

Software Requirements Specification

for

Planet Pulse: Elevate Your Lifestyle with Reusable Essentials

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version

1. INTRODUCTION

1.1 PURPOSE

Product Identification:

Product Name: The product is an "Eco-Friendly E-commerce Platform."

Revision or Release Number: Version 1.0

Scope of the Product Covered by this SRS:

This SRS outlines the software requirements for the entire eco-friendly e-commerce platform. The scope of the product covered by this SRS includes:

- 1. Core Functionality:** The document describes the core functionalities of the e-commerce platform, including user registration and authentication, product listings, search and filtering, shopping cart management, checkout, order management, and user profiles.
- 2. Non-Functional Aspects:** It also encompasses non-functional requirements such as performance, accessibility, usability, compatibility, branding, and a strong identity.
- 3. Development Model:** The SRS specifies the use of the Scrum development model and outlines the roles and ceremonies within the Scrum framework.
- 4. Ownership and Responsibility:** It assigns specific ownership to team members for various functionalities, indicating their responsibilities within the project.

This SRS appears to cover the entire eco-friendly e-commerce platform, from user registration to order management, without explicitly mentioning a part of the system or a single subsystem. However, it does not specify a revision or release number for the document. If version control is required, it should be managed outside the scope of this SRS document.

1.2 INTENDED AUDIENCE

The Software Requirements Specification (SRS) document for "Planet Pulse: Elevate Your Lifestyle with Reusable Essentials" e-commerce website is typically intended for a diverse audience, each with specific roles and responsibilities within the project. Here are the different types of readers that the document is intended for:

- 1. Developers:** Developers are primarily interested in the technical details of the project. They need to understand the system architecture, programming languages, frameworks, and any APIs or third-party integrations required to implement the e-commerce website.
- 2. Project Managers:** Project managers are responsible for overseeing the entire development process. They need to grasp the scope, timeline, resource allocation, and risk factors outlined in the SRS to effectively plan and manage the project.

3. **Marketing Staff:** Marketing staff will be keen on understanding the features and functionalities of the website that can be leveraged for promotional purposes. They need insights into the user experience, product catalog, and any marketing-related capabilities.
4. **Users:** Users represent the end customers who will interact with the e-commerce website. They need to know what features and benefits the website will offer, ensuring that their needs and expectations are met.
5. **Testers:** Testers play a crucial role in ensuring the quality of the website. They will use the SRS to derive test cases and understand the expected behavior of the system, as well as any specific testing requirements.
6. **Documentation Writers:** Documentation writers will utilize the SRS to create user manuals, help guides, and technical documentation for both internal and external use. They need to understand the system's functionalities in detail.

The SRS document typically contains the following sections, organized in a structured manner:

1. Introduction:

- Provides an overview of the project, its purpose, and the context in which it is being developed.
- Offers a brief description of the e-commerce website and its objectives.

2. System Overview:

- Describes the high-level architecture of the system, including components and modules.
- Outlines the interaction between different system parts.

3. Functional Requirements:

- Details the specific functionalities and features of the e-commerce website.
- Provides use cases, user stories, or scenarios to explain how users will interact with the system.

4. Non-Functional Requirements:

- Covers non-functional aspects like performance, security, scalability, and usability.
- Specifies any constraints or limitations that must be considered during development.

5. User Interface (UI) Design:

- Presents wireframes, mockups, or design guidelines for the website's user interface.
- Defines the visual and interactive elements of the user experience.

6. Data Requirements:

- Describes the data models, databases, and data flow within the system.

- May include data schemas and database design specifications.

7. External Interfaces:

- Identifies any third-party services, APIs, or integrations required for the website.
- Specifies how the website will interact with external systems.

8. System Testing:

- Outlines the testing strategy, including test cases, scenarios, and acceptance criteria
- Defines how testing will be conducted to ensure the system's quality.

9. Project Timeline:

- Provides a project schedule, including milestones and delivery dates.
- Helps project managers and stakeholders track progress.

10. Conclusion:

- Summarizes the key points of the SRS document.
- Highlights the importance of meeting the defined requirements.

1.3 PRODUCT SCOPE

The specified software is an eco-friendly e-commerce website designed to provide an online platform for the sale of environmentally sustainable and eco-conscious products. Its primary purpose is to offer customers a convenient and ethical shopping experience while promoting sustainable living choices. The platform will showcase an extensive array of environmentally responsible products, with a distinct focus on reusable items, sustainable fashion, eco-conscious home goods, and a diverse selection of eco-friendly merchandise.

Objectives and Goals:

- Launch the Eco-Friendly E-Commerce Website within 2.5 months, featuring a curated selection of environmentally sustainable products with a strong emphasis on reusable items and sustainable fashion.
- Attract a minimum of 10,000 visitors within the first year, fostering a vibrant eco-conscious community.
- Partner with eco-conscious vendors and artisans within the first year to expand product offerings in line with our eco-friendly focus.
- Reduce the carbon footprint associated with shipping by 20% through sustainable packaging and shipping options within the first year.

Key Benefits:

- Sustainable Shopping: The website will enable customers to easily discover and purchase a wide array of eco-friendly products, supporting their commitment to sustainable living.

- Market Access for Eco-Conscious Brands: By offering a marketplace for eco-conscious businesses and brands, the platform will promote and support environmentally responsible commerce.
- Education and Awareness: The website will serve as an educational resource, providing information about sustainable practices, product certifications, and the environmental impact of consumer choices.
- Corporate Responsibility: Aligning with corporate social responsibility (CSR) goals, the website reinforces our commitment to sustainability and environmental stewardship.

Alignment with Corporate Goals:

- The Eco-Friendly E-Commerce Website closely aligns with our corporate goals and business strategies:
- Sustainability and Ethical Practices: The website embodies our commitment to sustainability and ethical business practices, reflecting our core values and corporate identity.
- Market Expansion: By providing a platform for eco-conscious products, we aim to expand our market reach while contributing to a more sustainable future.
- Education and Advocacy: The website serves as a means to educate and advocate for environmentally responsible choices, fostering a sense of community and shared responsibility.
- CSR and Brand Image: Our involvement in eco-friendly commerce enhances our corporate social responsibility efforts and strengthens our brand image as an environmentally conscious organization.

1.4 REFERENCES

References:

Vision and Scope Document:

- **Title:** "Planet Pulse: Elevate Your Lifestyle with Reusable Essentials - Vision and Scope"
- **Author:** Planet Pulse Project Team
- **Version Number:** 1.0
- **Date:** August 15, 2023
- **Source/Location:** [Provide the file path or URL where the document can be accessed]

User Interface Style Guide:

- **Title:** "User Interface Style Guide for Planet Pulse"
- **Author:** Planet Pulse UX Design Team
- **Version Number:** 2.0
- **Date:** July 20, 2023
- **Source/Location:** [Provide the file path or URL where the document can be accessed]

System Requirements Specification:

- **Title:** "Planet Pulse: E-commerce System Requirements Specification"
- **Author:** Planet Pulse Development Team
- **Version Number:** 3.0
- **Date:** September 5, 2023
- **Source/Location:** [Provide the file path or URL where the document can be accessed]

Use Case Documents:

- **Title:** "Planet Pulse: Use Case Scenarios"
- **Author:** Planet Pulse Business Analysts
- **Version Number:** 1.1
- **Date:** August 25, 2023
- **Source/Location:** [Provide the file path or URL where the document can be accessed]

Contract with Payment Gateway Provider:

- **Title:** "Payment Gateway Service Agreement"
- **Author:** XYZ Payment Services
- **Version Number:** 2.3
- **Date:** June 10, 2023
- **Source/Location:** [Provide the file path or URL where the contract can be accessed]

Third-Party API Documentation:

- **Title:** "API Documentation for Analytics and Marketing Services"
- **Author:** ABC Analytics & Marketing Services
- **Version Number:** 1.5
- **Date:** July 5, 2023
- **Source/Location:** [Provide the file path or URL to the API documentation]

2. Overall Description

2.1 PRODUCT PERSPECTIVE

The "Planet Pulse: Elevate Your Lifestyle with Reusable Essentials" e-commerce website is a new, self-contained product developed to meet the increasing demand for sustainable lifestyle products and provide customers with a convenient online shopping experience for reusable essentials. Here's the context and origin of this product:

Context and Origin:

New Standalone Product: The e-commerce website is a stand-alone product developed from the ground up to cater to customers seeking reusable lifestyle products. It is not a follow-on member of a product family or a replacement for existing systems.

Market Demand: The origin of this product lies in the growing awareness of environmental sustainability and the need for a platform that offers a wide range of reusable products. "Planet Pulse" aims to capitalize on this demand by providing a dedicated online marketplace.

Business Goals: The development of this e-commerce website aligns with the business goals of "Planet Pulse" to become a leading provider of eco-friendly, reusable lifestyle products. The website will serve as the primary platform for customer engagement and product sales.

User-Centric Focus: The product's origin is rooted in the desire to create a user-friendly, responsive, and secure e-commerce platform that enhances the shopping experience for customers while promoting environmentally conscious purchasing.

Sustainability Mission: The context for this product also includes a commitment to sustainability, with a focus on promoting and selling products that help reduce waste and contribute to a greener planet.

Relationship to Larger System:

The "Planet Pulse: Elevate Your Lifestyle with Reusable Essentials" e-commerce website is a self-contained product, but it may have interfaces with other external systems and services, including:

Payment Gateways: The website interfaces with third-party payment gateways (e.g., PayPal, Stripe) to securely process online transactions.

Shipping Providers: Integration with external shipping services (e.g., FedEx) for order fulfillment and tracking.

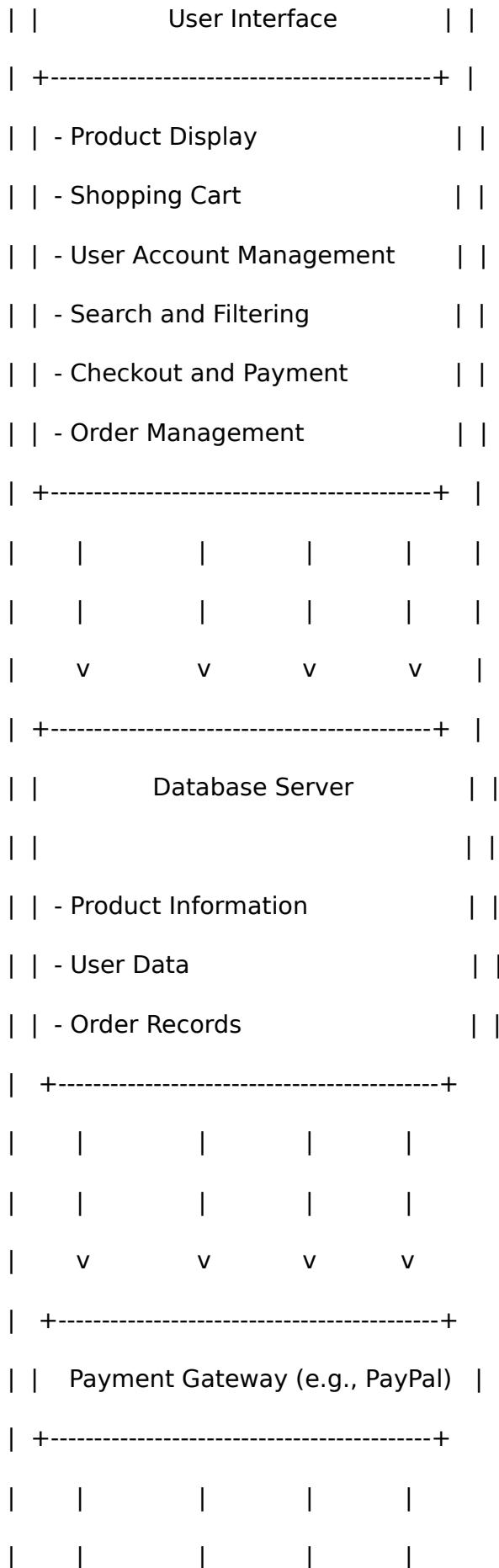
Analytics and Marketing Tools: Integration with third-party analytics and marketing services (e.g., Google Analytics, Mailchimp) for user data analysis and targeted marketing campaigns.

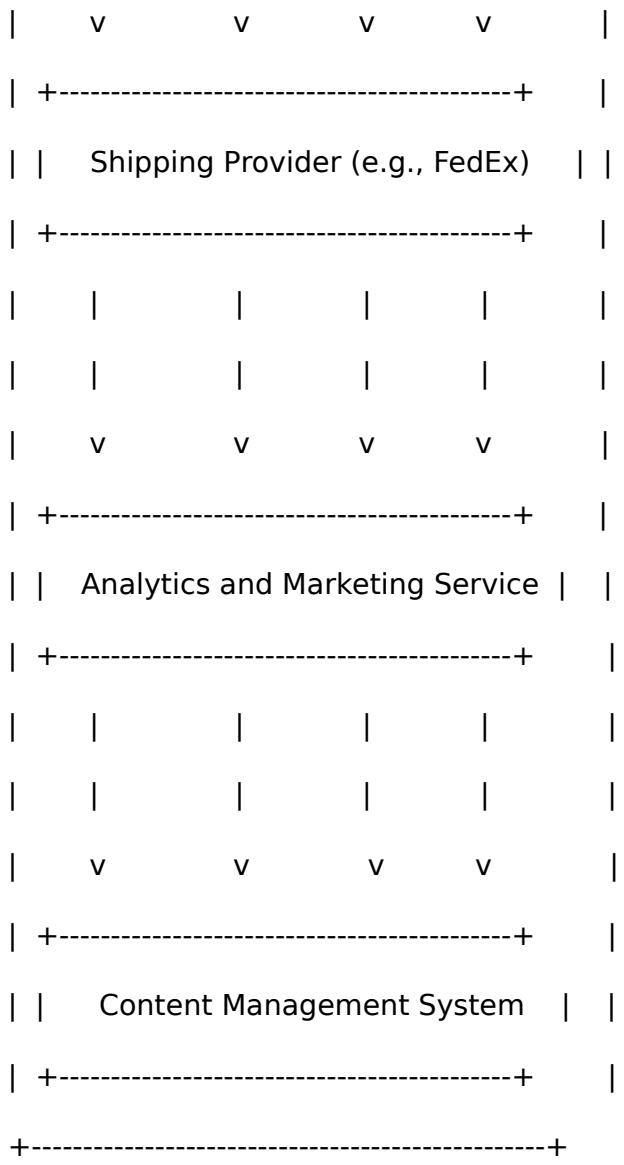
Content Management System (CMS): If a CMS is used, it interfaces with the CMS software and its associated plugins/modules for content management.

While the e-commerce website is self-contained in terms of its primary functionality, these external interfaces are crucial for its operation and provide additional features and services to enhance the overall user experience.

Diagram for illustration:







High-Level System Diagram:

Below is a simplified high-level system diagram illustrating the major components of the overall system and external interfaces:

This diagram represents the Eco-Friendly E-Commerce Website as a standalone entity interfacing with external systems as necessary for payment processing and email communication.

In summary, the Eco-Friendly E-Commerce Website is a self-contained product that originated from the need to provide a dedicated platform for eco-friendly products. While it operates independently, it interfaces with external systems to fulfill specific functions like payment processing and email communication.

2.2 PRODUCT FUNCTIONS

The major functions that the eco-friendly e-commerce platform must perform or allow users to perform:

User Account Management:

- User Registration
- Updating and managing user profiles.
- Logging in and logging out.

Product Management:

- Product listings with details, images, and prices.
- Detailed product information, including materials, dimensions, and care instructions.
- Search and filtering of products.

Shopping Cart:

- Adding products to the shopping cart.
- Cart management (adjusting quantities, removing items).

Checkout:

- Proceeding through the checkout process.
- Selecting shipping options.
- Securely entering payment information.

Order Management:

- Viewing order history.
- Checking order status.
- Tracking orders and estimated delivery dates.
- Managing orders, updating statuses, and tracking deliveries.

Non-Functional Requirements:

- Ensuring high performance, even during high traffic.
- Accessibility for people with disabilities.
- Usability and user-friendliness.
- Compatibility with popular web browsers.
- Strong branding and identity.

2.3 USER CLASSES AND CHARACTERISTICS

It is crucial to identify distinct user classes to fine-tune the user experience and cater to their specific requirements. Below are several expected user categories along with their relevant traits:

Regular Shoppers:

- **Frequency of Use:** Frequent visitors who browse and make purchases regularly.

- **Characteristics:** These users are interested in the products offered and may return for special deals or new arrivals.
- **Requirements:** Easy navigation, personalized recommendations, and a streamlined checkout process.

Casual Shoppers:

- **Frequency of Use:** Occasional visitors who may not shop regularly.
- **Characteristics:** They browse for specific items or gift ideas and may not be as familiar with the website.
- **Requirements:** Intuitive navigation, clear product descriptions, and guest checkout options for a smooth shopping experience.

New Users:

- **Technical Expertise:** Varied, as they may not be familiar with the website's layout and features.
- **Characteristics:** First-time visitors who need assistance with account creation and understanding how the website works.
- **Requirements:** User-friendly onboarding, tooltips, and clear guidance for registration and browsing.

Tech-Savvy Users:

- **Technical Expertise:** High, comfortable with online shopping and technology.
- **Characteristics:** Experienced online shoppers who may appreciate advanced features and shortcuts.
- **Requirements:** Quick access to advanced search filters, account customization, and easy access to account management options.

Corporate or Bulk Buyers:

- **Subset of Product Functions Used:** May purchase in bulk for business purposes.
- **Characteristics:** Purchasing agents or businesses interested in wholesale or bulk orders.
- **Requirements:** Support for bulk orders, custom pricing, and business accounts.

High-Value Customers:

- **Security or Privilege Levels:** May have premium or loyalty program memberships.
- **Characteristics:** Users with a history of high-value purchases and brand loyalty.
- **Requirements:** Access to exclusive deals, rewards program integration, and personalized offers.

International Shoppers:

- **Educational Level:** Varied, but may require multilingual support.
- **Characteristics:** Users from different countries or regions interested in international shipping.

- **Requirements:** Currency conversion, language options, and accurate international shipping information.

Customer Support and Help Desk:

- **Technical Expertise:** High, as they provide support and assistance to other users.
- **Characteristics:** Customer support staff responsible for resolving inquiries, issues, or disputes.
- **Requirements:** Access to customer data for support, quick response tools, and a secure messaging system.

Generally, regular shoppers, casual shoppers, and new users are typically the most critical user classes to prioritize, as they make up the majority of potential customers, and their satisfaction can significantly impact the website's success.

2.4 OPERATING ENVIRONMENT

The environment in which the e-commerce website will operate is a crucial consideration for its development and deployment. Here's a description of the expected operating environment:

- 1. Hosting:** Cloud-based servers (e.g., AWS, Azure) with ample processing power, memory, and storage for scalability.
- 2. OS:** Common choices like Linux (Ubuntu, CentOS) or Windows Server, regularly updated for security.
- 3. Web Server:** Apache, Nginx, or IIS for serving web content and handling HTTP requests.
- 4. Database:** MySQL, PostgreSQL, or NoSQL (e.g., MongoDB) for storing product info, user data, and transactions.
- 5. Development:** Languages (e.g., PHP, Python, JavaScript) and frameworks (e.g., Django, React) for frontend and backend development.
- 6. CMS:** Compatible CMS (e.g., WordPress, Drupal) and plugins/modules for content management.
- 7. Payments:** Integration with payment gateways (e.g., PayPal, Stripe) adhering to API and security standards.
- 8. Third-Party Services:** Integration with analytics, marketing, support, and shipping services (e.g., Google Analytics, Mailchimp, FedEx).
- 9. Compatibility:** Support for popular web browsers (e.g., Chrome, Firefox, Safari, Edge) and responsive design for mobile devices.

10. Security: Implementation of firewalls, intrusion detection, and antivirus software.

11. CDN: Utilization of a Content Delivery Network for optimized content delivery.

12. SSL/TLS: SSL/TLS certificates for secure HTTPS connections and user data protection.

2.5 DESIGN AND IMPLEMENTATION CONSTRAINTS

Developing an e-commerce website such as 'Planet Pulse: Elevate Your Lifestyle with Reusable Essentials' entails a multitude of limitations and considerations that significantly shape the choices available to developers. Below, we outline several critical factors that developers should carefully address during the development process:

Corporate or Regulatory Policies:

- Compliance with data protection regulations (e.g., GDPR, CCPA) may restrict how customer data is collected, stored, and used.
- Adherence to environmental regulations and sustainability standards if the products are marketed as eco-friendly or reusable.

Hardware Limitations:

- Hardware requirements for hosting the website, including server capacity, storage, and bandwidth, can limit scalability options.
- Timing and performance requirements, especially if real-time updates or transactions are critical.

Language Requirements:

- Language localization and internationalization for a global audience, which may require translation services and multilingual content.

Security Considerations:

- Implementation of robust security measures to safeguard customer data, prevent fraud, and protect against common web vulnerabilities (e.g., SQL injection, cross-site scripting).
- Regular security audits and updates to address evolving threats.

Scalability and Performance Testing:

- Rigorous testing to ensure the website can handle increased traffic and load, including stress testing to identify potential bottlenecks.

Accessibility Standards:

- Compliance with accessibility standards (e.g., WCAG) to ensure the website is usable by individuals with disabilities.

Design Conventions or Programming Standards:

- Adhering to UI/UX design conventions for a user-friendly interface.
- Following coding standards, version control practices, and documentation requirements, especially if the customer's organization will maintain the software.

Communications Protocols:

- Secure communication protocols (e.g., HTTPS) to protect sensitive customer information during transactions.
- API communication standards for data exchange with external systems.

Parallel Operations:

- Ensuring the website can handle concurrent user interactions, especially during high-traffic periods like promotions or holidays.

Specific Technologies, Tools, and Databases:

- Selection of programming languages, frameworks, and content management systems that align with the project's goals and developer expertise.
- Database choices (e.g., SQL or NoSQL) based on data storage and retrieval needs.

Interfaces to Other Applications:

- Integration with third-party payment gateways, shipping carriers, or inventory management systems may impose specific API or data format requirements.
- Compatibility with various web browsers and devices for a seamless user experience.

2.6 ASSUMPTIONS AND DEPENDENCIES

Assumed Factors:

- 1. Third-Party Services Integration:** Assumption that third-party services (e.g., payment gateways, shipping providers, analytics tools) can be seamlessly integrated into the website. Any limitations or changes in these services could affect functionality.
- 2. Data Volume:** Assumption about the expected volume of product data, user accounts, and transactions. Scaling and performance expectations depend on these assumptions, which could be incorrect.
- 3. Mobile Device Usage:** Assuming a certain level of mobile device usage. If this assumption is inaccurate, the website's responsive design and mobile functionality may need adjustment.
- 4. Content Updates:** Assuming content updates and product additions will be managed efficiently using the chosen CMS. Changes in content management practices could affect the website's ease of use.
- 5. Security Compliance:** Assuming adherence to data protection regulations and security best practices. Changes in regulations or security threats could require adjustments to the security measures.

6. User Traffic Patterns: Anticipating typical user traffic patterns and load expectations. Unexpected variations could impact server capacity requirements.

Dependencies:

- 1. Payment Gateway API:** The project depends on the availability and stability of the chosen payment gateway's API for processing transactions securely.
- 2. Shipping API:** Integration with shipping providers relies on the availability and reliability of their APIs to calculate shipping costs, generate labels, and track deliveries.
- 3. Analytics Service:** The project depends on the functionality and data accuracy of the chosen analytics service for tracking user behavior and improving the user experience.
- 4. CMS Compatibility:** The CMS chosen for content management must remain compatible with the website's requirements and continue receiving updates and support.
- 5. Hosting Provider:** The project relies on the hosting provider's infrastructure, including server availability, uptime, and scalability options.
- 6. Security Services:** Dependency on third-party security services for firewall protection, intrusion detection, and antivirus updates.
- 7. Regulatory Environment:** Compliance with data protection regulations (e.g., GDPR, CCPA) depends on the prevailing regulatory environment, which could change.
- 8. Mobile Operating Systems:** Mobile compatibility depends on the stability and updates of mobile operating systems (e.g., iOS, Android).
- 9. SSL Certificate Issuers:** The project relies on SSL/TLS certificates issued by third-party certificate authorities to ensure secure HTTPS connections.

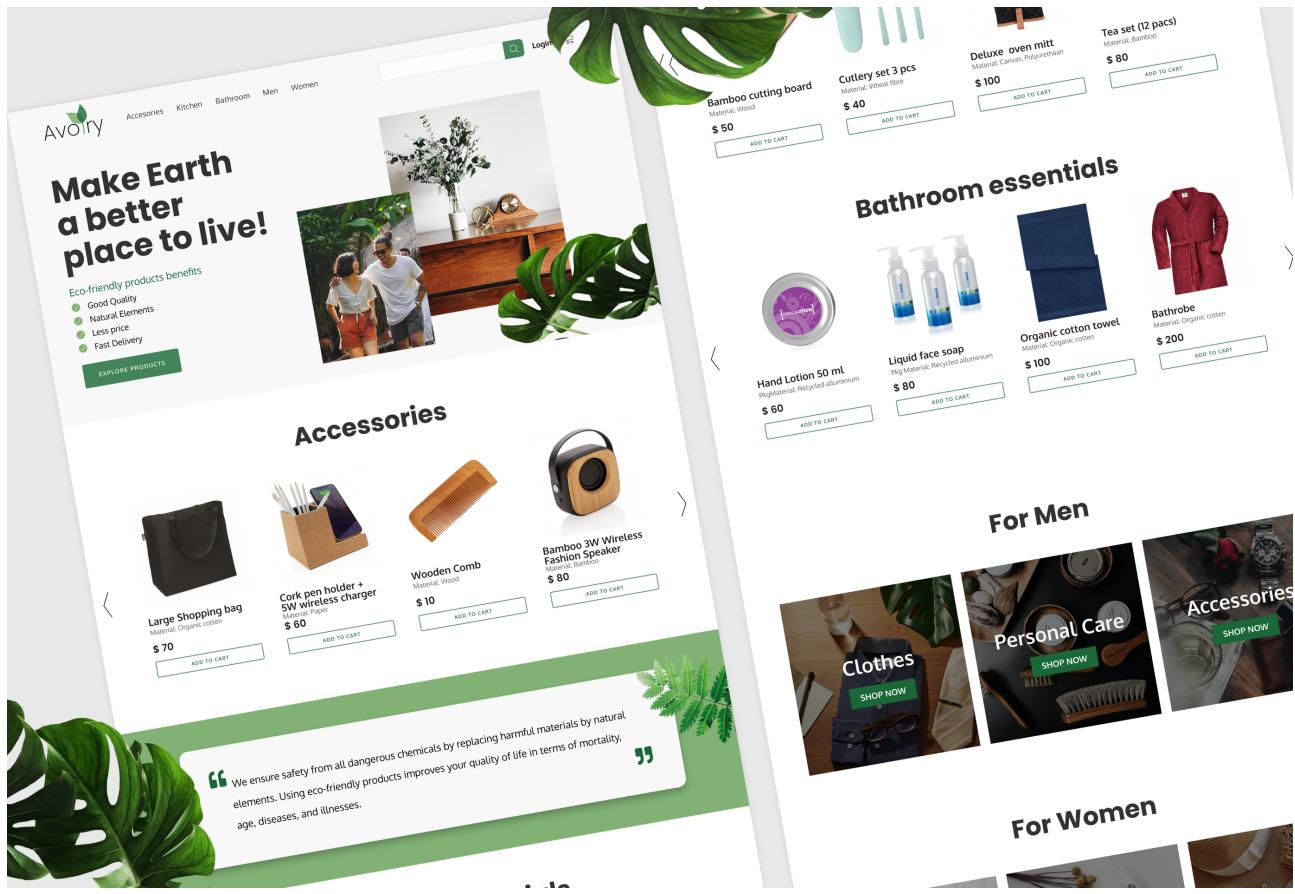
Vigilant monitoring of these assumptions and dependencies throughout the project's lifecycle is imperative. Adapting as needed will help mitigate risks and ensure the smooth development and operation of the e-commerce website.

3. EXTERNAL INTERFACE REQUIREMENTS

3.1 USER INTERFACES

The platform's user interface (UI) design is focused on providing users with a clean, clutter-free, and easily navigable experience. The layout of each screen is designed to optimize readability and user interaction.

- **Sample screen images:** Sample screen images can be used to illustrate the logical characteristics of the user interface. The sample screen images should show the different screens that the user will see, and they should highlight the different elements of the user interface, such as the buttons, menus, and text fields.



- **GUI standards or product family style guides:** The user interface should follow any existing GUI standards or product family style guides. This will help to ensure that the user interface is consistent with other products and that it is easy to use and understand.
- **Screen layout constraints:** The screen layout should be constrained by the size and resolution of the screen. The user interface should be designed to fit on the screen and to be easy to read and navigate.
- **Standard buttons and functions:** The user interface should make use of standard buttons and functions. This will help users to learn how to use the user interface quickly and easily. Some standard buttons and functions that are commonly used include the "Help" button, the "Back" button, and the "Close" button.
- **Keyboard shortcuts:** Keyboard shortcuts can be used to quickly access frequently used features. The user interface should define keyboard shortcuts for the most commonly used features. This will help users to save time and to be more productive.
- **Error message display standards:** Error messages should be clear and concise, and they should provide the user with enough information to understand the error and take corrective action. The error messages should also be consistent with the rest of the user interface.

The software components for which a user interface is needed are the ones that the user interacts with directly. These components include:

- **Menus:** Menus are used to provide the user with a way to access the different features of the software.
- **Buttons:** Buttons are used to perform actions, such as opening a new window or saving a file.
- **Text fields:** Text fields are used to enter text, such as a username or password.
- **Check boxes:** Check boxes are used to select or deselect options.
- **Radio buttons:** Radio buttons are used to select a single option from a set of options.
- **Dropdown menus:** Dropdown menus are used to display a list of options from which the user can select one.
- **Scroll bars:** Scroll bars are used to navigate through a long list of items.
- **Progress bars:** Progress bars are used to indicate the progress of an operation.
- **Error messages:** Error messages are used to inform the user of an error.

3.2 SOFTWARE INTERFACES

Database:

- **Database Management System (DBMS):** The e-commerce platform utilizes a specific DBMS to manage its database. For example, it may use MySQL version 8.0 as the database engine.
- **Database Schema:** The system interacts with a database that includes tables for storing user data, product listings, order information, and reviews. The schema should align with the platform's data model.
- **Data Items:** Data items include user profiles, product information (images, descriptions, prices), order details, reviews, and vendor information.

Operating System:

- **Web Server:** The platform operates on a web server, such as Apache HTTP Server version 2.4, which hosts the website and serves web pages to users.

Tools and Libraries:

- **Programming Language:** The system is built using a specific programming language, for example, Python version 3.8.
- **Web Framework:** It employs a web framework like Django version 3.2 for backend development and ReactJS version 17 for frontend development.
- **Payment Gateway Integration:** To handle payments securely, the platform integrates with a payment gateway service, such as Stripe or PayPal, which may have its own API and version.
- **Email Service:** For email communication, the platform uses an email service like Send Grid, integrating with its API for sending transactional emails.
- **Image Processing Library:** To handle product images, the system may use an image processing library like Pillow.

Integrated Commercial Components:

- **SSL Certificate:** The platform utilizes an SSL certificate for secure data transmission and user authentication.

Data Items and Messages:

- **Incoming Data Items and Messages:**
 - User registration and login data: Received from users during account creation and login processes.
 - Product search queries and filtering criteria: Entered by users to search for specific products.
 - Product orders and payment data: Sent by users when making purchases.
 - Vendor account information: Received from vendors during the registration process.
 - Product listings and details: Imported from vendors and stored in the database.
 - Payment authorization requests: Sent to the payment gateway for transaction processing.
 - Email notifications and messages: Generated for order confirmations, password resets, and other communication with users.
- **Outgoing Data Items and Messages:**
 - User authentication status: Sent as responses to user login and registration requests.
 - Search results and product listings: Sent as responses to user search queries and filter selections.
 - Order confirmation emails: Sent to users after successful order placement.
 - Payment confirmation messages: Sent to users after successful payment processing.
 - Notifications to vendors: Generated for order notifications and customer inquiries.

Services and Communications:

- **HTTP(S) Services:** The platform communicates with external systems, such as payment gateways and email services, using HTTP(S) for secure data exchange.
- **Database Connectivity:** The system uses database connectors and APIs to perform CRUD (Create, Read, Update, Delete) operations on the database.
- **RESTful APIs:** The platform may expose RESTful APIs to allow third-party applications to interact with specific features, such as retrieving product data or processing orders.

Data Sharing:

- Data shared across software components includes user account information, product listings, order details, and reviews. This data is shared between the web server, database, payment gateway, and email service.

Implementation Constraints:

- The use of SSL for secure data transmission is a mandatory implementation constraint to protect sensitive user and payment information during communication.

3.3 COMMUNICATIONS INTERFACES

E-mail:

- **Sending and Receiving E-mails:** The product must have the capability to send and receive e-mail messages.
- **Message Formatting:** Messages must adhere to the MIME (Multipurpose Internet Mail Extensions) standard.
- **Attachment Handling:** The product should support the inclusion and handling of various types of attachments, such as images and documents, in e-mail messages.

Web Browser:

- **Web Access:** The product must include a web browser component that allows users to access the web.
- **Web Standards Support:** The browser component must support the latest web standards, including HTML5 and CSS3, to ensure compatibility with modern websites and web applications.

Network Server Communications Protocols:

- **Standard Protocols:** The product must support standard communication protocols such as TCP/IP and HTTP for interactions with network servers.

Electronic Forms:

- **Electronic Form Exchange:** The product should be able to exchange electronic forms with other systems. Forms must be formatted according to a standard format, such as XML, to ensure interoperability with other systems.

Message Formatting:

- **Standard Message Format:** All communications, including e-mails and electronic forms, must adhere to standardized message formatting. The formatting should be human-readable and machine-readable.

Communication Standards:

- **Standard Communication Protocols:** The product must utilize well-established communication standards like FTP and HTTP. This adherence to standards ensures compatibility and interoperability with other systems and services.

Communication Security or Encryption Issues:

- **Security Measures:** The product must incorporate security measures when communicating with other systems to protect the confidentiality and integrity of data.
- **Encryption:** Data transfer should be encrypted when necessary, especially for sensitive information.

Data Transfer Rates:

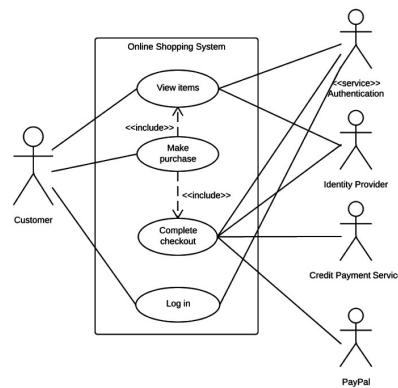
- **Sufficient Data Transfer Speed:** The product must support data transfer rates that are appropriate for its intended use cases. This may vary depending on the nature of the data and the use of the product.

Synchronization Mechanisms:

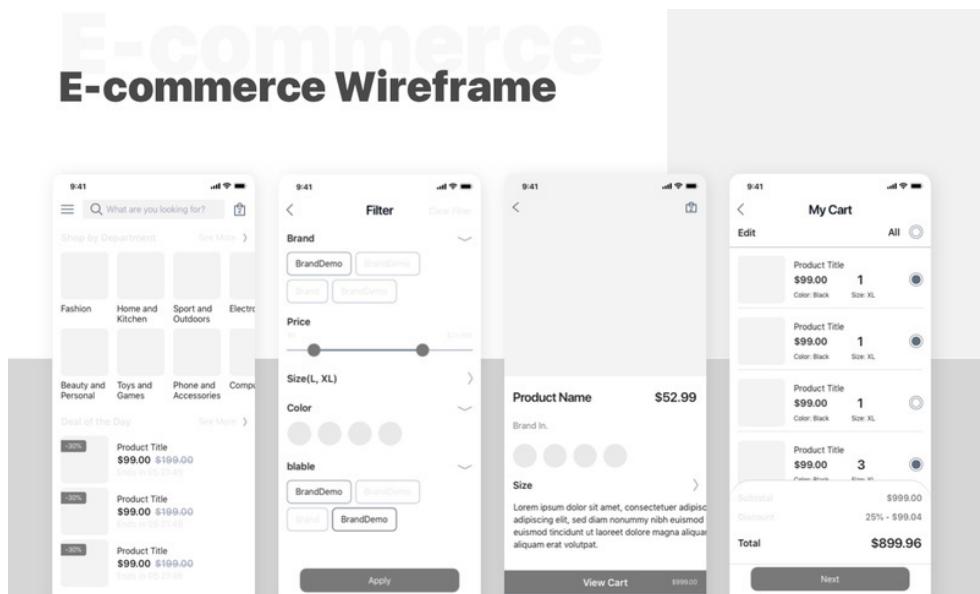
- **Data Synchronization:** The product should have mechanisms in place to synchronize its communications with other systems, ensuring that data remains up-to-date and consistent across all connected systems

4. ANALYSIS MODELS

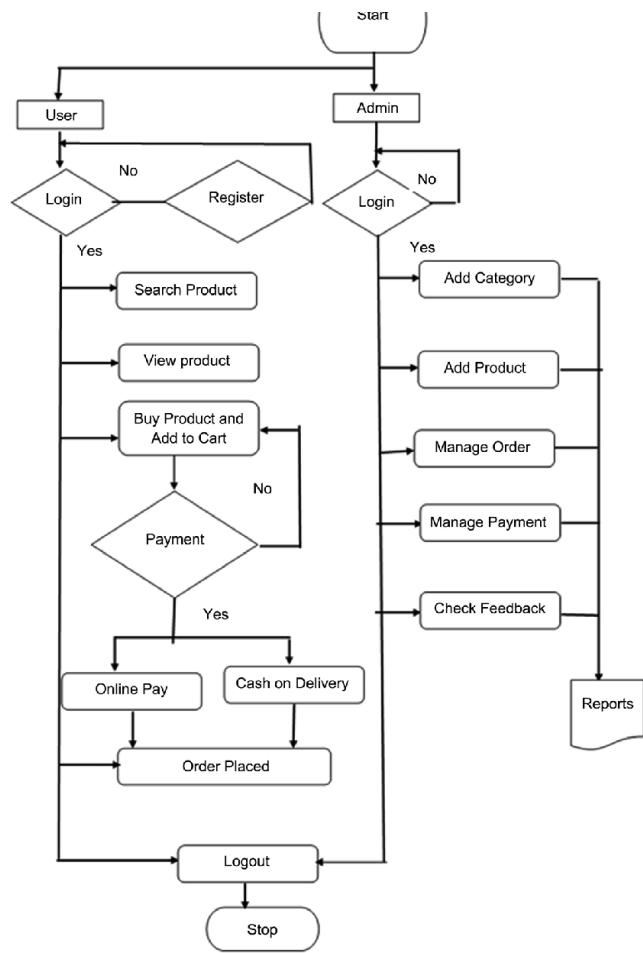
USE CASE DIAGRAM



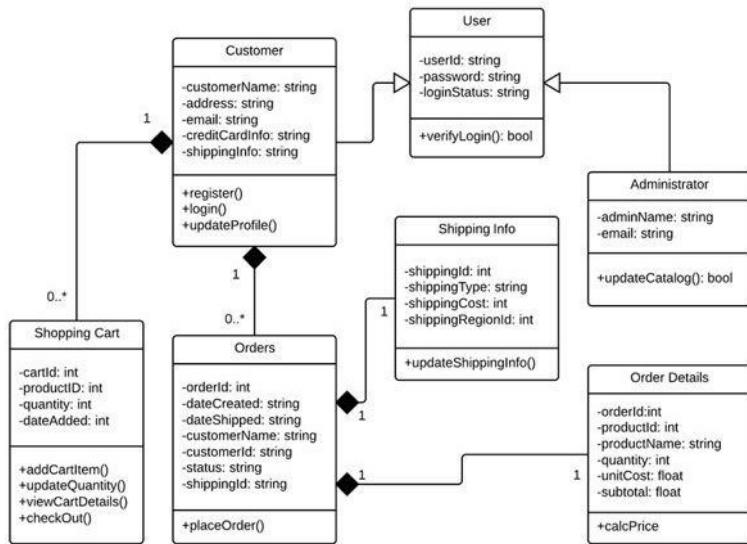
SAMPLE WIREFRAME



DATA FLOW DIAGRAM



CLASS DIAGRAM



5. SYSTEM FEATURES

5.1.1 Description and Priority

Feature 1: User Registration and Authentication

Description: This feature allows users to create accounts and log in to the platform. It includes user registration forms, password reset functionality, and user profile management.

Priority: High

Rationale: User registration and authentication are fundamental to the platform's functionality. Without this, users won't be able to access the system or their personalized features.

Risk: 6 (Medium)

Risk Rationale: While crucial, this feature may face moderate risk due to potential security concerns associated with user authentication.

Feature 2: Product Listings and Details

Description: Users can view product listings with images, descriptions, and prices. They can also view detailed information about each product, including materials, dimensions, and care instructions.

Priority: High

Rationale: Displaying product listings and details is core to the e-commerce platform's purpose, as it allows users to browse and make purchase decisions.

Risk: 4 (Low)

Risk Rationale: This feature carries a lower risk since it mainly involves data presentation and retrieval.

Feature 3: Search and Filtering

Description: Users can search for products by keywords and apply various filters to refine their search results.

Priority: Medium

Rationale: While important, search and filtering enhance the user experience but might not be as critical as core features like registration and product listings.

Risk: 5 (Medium)

Risk Rationale: Moderate risk is associated with this feature as search functionality can be complex to implement efficiently.

Feature 4: Shopping Cart and Checkout

Description: Users can add products to their shopping cart, view the cart, adjust quantities, and proceed to checkout. They can also select shipping options and enter payment information.

Priority: High

Rationale: The shopping cart and checkout process are crucial for completing transactions, making them high-priority features.

Risk: 7 (High)

Risk Rationale: This feature carries a higher risk due to potential issues related to payment processing and order fulfillment.

Feature 5: Order Management

Description: Users can view their order history, check order status, and track deliveries. Admins can manage orders, update statuses, and monitor deliveries.

Priority: Medium

Rationale: Order management is essential but may not be as frequently used as other features by regular users. It's of medium priority.

Risk: 5 (Medium)

Risk Rationale: Moderate risk is associated with this feature as it involves user data and order tracking.

Feature 6: Payment Gateway Integration

Description: Integration of secure payment gateways to ensure secure and seamless transactions.

Priority: High

Rationale: Payment gateway integration is critical for the platform's core functionality, as it directly affects the completion of transactions.

Risk: 8 (High)

Risk Rationale: This feature carries a high risk due to potential security and financial implications associated with payment processing.

5.1.2 Stimulus/Response Sequences

List the sequences of user actions and system responses that stimulate the behavior defined for a feature:

Feature 1: User Registration and Authentication

Stimulus/Response Sequences:

1. User Action: User navigates to the registration page.

System Response: System displays the user registration form.

2. User Action: User fills out the registration form with valid information.

System Response: System validates the information, registers the user, and provides a success message.

3. User Action: User tries to register with an existing email.

System Response: System detects the duplicate email, displays an error message, and prompts the user to use a different email.

4. User Action: User clicks on the "Forgot Password" link.

System Response: System presents a password reset form to the user.

5. User Action: User enters a valid email for password reset.

System Response: System sends a password reset link to the provided email and displays a confirmation message.

Feature 2: Product Listings and Details

Stimulus/Response Sequences:

1. User Action: User selects a product category.

System Response: System displays a list of products within the chosen category.

2. User Action: User clicks on a product.

System Response: System shows detailed information about the selected product, including images, descriptions, and prices.

3. User Action: User applies filters (e.g., price range, material) to narrow down product options.

System Response: System updates the displayed product list based on the applied filters.

4. User Action: User searches for a specific product using keywords.

System Response: System retrieves products matching the keywords and presents the search results.

Feature 3: Search and Filtering

Stimulus/Response Sequences:

1. User Action: User enters keywords in the search bar and presses "Enter."

System Response: System performs a search and displays relevant product results.

2. User Action: User applies filters like price range or product category.

System Response: System updates the displayed results based on the applied filters.

3. User Action: User clears applied filters.

System Response: System resets the filters and displays all products.

4. User Action: User clicks on a filter option to refine results.

System Response: System narrows down product options according to the selected filter.

Feature 4: Shopping Cart and Checkout

Stimulus/Response Sequences:

1. User Action: User clicks "Add to Cart" for a product.

System Response: System adds the product to the shopping cart.

2. User Action: User navigates to the shopping cart.

System Response: System displays the contents of the shopping cart.

3. User Action: User adjusts quantities or removes items from the cart.

System Response: System updates the cart contents accordingly.

4. User Action: User proceeds to checkout.

System Response: System guides the user through the checkout process, including shipping options and payment details.

5. User Action: User completes the checkout by confirming the order.

System Response: System processes the order, deducts the payment, and provides an order confirmation.

These sequences illustrate how user actions interact with the system to achieve the desired functionality for each feature.

5.1.3 Functional Requirements

A few detailed functional requirements are as follows:

Feature: User Registration and Login

1. Requirement ID: FR-001

- Requirement: Users must be able to register for an account by providing a valid email address, password, and optional profile information.

- Response to Invalid Input: Display error messages for invalid email formats, password requirements not met, or duplicate email addresses.

2. Requirement ID: FR-002

- Requirement: Registered users should be able to log in using their email and password.

- Response to Invalid Input: Display error messages for incorrect email/password combinations or inactive accounts.

Feature: Product Browsing and Search

3. Requirement ID: FR-003

- Requirement: Users can browse products by category and subcategory.

4. Requirement ID: FR-004

- Requirement: Users can search for products by keywords.

5. Requirement ID: FR-005

- Requirement: Products should display relevant details, including images, descriptions, prices, and availability.

Feature: Adding Items to Cart and Checkout

6. Requirement ID: FR-006

- Requirement: Users can add items to their shopping cart from product pages.

7. Requirement ID: FR-007

- Requirement: Users can view and edit the contents of their shopping cart.

8. Requirement ID: FR-008

- Requirement: Users can proceed to checkout, providing shipping and payment information.

- Response to Invalid Input: Display error messages for incomplete or incorrect shipping/payment details.

Feature: Payment Processing

9. Requirement ID: FR-009

- Requirement: The system should securely process payments using selected payment gateways (e.g., PayPal, Stripe).

- Response to Errors: Handle payment failures gracefully and notify users of payment processing errors.

Feature: Order Confirmation and Tracking

10. Requirement ID: FR-010

- Requirement: Users should receive an order confirmation email with order details after successful payment.

11. Requirement ID: FR-011

- Requirement: Registered users can view their order history and track the status of their orders.

Feature: Account Management

14. Requirement ID: FR-014

- Requirement: Registered users can update their profile information and change their passwords.

15. Requirement ID: FR-015

- Requirement: Users can request a password reset if they forget their password.

6. OTHER NON-FUNCTIONAL REQUIREMENTS

6.1 Performance Requirements

- **Response Time:** The website shall have an average page load time of no more than 2 seconds for standard web pages and 3 seconds for complex pages.
- **Scalability:** The website must be able to handle a minimum of 10,000 concurrent users without significant performance degradation.

- **High Availability:** The website shall achieve at least 99.9% uptime, ensuring it is accessible to users 24/7.
- **Caching:** Caching mechanisms shall be implemented to reduce server load and improve response times for frequently accessed content.
- **Database Performance:** Database queries shall be optimized to ensure fast and efficient data retrieval.

6.2 SAFETY REQUIREMENTS

- **Data Security:** To prevent data breaches and protect user information, the website shall implement industry-standard encryption for all data transmissions, including SSL/TLS for secure communication.
- **Payment Security:** The website shall adhere to Payment Card Industry Data Security Standard (PCI DSS) compliance to ensure the secure handling of payment card data.
- **User Account Security:** Users shall be encouraged to use strong passwords, and the website shall implement mechanisms to detect and prevent unauthorized access to user accounts.
- **Customer support:** Provide easy access to emergency contact information for users who encounter issues related to safety, security, or privacy.

6.3 SECURITY REQUIREMENTS

- **Data Encryption:** All sensitive data, including user credentials and payment information, shall be encrypted using industry-standard encryption protocols (e.g., TLS).
- **Authentication and Authorization:** The website shall implement secure authentication and authorization mechanisms to protect user accounts and data.
- **Security Updates:** Regular security patches and updates shall be applied to the website's underlying software and infrastructure.
- **Firewall and Intrusion Detection:** A firewall and intrusion detection system shall be in place to monitor and prevent unauthorized access.
- **Data Backup and Recovery:** Regular automated backups of user data shall be performed to ensure data integrity and facilitate recovery in case of data loss.

6.4 SOFTWARE QUALITY ATTRIBUTES

- **Availability:** The website shall aim for 99.9% availability, allowing for scheduled maintenance windows. Availability will be measured in terms of uptime percentage.
- **Accuracy:** The system shall be rigorously tested to ensure that all functions and calculations are accurate. The goal is to achieve a defect rate of less than 1% in production.
- **Flexibility:** The system shall be flexible in terms of integrating with third-party services, plugins, and APIs to accommodate future expansion and feature

enhancements. Flexibility will be measured by the number of third-party integrations successfully implemented.

- **Maintainability:** Code shall be well-documented, and development practices shall follow industry best practices to ensure maintainability. The time required to implement routine updates and fixes will serve as a metric for maintainability.

6.5 BUSINESS RULES

- **User Roles:** Customers, administrators, and support staff are the primary user roles. Customers can browse, shop, and review products. Administrators can manage products, orders, and user accounts. Support staff can assist customers with inquiries and issues.
- **Order Approval:** For orders exceeding a specified amount, administrator approval is required before processing.
- **Product Listing:** Only administrators have the authority to list new products for sale on the website.
- **Payment Processing:** Payments will be processed securely through a trusted payment gateway, and financial data will not be stored on the website's servers.

Other Requirements

Environmental Responsibility

Environmental Impact Reporting: The website shall periodically calculate and report its own environmental impact, including carbon emissions and energy consumption, and take measures to reduce its carbon footprint.

Sustainable Partnerships: Collaborate with environmentally responsible suppliers, vendors, and partners to align with the website's sustainability goals.

Accessibility

Accessibility Compliance: Ensure that the website complies with accessibility standards, such as the Web Content Accessibility Guidelines (WCAG), to make it accessible to individuals with disabilities.

Accessibility Testing: Conduct regular accessibility testing to identify and address barriers to accessibility.

Third-Party Integrations

Payment Gateways: Integrate with reputable and secure payment gateways to facilitate transactions, ensuring compliance with PCI DSS.

Shipping and Logistics Partners: Collaborate with reliable and eco-friendly shipping and logistics partners to ensure efficient and sustainable delivery processes.

User Education and Support

User Guides: Provide user guides and tutorials to help users navigate the website, make informed eco-friendly choices, and understand the sustainability features.

Customer Support: Offer responsive customer support channels, including email, chat, and phone support, to address user inquiries and issues.

Appendix A: Glossary

Glossary of Terms:

E-commerce Website: A website that allows users to browse and purchase reusable lifestyle products online.

SRS: Software Requirements Specification - A document that outlines the functional and non-functional requirements for the project.

User Registration: The process where users create an account on the website by providing their email address and password.

Login: The action of a user accessing their account by providing their email and password.

Shopping Cart: A virtual container that holds selected items for purchase during a shopping session.

Checkout: The process of finalizing a purchase by providing shipping and payment information.

Payment Gateway: A third-party service that securely processes online payments.

Product Catalog: A database or list of products available for purchase on the website.

Product Page: A webpage displaying detailed information about a specific product, including its name, description, price, and images.

Review and Rating: User-generated feedback and ratings for products.

Order Confirmation: A notification sent to users after a successful purchase, containing order details.

Order Tracking: The ability for users to monitor the status and location of their orders.

Account Management: User actions related to updating personal information, changing passwords, and managing account settings.

HTTPS: Hypertext Transfer Protocol Secure - A secure version of HTTP that encrypts data exchanged between the website and users.

SSL/TLS: Secure Sockets Layer/Transport Layer Security - Protocols used for securing data transmission over the internet.

API: Application Programming Interface - A set of rules and protocols allowing different software applications to communicate with each other.

CMS: Content Management System - Software used for creating, managing, and organizing digital content, such as web pages.

UI: User Interface - The visual elements and layout of the website that users interact with.

UX: User Experience - The overall experience and satisfaction users have while interacting with the website.

Responsive Design: Design approach that ensures the website adapts and functions well on various devices and screen sizes.

Data Encryption: The process of encoding data to prevent unauthorized access.

Sprint: A time-boxed development interval in Scrum methodology, usually lasting two to four weeks.

Scrum: An agile project management framework used for managing product development.

API Key: A code that identifies and authorizes a user or application to access a particular API.

Appendix B: Field Layouts

Sample sheet with information required to register the customer

Customer Registration Form

Field Name	Field Type	Description	Is Mandatory	Validation
First Name	text	Customer's first name	Y	Alphabetic characters only
Last Name	text	Customer's last name	Y	Alphabetic characters only
Email Address	email	Customer's email address	Y	Valid email format
Password	password	Customer's password	Y	Minimum length, complexity
Confirm Password	password	Confirm customer's password	Y	Matches 'Password' field
Date of birth	date	Customer's date of birth	Y	Valid date, age restrictions
gender	Radio Buttons	Customer's gender	Y	Male, Female, Other
Address Line 1	Text	Customer's address (line 1)	Y	Alphanumeric
Address Line 2	Text	Customer's address (line 2)	N	Alphanumeric
City	Text	Customer's city	Y	Alphabetic characters only
State/Province	Dropdown	Customer's state or province	Y	Select from predefined list
ZIP/Postal Code	Text	Customer's ZIP or postal code	Y	Numeric or alphanumeric
Country	Dropdown	Customer's country	Y	Select from predefined list
Phone Number	Phone Number	Customer's phone number	Y	Valid phone number format
Newsletter Signup	Checkbox	Customer's choice to subscribe to newsletter	N	Checked for yes, unchecked for no
Terms and Conditions	Checkbox	Customer's acceptance of terms and conditions	Y	Checked for acceptance

Marketing Opt-ins Report		Account Verification Status Report
Customer ID		Customer ID
First Name		First Name
Last Name		Last Name
Bank Name		Email Address
Email Address		Date of Registration
Date of Opt-in		Email Verification Status (Verified or Not Verified)
Customer Name		
Opt-in Source		
Opt-in Status		

Appendix C: Requirement Traceability Matrix

Sl. No	Requirement ID	Brief Description of Requirement	Architecture Reference	Design Reference	Code File Reference	Test Case ID	System Test Case ID
1	REQ001	User can log in to the system				TC001	STC001
2	REQ002	User can add products to the cart				TC002, TC003	STC002

3	REQ003	User can check out and place order				TC004	STC003
4	REQ004	User can view the product listings	System Requirements Specification	System Requirements Specification		TC005, TC006	STC004
5	REQ005	User can use the payment gateway without any issues	Contract with payment gateway provider	Contract with payment gateway provider		TC007, TC008	STC005