revenue growth.

1.3 Project Summary and Purpose

We are developing an E-Commerce website using MERN Stack. The application will be made in such a way that offers a good shopping experience to users. An E-commerce website with login functionality, product sorting, product categorization, cart, and checkout features offers a comprehensive online shopping experience to users. The website allows customers to create accounts, enabling personalized interactions and order history tracking. Through an intuitive user interface, customers can easily search for products, sort them based on various criteria such as price or popularity, and browse through different product categories. Once customers

find their desired items, they can add them to their shopping cart, which stores selected products for later purchase. During the checkout process, secure payment gateways ensure safe transactions, while order confirmation emails provide users with purchase details. This integrated platform streamlines the buying process, providing convenience, security, and efficient management of customer purchases. With such features, the E-commerce website optimizes user satisfaction, promotes customer loyalty, and facilitates the growth and success of businesses in the competitive digital marketplace.

1.4 Overview

In today's fast-paced and interconnected world, the urge to utilize e-commerce websites has become more compelling than ever. With technological advancements and changing consumer behaviours, traditional brick-and-mortar stores are facing new challenges. The convenience, accessibility, and vast product offerings provided by e-commerce platforms have captured the attention of consumers worldwide. Whether it is purchasing daily essentials, browsing for unique items, or enjoying the ease of doorstep deliveries, e-commerce websites offer an unparalleled shopping experience. The rise of e-commerce websites has ignited an undeniable urge among individuals and businesses to embrace this transformative way of shopping. In today's fast-paced society, convenience is paramount, and e-commerce platforms deliver precisely that. With just a few clicks, consumers can explore an extensive array of products, compare prices, read reviews, and make purchases from the comfort of their homes or on the go. The ability to shop anytime, anywhere has revolutionized the retail landscape and empowered consumers with unprecedented choice and accessibility.

1.5 Problem Definition

In today's digital age, where online shopping has become the norm, the absence of an e-commerce platform can severely limit the business's growth potential and hinder its ability to reach a wider customer base. Additionally, if an existing e-commerce website is lacking in functionality, user experience, or security, it can result in poor customer engagement, reduced sales, and a negative brand image.

Introduction

Key problems that need to be addressed in the project include:

Limited Market Reach: The absence of an e-commerce website restricts the business's ability to expand its market reach beyond traditional brick-and-mortar stores. It prevents customers from accessing products and services conveniently from anywhere, limiting sales opportunities and hindering business growth.

Inefficient Sales Process: Without an e-commerce platform, the sales process may rely heavily on manual interventions, such as phone calls, emails, or in-person transactions. This can lead to inefficiencies, delays in order processing, and a higher chance of errors, ultimately impacting customer satisfaction and hindering scalability.

Poor User Experience: If the existing e-commerce website lacks an intuitive user interface, efficient navigation, or quick-loading pages, it can result in a frustrating user experience. Difficulties in finding products, complicated checkout processes, or lack of personalized recommendations can discourage customers from making purchases and negatively impact conversion rates.

Limited Product Visibility: Without an e-commerce website, businesses may struggle to showcase their full product catalog. This can lead to missed sales opportunities, as customers may not be aware of the complete range of offerings. Additionally, limited product descriptions, images, or reviews can further impede customers' decision-making process and hinder their confidence in making purchases.

Inadequate Security Measures: If the existing e-commerce website lacks robust security measures, such as SSL encryption, secure payment gateways, or data protection protocols, it poses a significant risk to customer data and financial transactions. This can erode trust, deter potential customers from making purchases, and potentially expose the business to legal and reputational issue.

2. Technology and Literature Review

2.1 Technology Used

2.1.1 React

React (also known as React.js or ReactJS) is a free and open-source front-end JavaScript library for building user interfaces based on components. It is maintained by Meta (formerly Facebook) and a community of individual developers and companies.

React can be used to develop single-page, mobile, or server-rendered applications with frameworks like Next.js. Because React is only concerned with the user interface and rendering components to the DOM, React applications often rely on libraries for routing and other client-side functionality. React adheres to the declarative programming paradigm. Developers design views for each state of an application, and React updates and renders components when data changes. This is in contrast with imperative programming.

React code is made of entities called components. These components are modular and reusable. React applications typically consist of many layers of components. The components are rendered to a root element in the DOM using the React DOM library. When rendering a component, values are passed between components through props (short for "properties"). Values internal to a component are called its state.

2.1.2 Tailwind CSS

Tailwind CSS is an open-source CSS framework. The main feature of this library is that, unlike other CSS frameworks like Bootstrap, it does not provide a series of predefined classes for elements such as buttons or tables. Instead, it creates a list of "utility" CSS classes that can be used to style each element by mixing and matching.

The utility-first concept refers to the main differentiating feature of Tailwind. Instead of creating classes around components (button, panel, menu, textbox ...), classes are built around a specific style element (yellow color, bold font, very large text, center element...). Each of these classes is called utility classes. There are many utility classes in Tailwind CSS that enable to control a large number of CSS properties like colors, border, display type (display), font size and font, layout, shadow, etc.

Tailwind offers the possibility to apply a utility class only in some situations through media queries, which is called a variant. The main use of variants is to design a responsive interface for various screen sizes. There are also variants for the different states an element can have, such as hover : for when hovered, focus: when keyboard selected or active: when in use, or when the browser or operating system has dark mode enabled.

2.1.3 NodeJS

Node.js is a cross-platform, open-source server environment that can run on Windows, Linux, Unix, macOS, and more. Node.js is a back-end JavaScript runtime environment, runs on the V8 JavaScript Engine, and executes JavaScript code outside a web browser. Node.js lets developers use JavaScript to write command line tools and for server-side scripting. The ability to run JavaScript code on the server is often used to generate dynamic web page content before the page is sent to the user's web browser. Consequently, Node.js represents a "JavaScript everywhere" paradigm, unifying web-application development around a single programming language, as opposed to using different languages for the server- versus client-side programming. Node.js has an event-driven architecture capable of asynchronous I/O. These design choices aim to optimize throughput and scalability in web applications with many input/output operations, as well as for real-time Web applications (e.g., real-time communication programs and browser games). The Node.js distributed development project was previously governed by the Node.js Foundation, and has now merged with the JS Foundation to form the OpenJS Foundation. OpenJS Foundation is facilitated by the Linux Foundation's Collaborative Projects program.

2.1.4 MangoDB

MongoDB is a source-available cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with optional schemas. MongoDB is developed by MongoDB Inc. and current versions are licensed under the Server-Side Public License (SSPL) which is considered non-free by some organizations and distributions. MongoDB is a member of the MACH Alliance. MongoDB supports field,

range query, and regular-expression searches. Queries can return specific fields of documents and also include user-defined JavaScript functions. Queries can also be configured to return a random sample of results of a given size.

2.2 Brief History on Work Done

With the availability of internet at cheaper rates and its intervention at diverse areas not by means of sectors but by considering geographical areas too, it had bring different benefits with him. One of such area where its benefits can be seen is urge in use E-Commerce websites for shopping. Many tech-giants had already been in this field since last many years. We all know the names of such big companies who had predicted this very early and has taken first move advantage of it. Companies like Amazon, e-bay, flipkart etc are examples of such companies. The first recorded instance of eCommerce was in 1971 when students at Stanford University used the ARPANET to buy and sell marijuana. This early experiment was short-lived, however, as the university soon shut down the operation.

The 1990s saw the emergence of eCommerce as we know it today, with companies such as Amazon and eBay leading the way. These companies allowed individuals to buy and sell goods online, creating an entirely new market for businesses to tap into.The growth of eCommerce was further accelerated by the emergence of online payment systems like PayPal, which allowed for safe and secure transactions.Today, eCommerce is a multi-billion dollar industry that has revolutionized the way we shop. From humble beginnings as a way for individuals to buy and sell goods online, eCommerce has grown into an integral part of our lives. As technology continues to evolve, so too will the way we shop, and eCommerce will continue to be a major part of our lives for years to come.

3. System Requirement Study

3.1 User Characteristics

User characteristics for an e-commerce website can vary depending on the target audience and the nature of the products or services being offered. However, some common user characteristics include:

Tech-Savviness: E-commerce websites primarily attract users who are comfortable using technology, browsing the internet, and making online transactions. They are familiar with basic web navigation, online forms, and digital payment methods.

Diverse Age Groups: E-commerce websites cater to users of various age groups. While younger users may be more digitally adept and comfortable with online shopping, older users are also increasingly adopting e-commerce platforms.

Convenience Seekers: E-commerce users are typically seeking convenience and time-saving benefits. They prefer the ease of shopping from their homes or mobile devices, avoiding the need to visit physical stores.

Price and Value Conscious: Users on e-commerce websites often compare prices and look for value in the products or services they purchase. They are more likely to explore multiple websites before making a buying decision.

Mobile Users: With the increasing popularity of smartphones, many e-commerce users access websites through mobile devices. Hence, optimizing the website for mobile responsiveness is essential.

Impatient Shoppers: E-commerce users expect fast load times and quick checkout processes. If the website is slow or complicated, they are more likely to abandon their shopping carts and look for alternatives.

3.2 Hardware and Software Requirements

Hardware Requirements: -

- Dual-Core processor with clock speed 1.8GHz
- 4 GB Ram
- 512 KB Cache Memory
- Hard disk 256 GB
- Microsoft Windows , MacOS, Linux

Software Requirements: -

- **Operating System :** Windows
- **Web-Technology:** MERN Stack
- **Front-End:** React, Tailwind CSS
- **Back-End:** NodeJS, MangoDB
- **Web Server:** NodeJS

3.3 Constraints

3.3.1 Regulatory Policies

Privacy Policy: An e-commerce website must have a comprehensive privacy policy that explains how it collects, uses, stores, and protects users' personal information. This policy should detail the types of data collected, the purpose of data processing, and the security measures in place to safeguard sensitive information.

Terms of Service (TOS) or Terms and Conditions (T&C): The TOS or T&C outline the rules and guidelines for using the e-commerce website. It covers aspects such as user responsibilities, intellectual property rights, limitations of liability, and dispute resolution procedures.

Return and Refund Policy: This policy governs the process for product returns, exchanges, and refunds. It should specify conditions for returning products, the timeframe for returns, and the methods of refunding payments.

Shipping and Delivery Policy: The shipping and delivery policy should provide clear information about shipping methods, delivery timelines, shipping charges, and any applicable restrictions or limitations.

Payment Gateway Compliance: E-commerce websites need to comply with Payment Card Industry Data Security Standard (PCI DSS) requirements if they process credit card payments. This ensures the secure handling of cardholder data during payment transactions.

3.3.2 Hardware Limitations

Server Capacity: The web server that hosts the Node.js backend of the MERN stack needs sufficient processing power and memory to handle incoming requests, process database operations, and deliver responses to users. As the number of concurrent users increases, the server's capacity should scale accordingly to handle the load.

Database Performance: MongoDB, the NoSQL database used in the MERN stack, requires adequate hardware resources to ensure optimal performance. As the size of the database grows and the number of concurrent transactions increases, the server hosting MongoDB may require additional storage, memory, and processing power.

Load Balancing: To distribute incoming traffic evenly across multiple servers and prevent overloading of a single server, load balancing is essential. Hardware load balancers or specialized software solutions may be required to ensure efficient distribution of requests.

Network Bandwidth: As an e-commerce website serves a large number of users and involves data-intensive operations, a high-speed and reliable internet connection is necessary.

Sufficient network bandwidth is crucial to handle data transfers between servers, databases, and users.

3.3.3 Parallel Operations

User Registration and Authentication: The website needs to handle multiple user registrations and authentications simultaneously. Parallel processing ensures that users can create accounts, log in, and access their personalized information without delays.

Product Search and Filtering: When users search for products or apply filters to narrow down their search results, the website should perform these operations in parallel to quickly provide relevant product options based on their preferences.

Product Page Loading: When multiple users access product pages simultaneously, the website should load the pages in parallel to minimize waiting times and provide a seamless browsing experience.

Inventory Management: Inventory data is continuously updated as products are bought and restocked. Parallel operations are necessary to keep inventory levels accurate and prevent overselling of products.

Cart and Checkout Handling: When users add items to their shopping carts and proceed to checkout, the website should manage these actions in parallel to avoid any conflicts or inconsistencies.

Order Processing: Parallel processing is crucial for handling incoming orders, updating stock levels, generating order confirmations, and managing the shipping and delivery process efficiently.

Payment Processing: When customers make payments, the website must process these transactions in parallel to ensure swift and secure payment handling.

8. User Reviews and Ratings: As users leave reviews and rate products, the website should manage these parallel operations to display up-to-date feedback for other customers.

3.3.4 Higher Order Requirements

Wishlist and Save for Later: Allowing users to create wishlists and save products for later encourages return visits and helps in decision-making, leading to improved conversion rates.

Gift Cards and Vouchers: Providing gift cards and vouchers as an option during checkout allows customers to purchase and redeem them for future purchases, fostering customer loyalty and increasing sales.

One-Click Checkout: Streamlining the checkout process by allowing users to save their payment details and complete transactions with a single click reduces cart abandonment and improves conversion rates.

Advanced Search and Filtering: Offering advanced search options and robust product filtering enables users to find specific products quickly and easily, improving the overall shopping experience.

3.3.5 Reliability Requirements

Uptime and Availability: The website should aim for high uptime and availability, ensuring that it is accessible to users 24/7 without significant downtime. This involves robust server infrastructure, redundancy, and monitoring systems to promptly address any issues.

Scalability: The website should be designed to handle varying levels of traffic and accommodate sudden spikes in user activity, such as during peak shopping seasons or promotional events.

Fast Page Load Times: Fast loading times are crucial for user satisfaction and can impact search engine rankings. The website should optimize images, use content delivery networks (CDNs), and implement caching to ensure swift page loads.

Redundancy and Failover Mechanisms: Implementing redundant systems and failover mechanisms helps prevent service disruptions in case of hardware failures or other issues, ensuring uninterrupted service.

Secure Transactions: The website must ensure the security of user data, especially during payment transactions. SSL encryption, secure payment gateways, and compliance with PCI DSS standards are crucial for secure online transactions.

Order Fulfilment: Reliable order processing, inventory management, and timely shipping are essential for meeting customer expectations and maintaining trust in the e-commerce platform.

3.3.6 Criticality of the Application

Revenue Generation: For many businesses, the e-commerce website is a significant source of revenue. Its criticality lies in its ability to drive sales, attract customers, and generate profits. Downtime or major issues with the website can result in lost sales and revenue.

Customer Experience: An e-commerce website plays a crucial role in shaping the customer experience. A positive and seamless user experience is vital for customer satisfaction and retention. Any issues affecting the website's usability or performance can lead to frustrated customers and lost business.

Security and Privacy: The criticality of an e-commerce website is heightened by the need to protect customer data, including personal information and payment details. Any security

breaches or data leaks can have severe consequences, including legal implications and loss of customer trust.

Scalability: As the business grows, the website must scale to handle increased traffic and demand. Scalability is critical to ensure the website can accommodate growing customer numbers and efficiently process transactions.

Regulatory Compliance: Non-compliance with data protection and consumer protection regulations can result in legal consequences and financial penalties. Ensuring the website's adherence to relevant regulations is critical to avoid legal risks.

3.3.7 Safety and Security Considerations

Secure Socket Layer (SSL) Encryption: SSL encryption ensures secure communication between the user's browser and the website's server. It encrypts sensitive data, such as login credentials and payment information, preventing unauthorized access during transmission.

Strong Password Policies: Enforce strong password policies for both users and administrators to minimize the risk of unauthorized access. Passwords should be complex, unique, and regularly updated.

Data Encryption: Sensitive customer data, including personal information and payment details, should be encrypted when stored in the database to prevent unauthorized access in case of a data breach.

Secure Payment Gateways: Use trusted and secure payment gateways to process transactions, ensuring that payment information is handled securely and in compliance with industry standards.

4. System Analysis

4.1 Study of Current System

There are still many businesses, MSMEs, or in simple words local shops who are covering only a small area for their retail business, we aim to provide them an E-Commerce website for the better expansion of their businesses and for providing the consumer a better shopping experience. We are not denying the fact that E-Commerce websites are part of the world. We have many E-Commerce Websites available in today's era like amazon, flipkart etc but to have a owners own website provides different benefits with it. There are many problems and weaknesses of the offline shopping method which are stated below:

Limited Market Reach: The absence of an e-commerce website restricts the business's ability to expand its market reach beyond traditional brick-and-mortar stores. It prevents customers from accessing products and services conveniently from anywhere, limiting sales opportunities and hindering business growth.

Inefficient Sales Process: Without an e-commerce platform, the sales process may rely heavily on manual interventions, such as phone calls, emails, or in-person transactions. This can lead to inefficiencies, delays in order processing, and a higher chance of errors, ultimately impacting customer satisfaction and hindering scalability.

Poor User Experience: If the existing e-commerce website lacks an intuitive user interface, efficient navigation, or quick-loading pages, it can result in a frustrating user experience. Difficulties in finding products, complicated checkout processes, or lack of personalized recommendations can discourage customers from making purchases and negatively impact conversion rates.

Limited Product Visibility: Without an e-commerce website, businesses may struggle to showcase their full product catalog. This can lead to missed sales opportunities, as customers may not be aware of the complete range of offerings. Additionally, limited product descriptions, images, or reviews can further impede customers' decision-making process and hinder their confidence in making purchases.

Inadequate Security Measures: If the existing e-commerce website lacks robust security measures, such as SSL encryption, secure payment gateways, or data protection protocols, it poses a significant risk to customer data and financial transactions. This can erode trust, deter potential customers from making purchases, and potentially expose the business to legal and reputational issues.

Limited Insights and Data Analysis: In the absence of an e-commerce platform, businesses may struggle to gather and analyze customer data, purchase trends, and website performance metrics. This hampers the ability to make informed business decisions, develop effective marketing strategies, and optimize the website experience based on user behavior.

4.2 Requirements of New System

4.2.1 User Requirements

User requirement are those requirements that define the functionality of project. In other functional requirements are basically how the system works for the users.
Interface of software to provide the interaction between students, admins and teachers.
Software provides the platform and saves the time. Also, software saves the record.

Administrator Aspect

- Logging into the system
- Addition and Updating products
- Order Details and Actions
- Invoice Generation
- Sending Invoices to Emails

CONSUMER(BUYER) Aspect

- Requesting registration
- Logging into the system

System Analysis

- Product Catalog
- Different Sorting/Category Options
- Cart functionality
- Payment Gateway and Checkouts

4.2.2 System Requirements

System Requirements are those requirements that don't define the actual working of the system. Non-functional requirements are used to judge the quality of the system. Non-functional requirements cover all the remaining requirements which are not covered by the functional requirements. They specify criteria that judge the operation of a system, rather than specific behaviours. Non-functional requirements in our project are:

1. Usability
2. Reliability
3. Integrity
4. Performance

Usability: Usability is a quality attribute used to access how easy the interface is to use. Usability is ease of use. It tells how user friendly the interface is.It includes memorability, learnability, and satisfaction. Our software interface has all the above quality. Any kind of user can easily understand the interface.

Reliability: Reliability is how much the system is consistent in different platforms. The ability of an apparatus, system to consistently perform its required function, on demand and without degradation or failure.

Integrity: Integrity means doing the right thing in a reliable way. Data integrity is a fundamental component of security. In its broadcast use, "Data Integrity" refers to the accuracy and consistency of data stored in a database, data mart or another construct. Data integrity is the overall completeness, accuracy and consistency of data.

PERFORMANCE: Performance is also a major non-functional requirement. Performance Requirements about resources required, response time, transaction rate or anything else having to do with performance.

4.3 Feasibility Study

4.3.1Does the system contribute to the overall objectives of the organization?

Yes, the system contributes to the overall objectives of the organization. By fulfilling user requirements and addressing specific business needs, the system helps achieve organizational goals and enhances overall efficiency and effectiveness. It streamlines processes, improves productivity, increases customer satisfaction, and supports decision-making. A well-designed and implemented system can lead to cost savings, competitive advantages, and growth opportunities for the companies.

4.3.2 Can the system be implemented using the current technology and within the given cost and schedule constraints?

The feasibility of implementing the system using the current technology and within the given cost and schedule constraints depends on the complexity of the system requirements, the availability of suitable technology, and the resources allocated for the project. A thorough analysis of these factors is essential to determine whether the implementation is viable. If the requirements are within the capabilities of the current technology, and the available budget and timeline are sufficient, the implementation is likely feasible. However, if significant technological upgrades or additional resources are required, the feasibility may be in question, and adjustments to the scope, timeline, or budget may be necessary.

4.3.3 Can the system be integrated with other system which are already in place?

Yes, the feasibility of integrating the system with other systems that are already in place depends on several factors, including the compatibility of the technologies, the availability of appropriate interfaces (APIs), and the level of complexity involved in the integration process.

System Analysis

If the existing systems have well-defined APIs or standard protocols for integration and the new system's architecture aligns with these standards, integration is likely to be achievable. However, if there are significant discrepancies in technologies or the integration requires complex modifications to the existing systems, it may pose challenges and require careful planning and development effort.

4.4 Requirements Validation (is concerned with showing that the requirements actually define the system which the customer wants)

Requirements validation for E-Commerce Website involves ensuring that the specified requirements accurately represent the system the customer desires. To achieve this, the following steps are crucial:

Customer Interaction Review: Engage with the customer to comprehensively understand their needs and expectations from the application. This step is essential for capturing the true essence of the desired system.

Detailed Requirement Analysis: Conduct a thorough examination of the gathered requirements to identify any ambiguities, contradictions, or missing information. It's vital to ensure that the requirements are clear, specific, and feasible.

Prototyping and Testing: Create a basic prototype of application to demonstrate its functionalities to the customer. Solicit feedback and conduct user testing to validate that the proposed features align with the customer's vision.

Customer Validation: Regularly communicate with the customer during the development process to validate that the evolving chatbot aligns with their expectations. This iterative approach allows for adjustments and improvements based on customer feedback.

4.5 Class Diagram

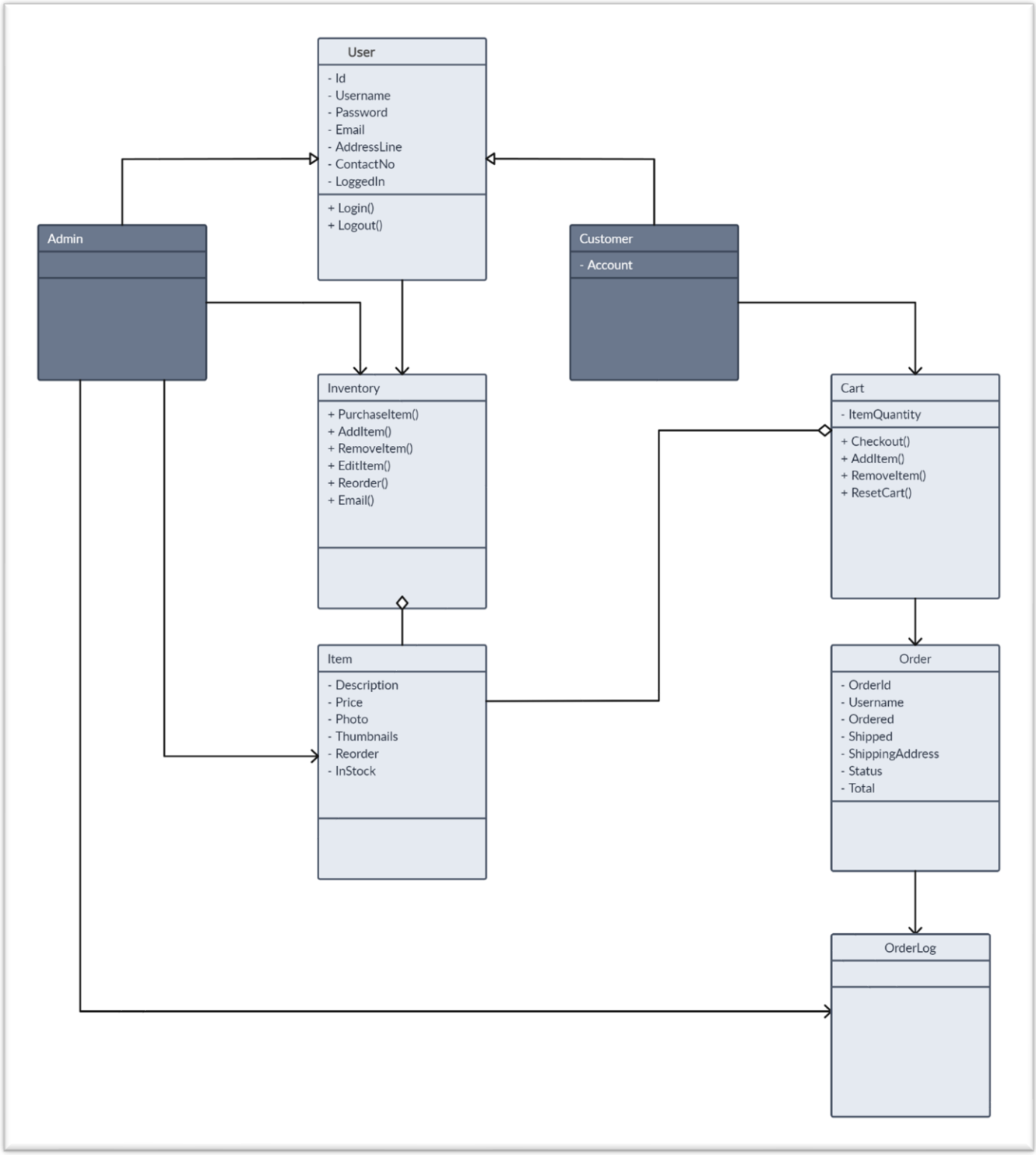


Fig. 1 : Class Diagram

4.6 System Activity (Use Case or Scenario Diagram)

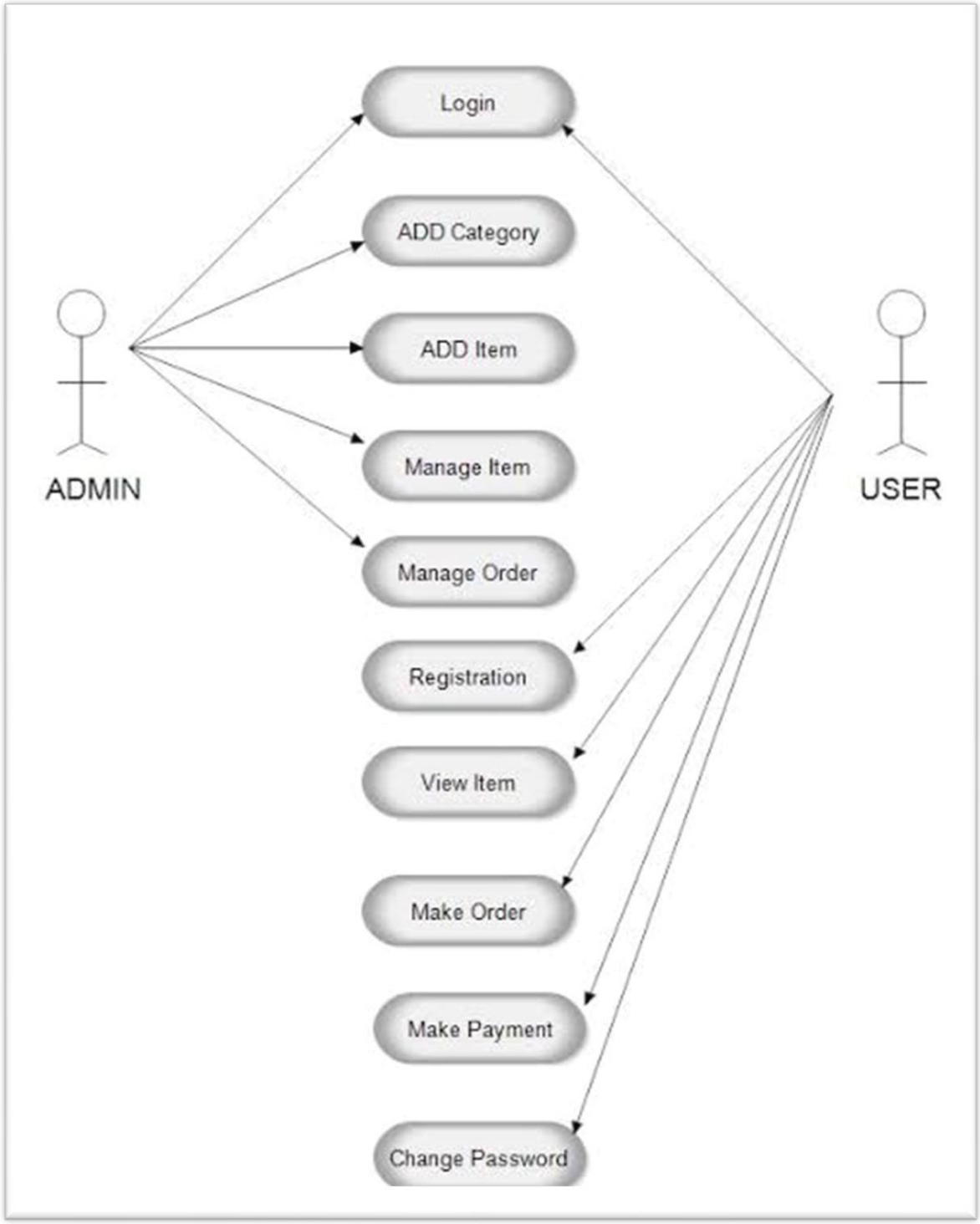


Fig. 2 Use Case Diagram

4.7 Sequence Diagram

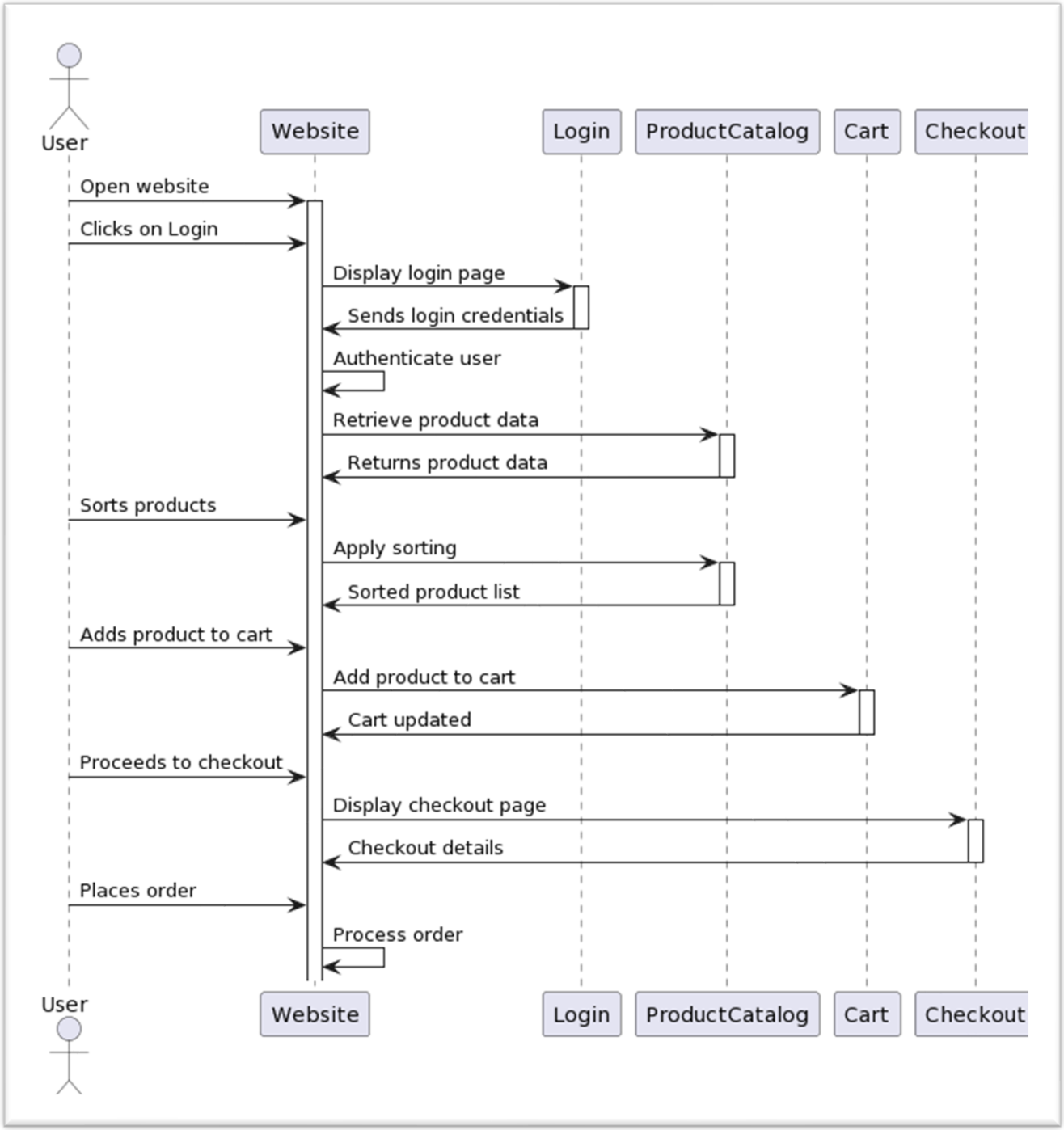


Fig. 3 : Sequence Diagram

5.System Design

5.1 Database Design/ Data Structure Design

5.1.1 Table and Relationship

Table 1: User Table

#	Name	Type
1	Name	String
2	Email	String
3	Password	String

Table 2: Admin Table

#	Name	Type
1	Company Name	String
2	ADMIN ID	String
3	PHONE	Number

Table 3: Buyer Table

#	Name	Type
1	Address	String
2	USER ID	String
3	PHONE	Number

Table 4: Product Table

#	**Name**	**Type**
1	Product ID	String
2	Title	String
3	Price	Number

Table 5: Product Details Table

#	**Name**	**Type**
1	Product ID	String
2	Brand	String
3	Category	Number
4	Image	-
5	Thumbnail	-
6	In-Stock	Number
7	Size/Color	String
8	Discount	Number

Table 6: Cart Table

#	**Name**	**Type**
1	User-ID	String
2	Cart- ID	String
3	Product-ID	String
4	Quantity	Number
5	Amount	Number
6	Shipping Address	String

Table 7: Order Table

#	**Name**	**Type**
1	Product-ID	String
2	Order-ID	String
3	Status	String
4	Total Quantity	Number
5	Total Amount	Number

Table 8: Past Order Table

#	**Name**	**Type**
1	Product-ID	String
2	Order-ID	String
3	Status	String
4	Total Quantity	Number
5	Total Amount	Number
6	Payment Method	String

5.2 ER Diagram

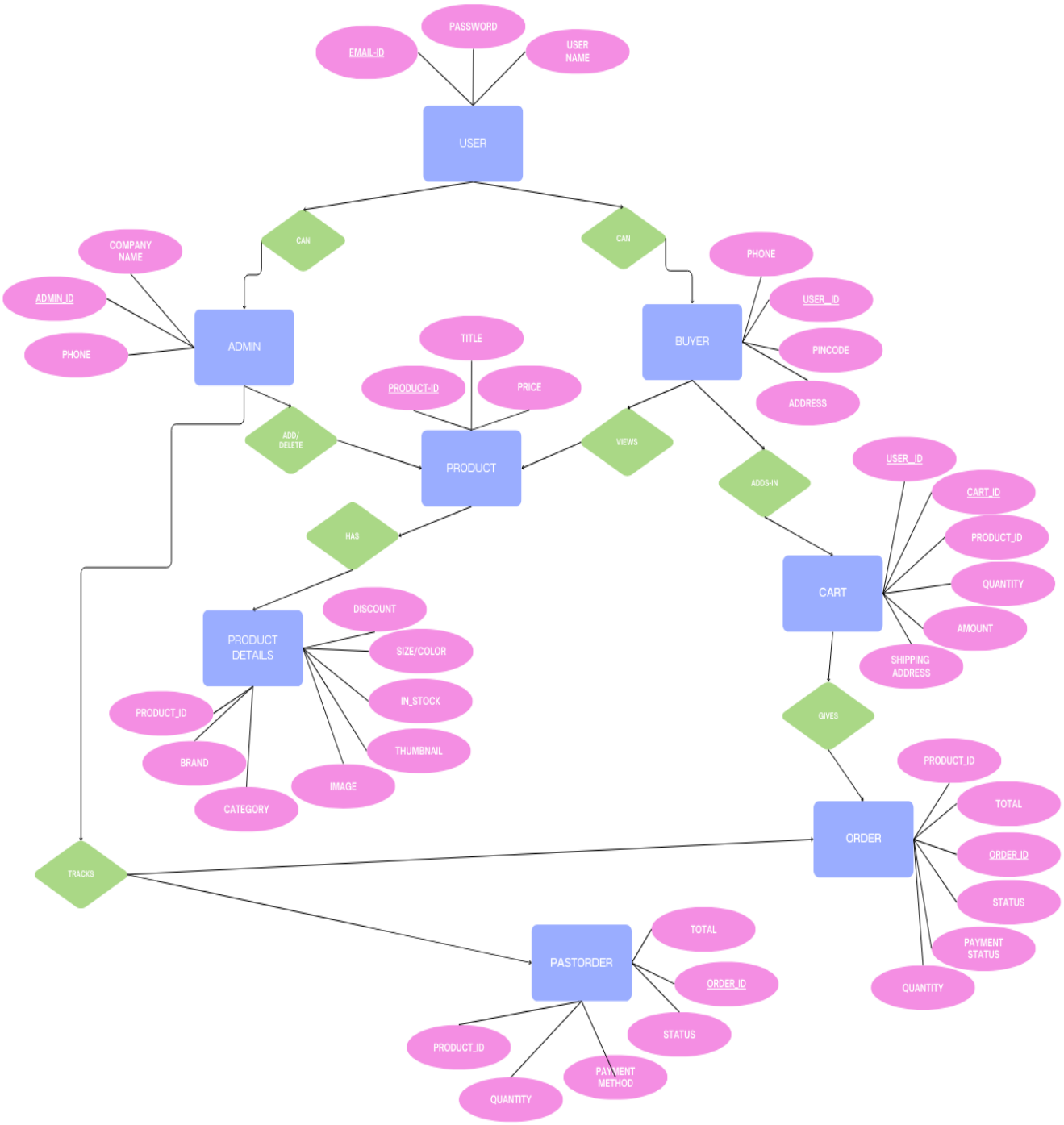


Fig. 4 ER Diagram

5.3 DFD Diagram

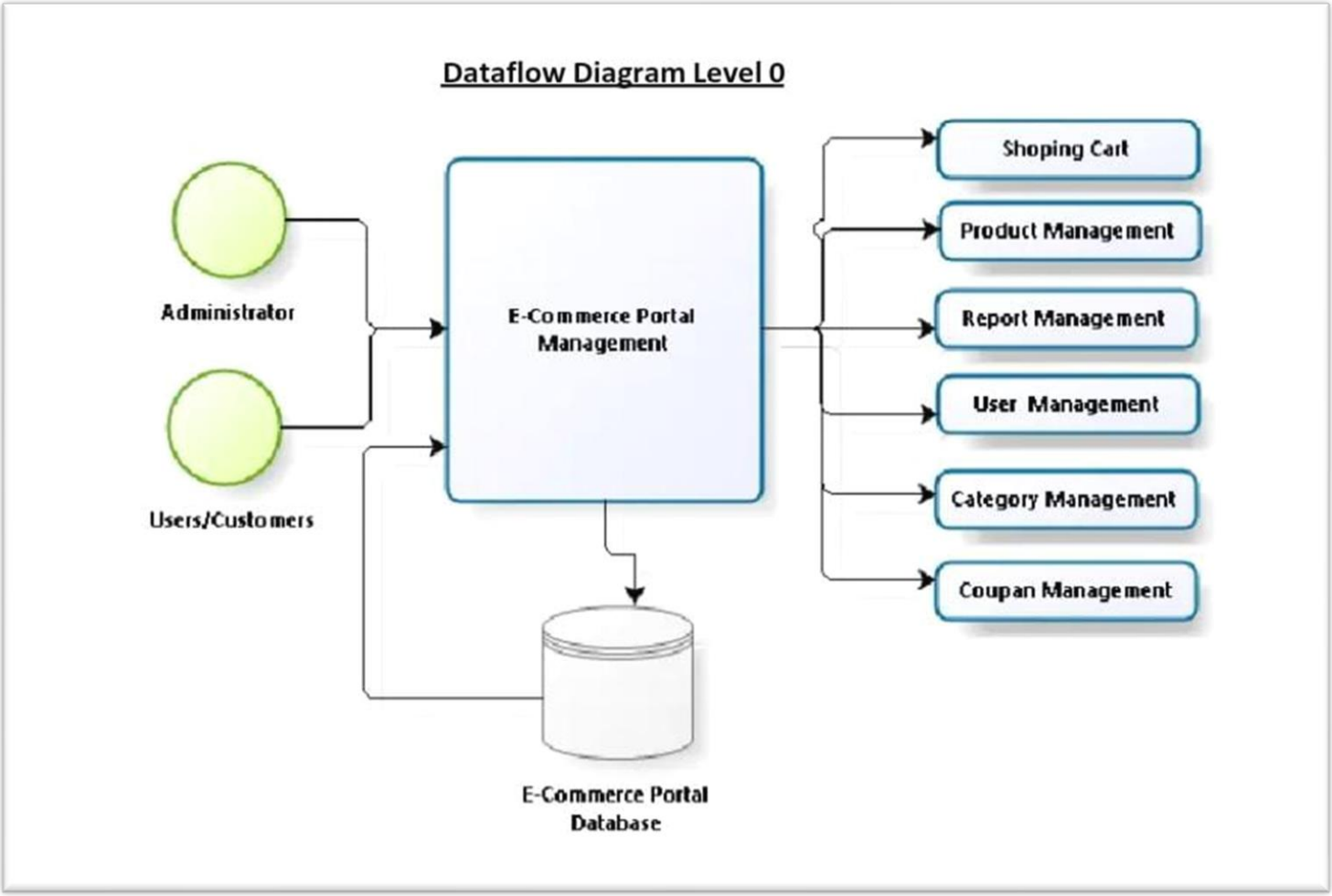


Fig. 5(a) DFD Level 0 Diagram

System Design

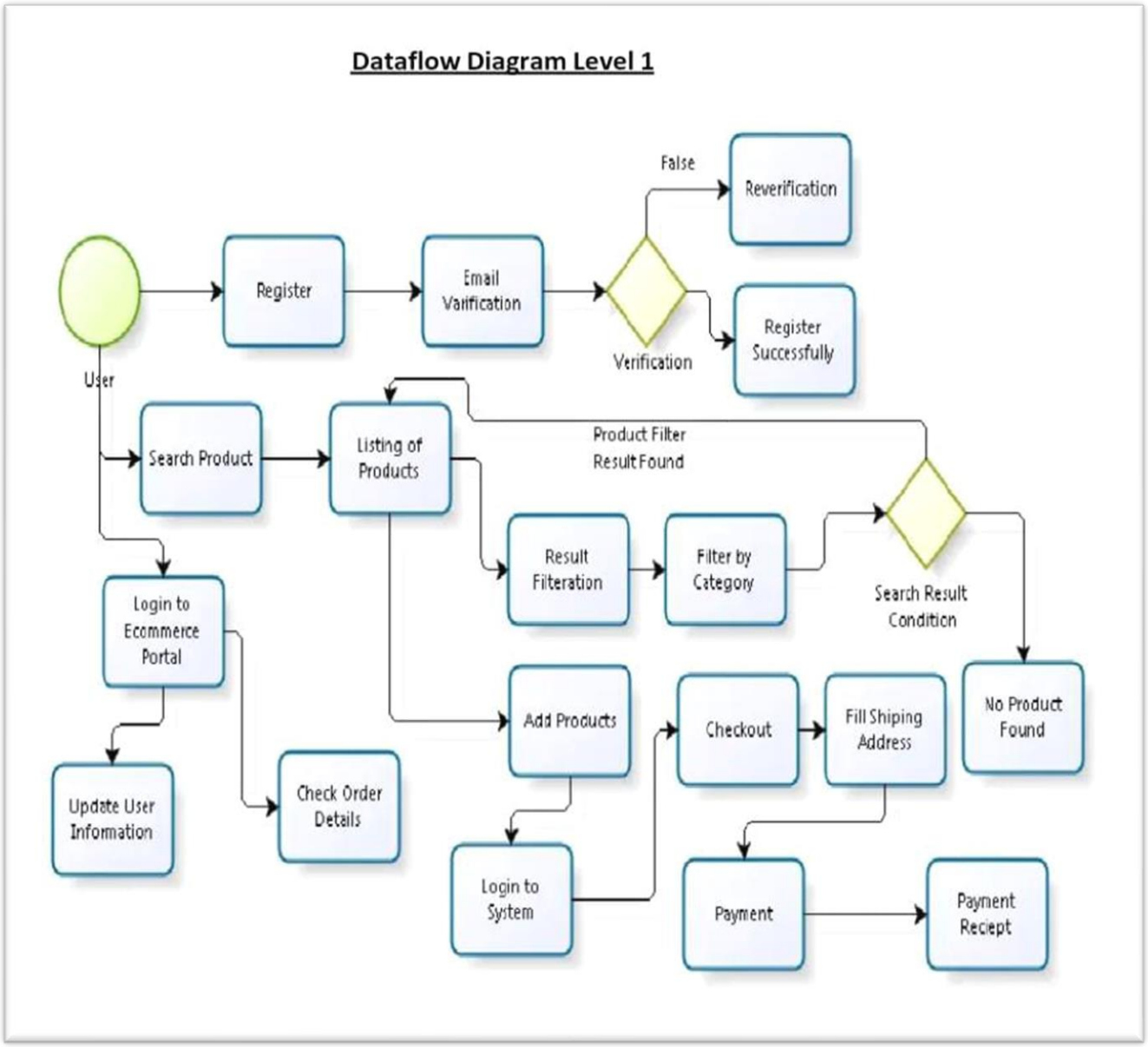


Fig. 5(b) DFD Level 1 Diagram

System Design

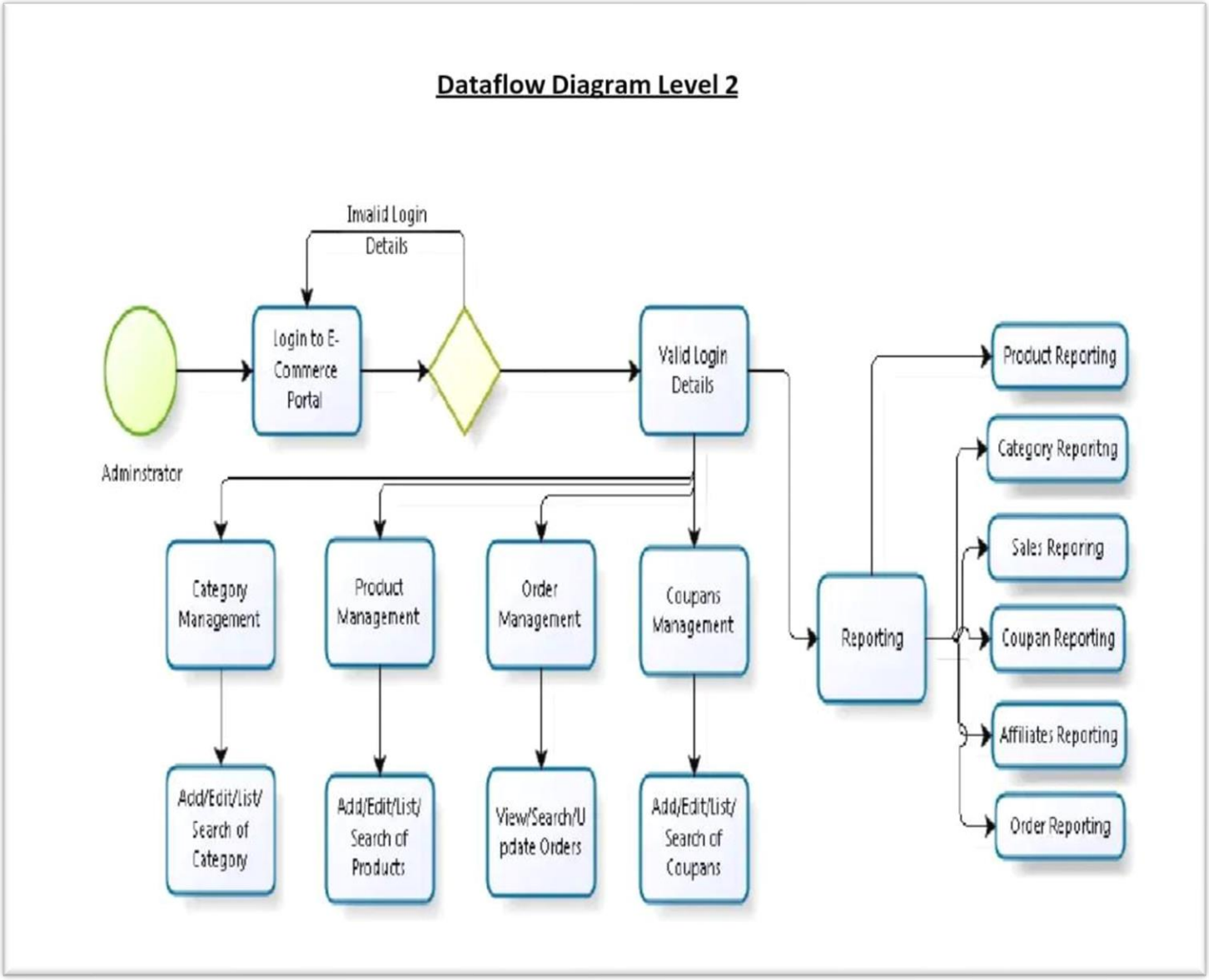
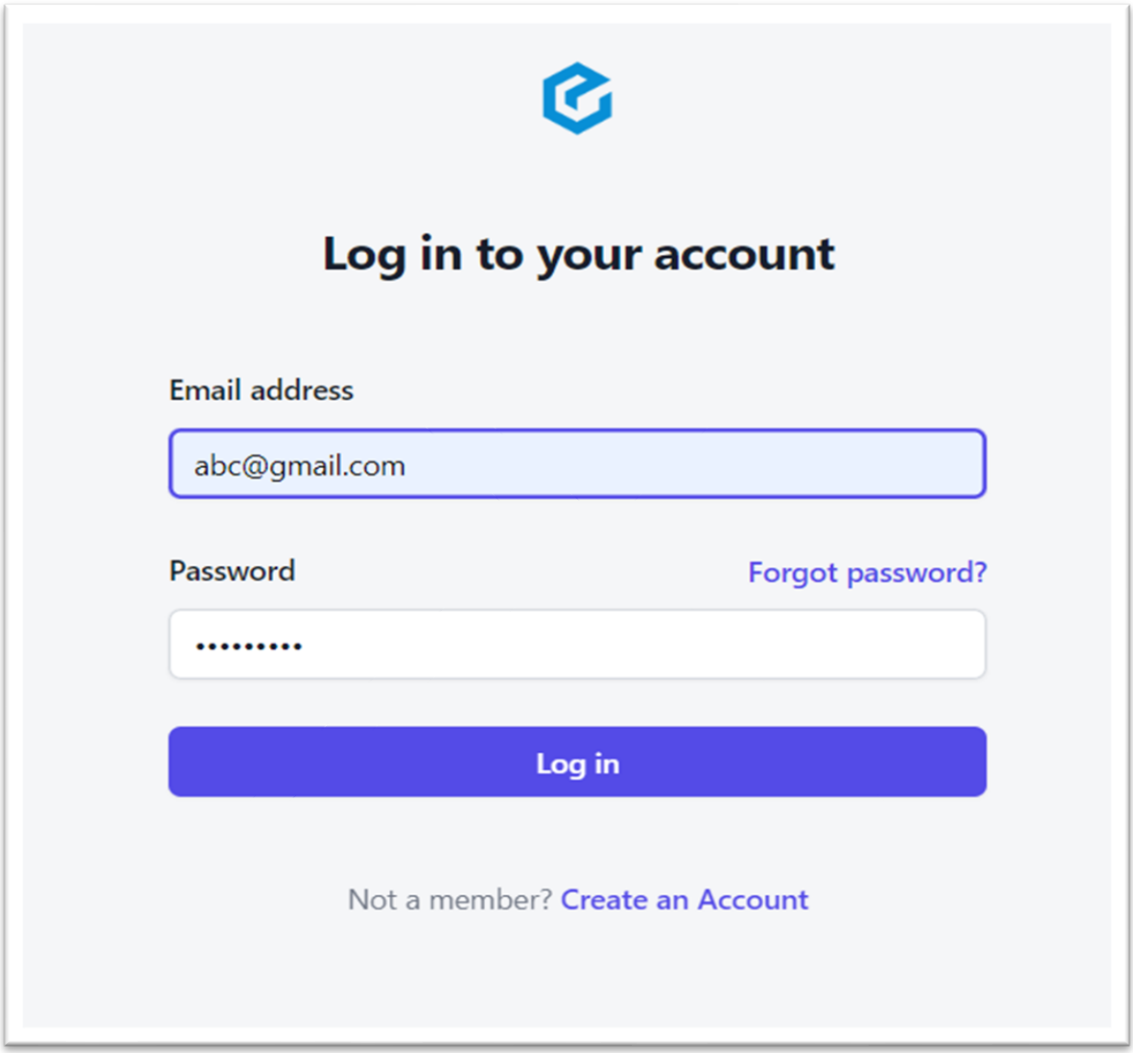


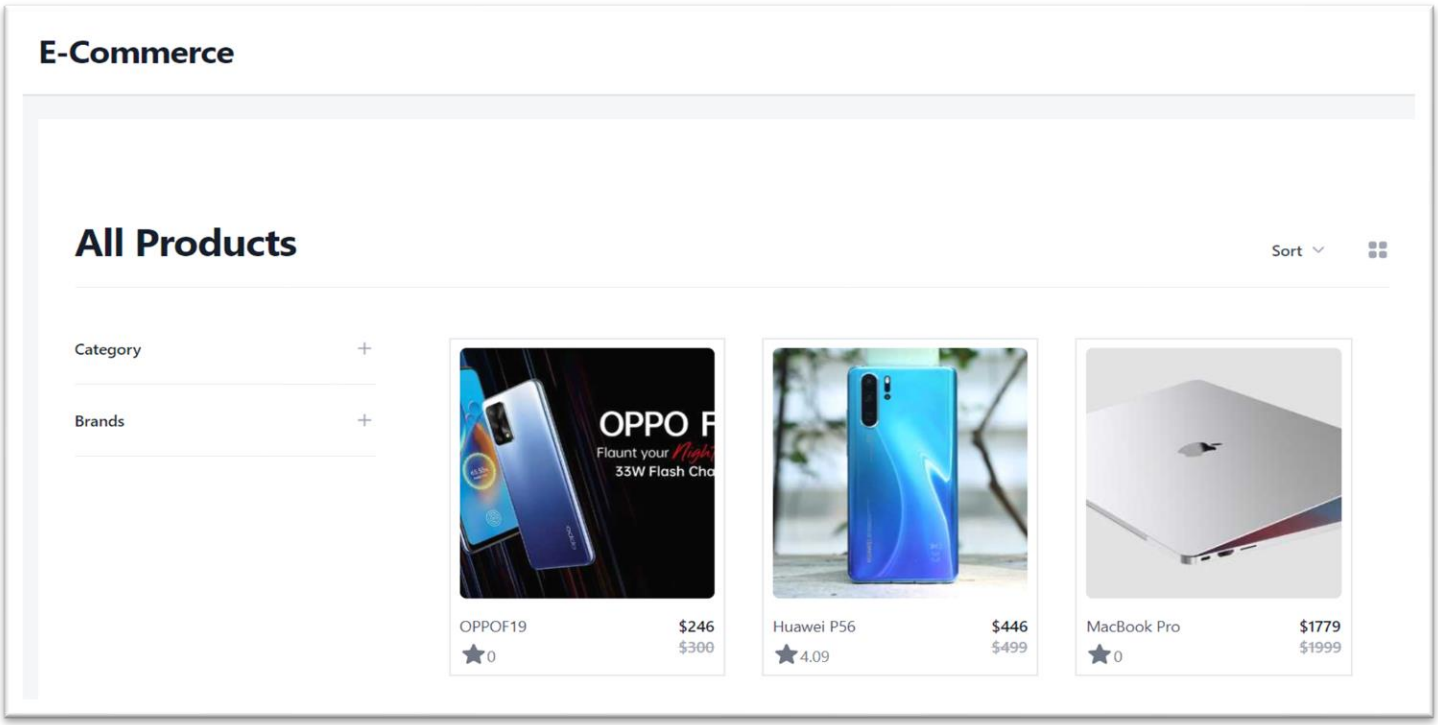
Fig. 5(c) DFD Level 2 Diagram

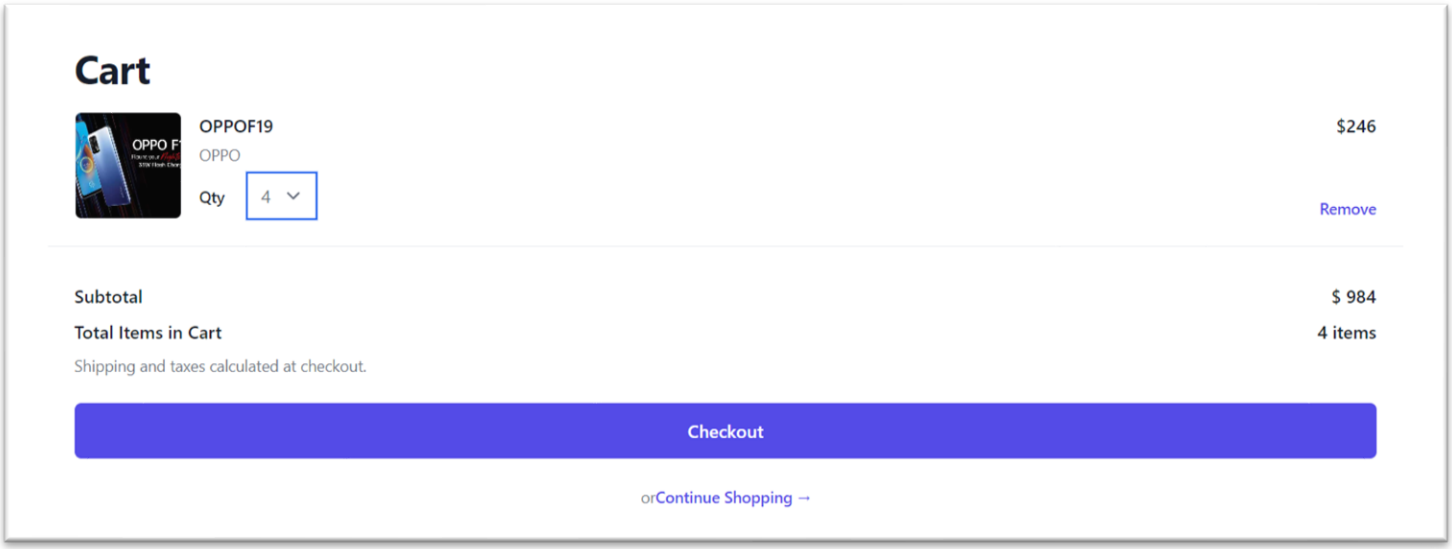
6. Project Screenshots

6.2 Project Implementation Screenshots

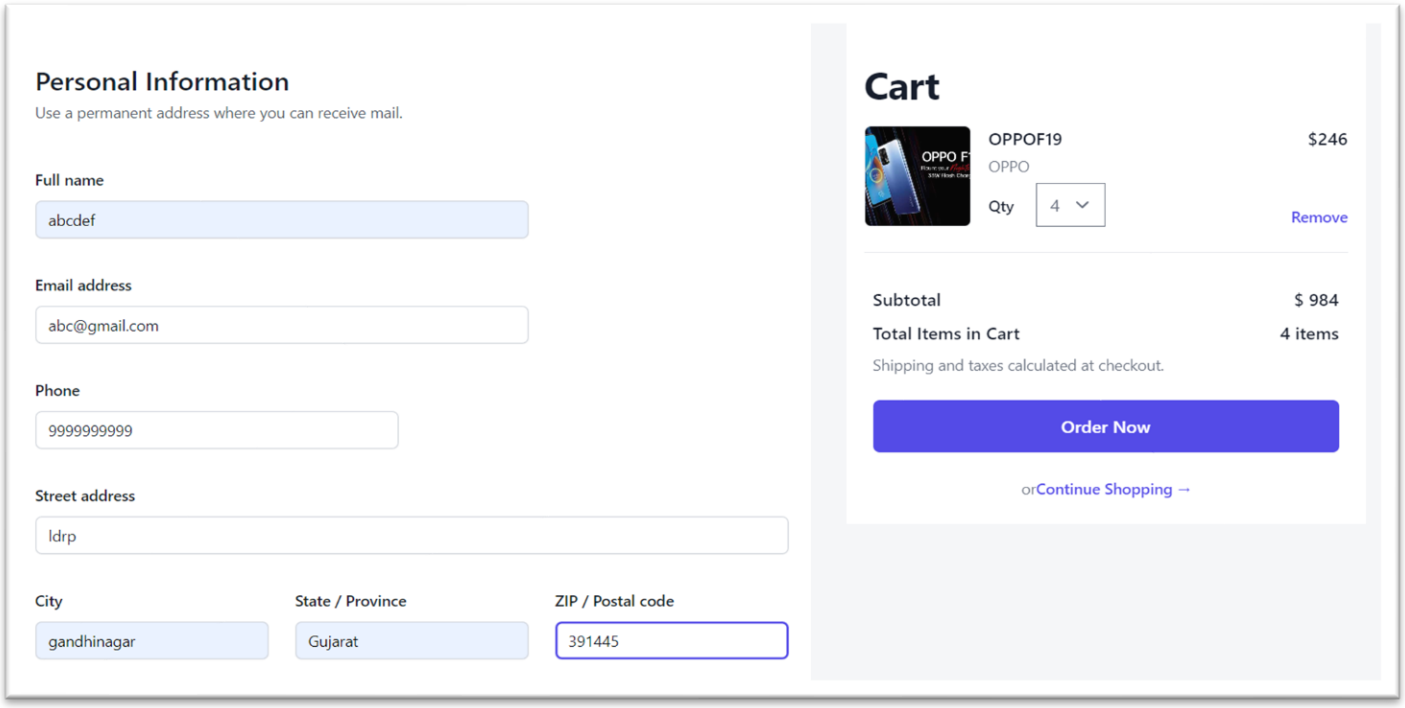


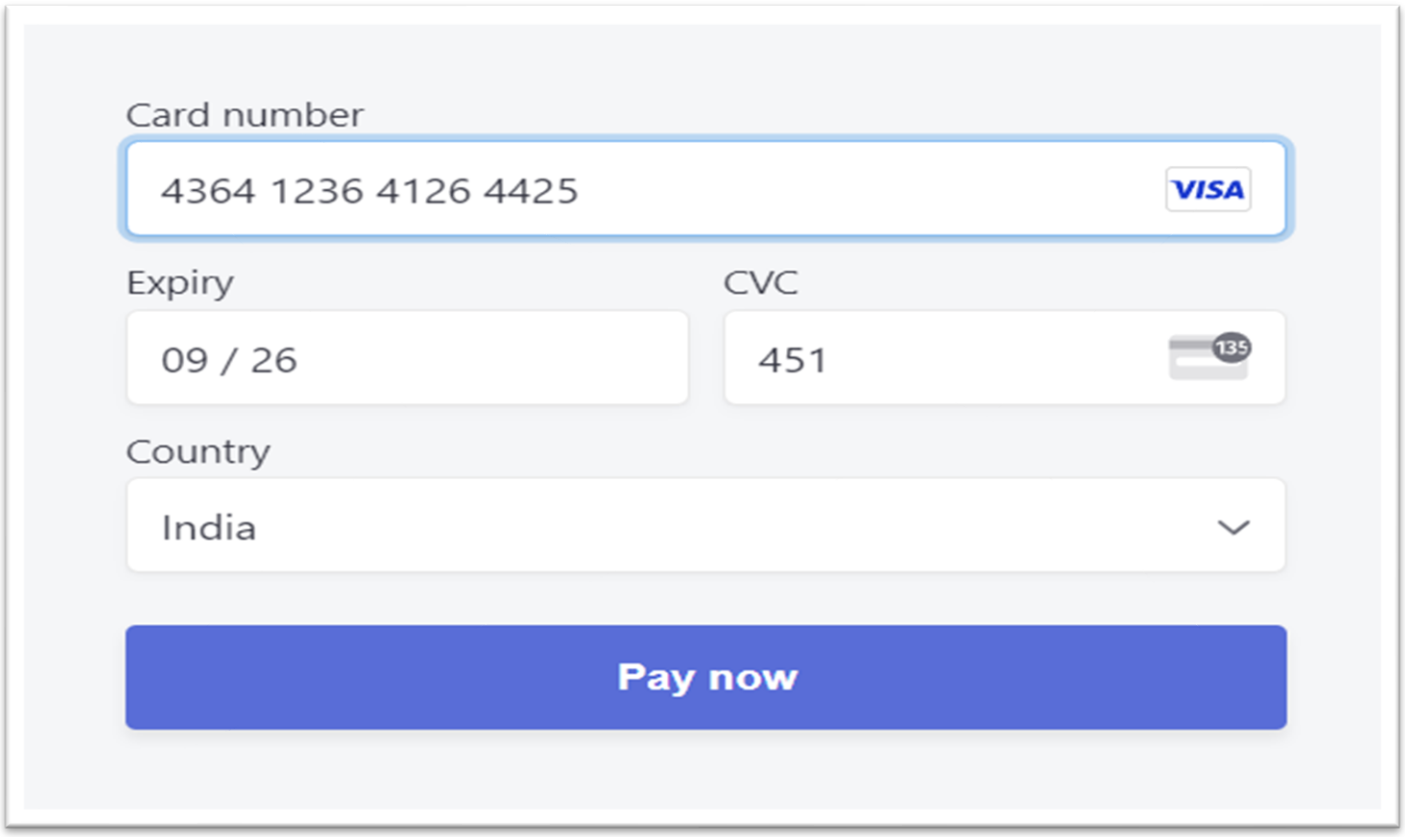
Project Screenshots





Project Screenshots





6. Conclusion

In conclusion, we have learned about the importance of e-commerce and its benefits such as convenience, cost-effectiveness, and increased reach. However, we also discussed the challenges that come with it, such as security concerns, competition, and customer trust. It is important to address these challenges and offer solutions to ensure the success of an e-commerce shopping web application.

We also covered the key features, design considerations, development process, and marketing strategies for an e-commerce shopping web application. By implementing these strategies, businesses can create successful e-commerce shopping web applications and increase their revenue. It is important to stay up-to-date with the latest trends and technologies in order to remain competitive in the market.

7. Bibliography

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