GREEN ERA

A PROJECT REPORT

Submitted by

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Guided by

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Sir Bhavsinhji Polytechnic Institute Bhavnagar

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ACKNOWLEDGEMENT

We extend our heartfelt gratitude to everyone who has contributed to the journey of Green Era. This vision would not have come to life without the unwavering support of our dedicated team, passionate artisans, conscious consumers, and environmental advocates who believe in a more sustainable world. We are especially grateful to our guide, **H.P. Jagad**, whose encouragement and direction have been invaluable throughout this journey, as well as to our Head of Department, **G.M. Panday**, and our respected Principal, **H.K. Bhatt**, for their continuous support and belief in our vision.

We are deeply thankful for the individuals who have shared their knowledge, time, and creativity in transforming waste into wonders. Your commitment to eco-conscious living inspires us every day. To our partners and supporters — your trust empowers us to innovate and push boundaries in green design and sustainability.

Most importantly, we thank nature — our greatest teacher — for showing us that even in what is discarded, there lies infinite potential. Every product, every effort, and every message we put forth is rooted in our love and respect for the Earth.

Together, we are not just building a brand — we are nurturing a movement. A movement of awareness, responsibility, and hope for a cleaner and greener future.

With gratitude,
Team Green Era

ABSTRACT

Green Era is a sustainable enterprise focused on crafting innovative, eco-friendly products from materials that are typically discarded as waste. By utilizing elements like leftover wood pieces, bamboo, coconut shells, and natural soil, the company reimagines waste as a valuable resource. Through thoughtful design and environmentally conscious production practices, Green Era not only minimizes environmental impact but also contributes to a growing movement toward responsible consumption and circular economies. Every product is a reflection of the brand's commitment to sustainability, craftsmanship, and nature.

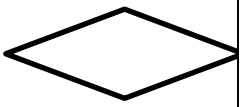
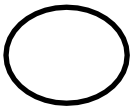
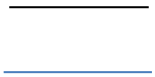
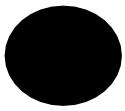
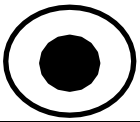
The core mission of Green Era extends beyond product creation. The brand actively promotes environmental awareness and encourages individuals to make greener lifestyle choices. By showcasing the potential of recycled and natural materials, Green Era inspires consumers to see beauty and purpose in what is often overlooked. Through workshops, collaborations, and educational initiatives, the company engages with communities to spread the message of ecological responsibility and mindful living.

In an era where environmental degradation is a pressing global concern, Green Era offers a refreshing and necessary approach to sustainable development. The company envisions a world where innovation and sustainability go hand in hand — a world where waste is no longer a problem, but a solution. By combining creativity, environmental ethics, and resourcefulness, Green Era is playing a vital role in shaping a greener, more conscious future.

LIST OF TABLES

LIST OF FIGURES

LIST OF SYMBOLS, ABBREVIATIONS

	Flow of data
	**Entity**
	**Relation**
	**Process**
	**Database**
	**Start**
	**Stop**
	**Event and Activity**

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1.1 Project Introduction

Plastic pollution is a serious environmental problem, with large amounts of plastic waste harming nature, wildlife, and human health. The increasing use of single-use plastics has led to overflowing landfills, ocean pollution, and irreversible damage to the ecosystem. Many plastic items take hundreds of years to decompose, releasing toxic chemicals into the soil and water. The production of plastic also contributes to carbon emissions, further exacerbating climate change.

The growing awareness of environmental issues has led to a rising demand for sustainable alternatives that can help curb plastic pollution. To address this challenge, GREEN ERA is introduced as a digital platform that promotes eco friendly alternatives to plastic products. By offering a sustainable marketplace, GREEN ERA connects vendors who provide biodegradable and reusable products with customers who seek environmentally responsible solutions. This initiative aims to reduce plastic dependency by encouraging the adoption of eco-friendly materials such as coconut, bamboo, cloth, paper, and jute.

Through awareness, accessibility, and convenience, GREEN ERA helps individuals and businesses make small yet impactful choices that contribute to a cleaner and healthier planet. Our platform not only provides a space for eco friendly products but also educates consumers about the long-term benefits of sustainable living. By choosing GREEN ERA, customers actively participate in reducing plastic waste, promoting responsible consumption, and supporting a global movement toward a greener future.

1.2 Purpose

The main goal of GREEN ERA is to reduce the use of plastic and promote eco-friendly products. It provides a platform where vendors can sell sustainable products, and customers can easily find and buy them. The key objectives are

Promoting Sustainable Living : GREEN ERA encourages people to use biodegradable products like bamboo, coconut, jute, paper, and cloth to protect the environment.

Reducing Plastic Waste : By offering alternatives to plastic, GREEN ERA helps decrease plastic waste in landfills and oceans.

Helping small businesses : It provides a space for small vendors to sell their eco friendly products and reach more customers.

Spreading awareness : The platform shares information about the harmful effects of plastic and the benefits of using sustainable products.

Providing an easy shopping experience : Customers can easily find eco-friendly products with simple navigation and secure payments.

1.3 Scope

The scope of Green Era covers various areas that contribute to a sustainable and plastic-free future. It includes the following aspects

1. Product Availability:

- Offering a wide range of eco-friendly products such as bamboo and coconut based utensils, cloth and jute bags, biodegradable packaging, and sustainable home essentials.
- Providing alternatives to single-use plastics that are durable, reusable, and environmentally safe.

2. User-Friendly Platform:

- Developing an easy-to-use website where customers can explore and purchase sustainable products effortlessly.
- Integrating secure payment gateways and efficient delivery services for a seamless shopping experience.

3. Vendor Collaboration:

- Encouraging small-scale businesses, artisans, and eco-conscious entrepreneurs to showcase and sell their products.
- Providing a platform that supports local and global eco-friendly businesses, helping them reach a wider audience.

4. Educational Awareness:

- Spreading knowledge about plastic pollution, its harmful effects, and the benefits of adopting sustainable alternatives.
- Conducting awareness campaigns, publishing articles, and sharing blogs on environmental sustainability.

5. Customization and Innovation:

- Encouraging innovative product designs and customized solutions to meet the needs of customers.
- Supporting research and development for new eco-friendly materials and packaging solutions.

6. Environmental Contribution:

- Participating in sustainability initiatives like tree-planting programs and waste management efforts.
- Supporting global movements aimed at reducing plastic pollution and promoting green

alternatives.

2

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2.1 Current System Study

Currently, there is no centralized web platform specifically dedicated to integrating eco friendly product listings, green awareness content, and environmental event participation in one unified space. Users interested in sustainable living typically rely on multiple fragmented sources such as

• E-commerce platforms for eco-friendly products (e.g., Amazon, Etsy).

• Blogs and news sites for environmental tips and awareness.

• Social media for discovering or joining environmental campaigns.

• NGO or government portals for event participation and green initiatives.

These systems, while functional in isolation, lack integration, community interaction, and direct contribution tools for users passionate about sustainability. Moreover, they are often not optimized specifically for an eco-conscious audience and lack dedicated moderation or categorization for green-certified products and causes.

Key limitations of the current landscape:

• No single-point access to eco-conscious shopping, education, and activism.

• Lack of a community-focused platform where users can actively post or share green initiatives.

• Difficulty in verifying the credibility of eco-friendly product claims.

• Limited ability for individuals or small groups to organize and promote local environmental efforts.

Green Era aims to bridge these gaps by providing a dedicated, centralized web application that supports:

• Authentic eco-product listings.

• Green awareness content.

• User participation in events.

• Admin-managed quality and content control.

2.2 Weakness Of Current System

The existing methods and platforms available for promoting eco-friendly practices and sustainable living suffer from several significant weaknesses. These gaps highlight the need for a dedicated, unified platform like Green Era. The key weaknesses are

1. Fragmentation of Resources : Users must visit multiple unrelated platforms to access green products, environmental news, and campaign details. This disjointed experience leads to inefficiency and reduced user engagement.

2. Lack of Centralized Community : There is no single platform that fosters a sense of community among environmentally conscious individuals. Opportunities to connect, collaborate, and support local green initiatives are limited and often scattered across social media or niche forums.

3. Limited Product Verification : Many platforms allow sellers to tag products as "eco-friendly" without proper verification or certification. This leads to greenwashing—misleading claims about a product's environmental benefits—causing mistrust among users.

4. No Contribution Channels for Users : Most current systems do not allow users to actively participate beyond basic interactions like purchasing or reading. There’s no opportunity for users to share tips, promote their own green events, or upload content supporting environmental awareness.

5. Poor Accessibility to Local Events or Causes : People interested in contributing to environmental efforts often miss out on local initiatives due to the lack of a centralized event platform. Current systems are not built with a geo-targeted or interest-based event discovery mechanism.

6. Lack of Dedicated Admin Moderation : General platforms do not have eco-specific content moderation. As a result, low-quality or misleading information often goes unchecked, reducing the overall credibility of such systems.

2.3 Problem Identification / Definition

In today's world, increasing environmental pollution, excessive waste generation, and unsustainable consumer habits are contributing to climate change and the degradation of natural resources. While many individuals are willing to adopt eco-friendly lifestyles, they often struggle to find trustworthy platforms where they can discover, share, and support sustainable products and waste-reducing initiatives.

The current digital landscape lacks a dedicated system that:

• Promotes eco-friendly products in a centralized and credible way

• Encourages community participation in green living

• Enables the sharing of knowledge and practices to reduce waste and promote sustainability.

People either rely on mainstream e-commerce sites (which are not focused on eco-conscious products), or random blogs and social media posts (which lack credibility and proper organization). This disconnect discourages meaningful participation and makes it harder for users to trust the authenticity of products or advice.

Green Era is proposed to solve this problem by developing a web-based platform that:

• Promotes and lists eco-friendly products, verified for sustainability

• Enables users to share ideas, initiatives, and products that help reduce environmental waste

• Creates a community focused on environmental awareness and action.

2.4 Requirement Of New System

The proposed system, Green Era, aims to build an interactive web platform that encourages eco conscious living by promoting verified eco-friendly products and waste-reduction initiatives. The requirements are categorized into two main types: Functional Requirements and Non-Functional Requirements.

1) Functional Requirements

1. User Registration and login:

- Users can sign up and log in using email and password.
- Role-based access (user, admin).

2. Eco product line:

- Users can view eco-friendly products.
- Registered users can post products with images, descriptions, and sustainability tags.

3. Search and Filter :

- Users can search for products or blog posts using keywords.
- Filter products based on categories, tags, or location.

4. Green Tips and Blogs:

- A section for green living tips, blogs, or articles.
- Users can read, like, and comment on posts.
- Admins or verified users can submit new content.

5. Community Events and Initiatives:

- Users can view or join eco-initiatives like clean-up drives or tree plantation events.
- Registered users can post events with date, time, and location details.

6. Admin panel :

- Admins can manage users, approve product listings and blogs.
- Monitor user activities and maintain site content quality.

7. User Dashboard :

- Users can view their posts, saved products, event participation, and account settings.

8. Feedback and Reporting :

- Users can give feedback on products or report inappropriate content.

2) Non-Functional Requirements

1. Usability :

- Clean, intuitive, and responsive UI.
- Accessible from desktops, tablets, and mobile devices.

2. Performance :

- The system should support up to 1000 concurrent users without major lag.

3. Security :

- Passwords stored with encryption.
- Role-based access to protect admin features.
- Content moderation to prevent abuse.

4. Scalability :

- Should allow for future expansion (e.g., mobile app integration, product verification APIs).

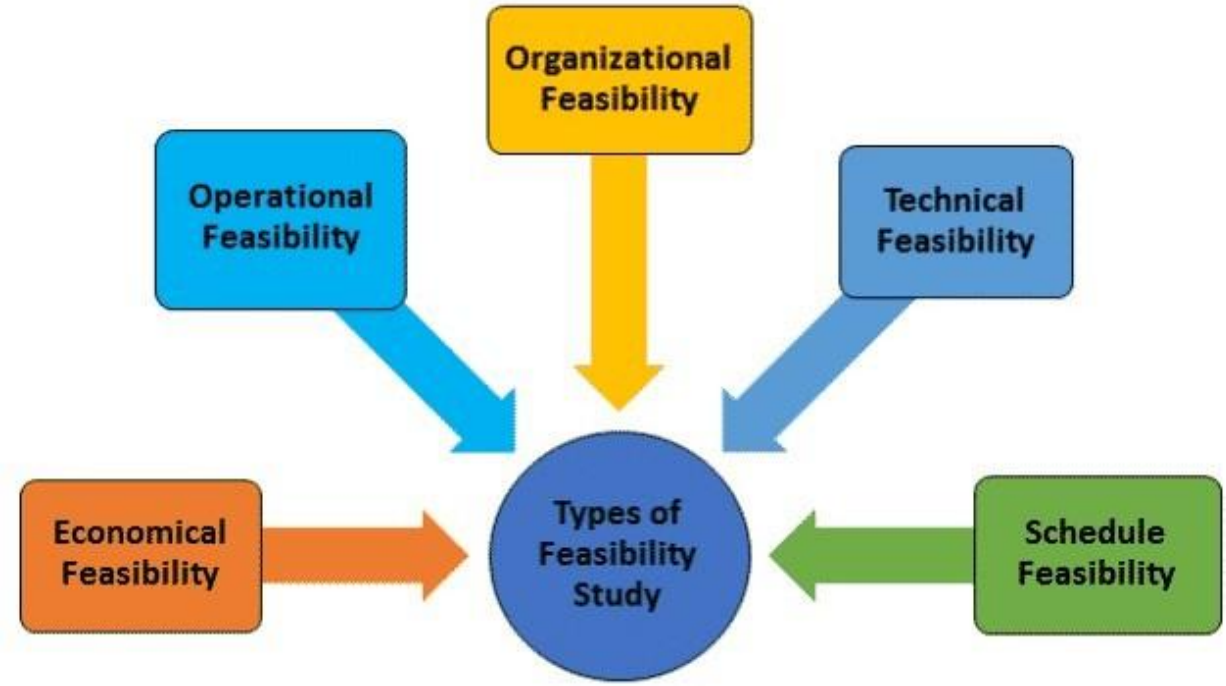
5. Maintainability :

- Well-documented codebase and modular architecture for easier updates and maintenance.

6. Reliability :

- The system should be available 99% of the time with proper error handling.

2.5 Feasibility Study



1. Feasibility Study

The feasibility study helps determine whether the proposed system—Green Era, a web platform for promoting eco-friendly products and reducing environmental waste—is viable and worth pursuing. The study evaluates multiple aspects of the project to ensure that it can be successfully developed, implemented, and maintained.

2.5.1 Technical Feasibility

Assess whether the current technology stack and resources are capable of supporting the development and deployment of the project.

The system will be developed using commonly available technologies:

- Frontend: HTML, CSS, JavaScript (optionally React)
- Backend: Node.js / PHP / Python (Flask or Django)
- Database: MySQL / MongoDB

Hosting options like Heroku, Vercel, or Firebase can be used for deployment.

All required development tools (e.g., VS Code, GitHub, Postman) are open-source and freely available.

The project can be developed and tested on standard hardware configurations (laptops/desktops).

2.5.2 Economical Feasibility

Evaluate whether the project is financially viable, considering development costs and long-term benefits.

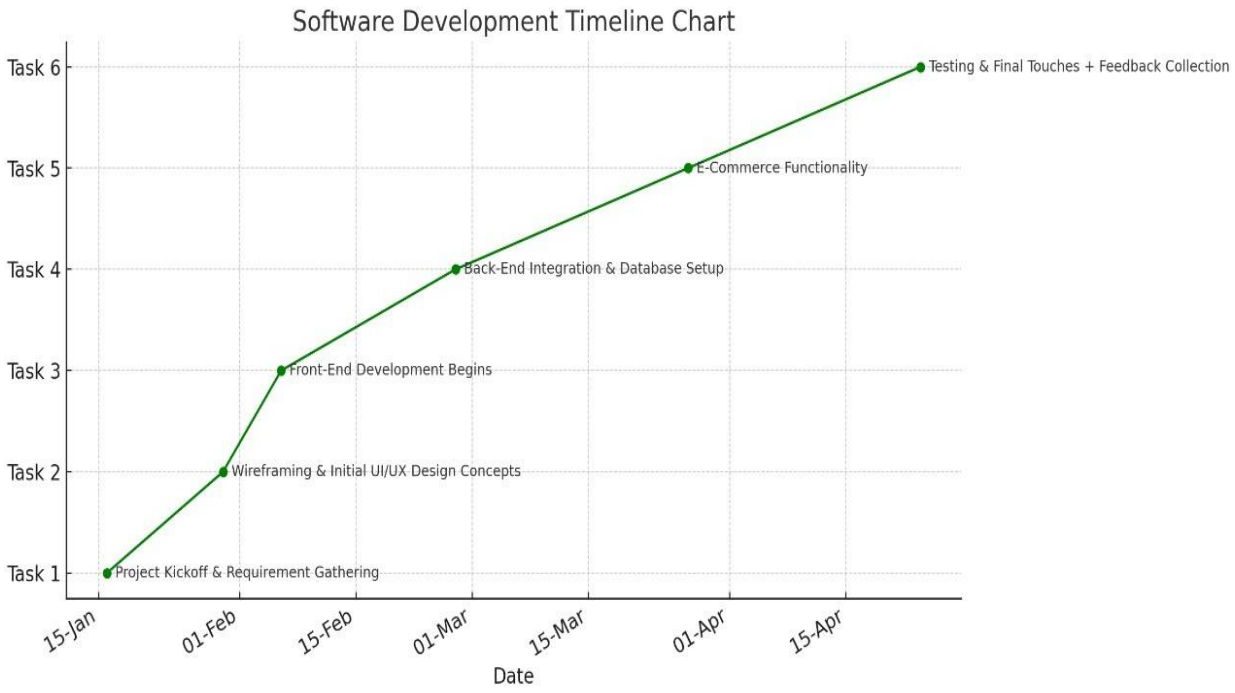
- The system will be developed as a college project, using free/open-source tools and services.
- No third-party licensing costs are expected.
- Development will be done by students, eliminating labor costs.

2.5.3 Operational Feasibility

Assess whether the system will operate effectively once deployed and whether users can easily adapt to it.

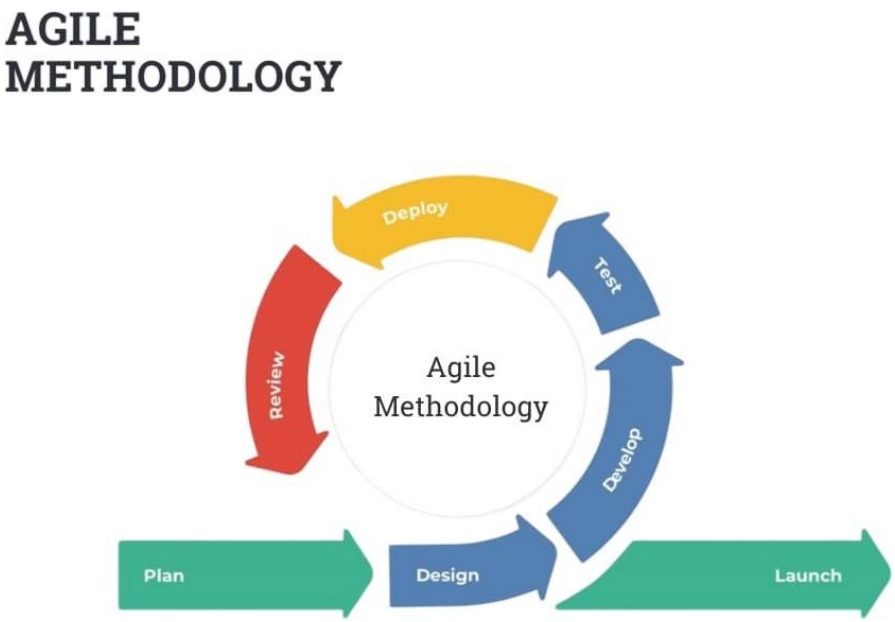
- The user interface will be intuitive, mobile-responsive, and designed for all age groups.
- Users will benefit from a one-stop solution for eco-friendly shopping and initiatives.
- Admin controls will make it easy to manage content and maintain quality.
- Simple registration/login processes will ensure quick adoption.

2.5.4 Schedule Feasibility Study (Time Line Chart)



2. Time Line Chart

2.6 Development Model Used (Software Process Model)



3. Development Model

1 Green Era Development Model (Agile-based)

1. Planning Phase

- Define the vision: "Waste Finds Worth."
- Create user stories: As a customer, I want eco-friendly décor products so that I can live sustainably.
- Prioritize features: Product (wood, bamboo, coconut items), Eco-story behind each product

  Shopping cart and payment gateway.

- Identify stakeholders: Founders, developers, designers, marketers.

2. Design Phase

- Sketch wireframes for : Home page (brand story + product highlights), Product listing & details, Checkout and eco-pledge feature, Choose eco-friendly UI/UX design (natural colours, minimalistic theme).

3. Launch Phase

- Set up MVP (Minimum Viable Product) to release basic features.
- Implement CI/CD pipeline for smooth launches.
- Soft launch to select customers for feedback.

4. Development Cycle (Iterative & Incremental)

- Sprint Planning : Choose top priority user stories for the sprint.
- Daily Scrum : 15-minute standup meetings to sync up.
- Sprint Execution : Develop features like “Shop By Material”, “Eco Impact Tracker”.
- Testing : Continuous integration tests, eco-impact validation.
- Sprint Review : Demo to stakeholders-gather feedback.
- Sprint Retrospective : Analyze what went well, what needs improvement.

5. Testing Phase

- Functional Testing: Product listing, cart functionality.
- Performance Testing: Ensure fast loading, even on eco-conscious low-energy devices.
- Accessibility Testing: Comply with WCAG standards.
- User Testing: Real feedback from green living enthusiasts.

6. Deployment & Feedback

- Deploy to production with rollback options.
- Monitor user behaviour and collect feedback actively.
- Release small, frequent updates instead of big, disruptive ones.

7. Continuous Improvement

- Add features based on user feedback (e.g., "DIY kits", "Eco Rewards Program").
- Reduce carbon footprint of the website (e.g., green hosting providers).
- Keep updating the community via blogs, eco-tips, and workshops.

2.7 Requirement Validation

ï? Green Era Website — Requirement Validation

1. Purpose Validation

- Promote sustainable living and eco-friendly products.
- Educate visitors about waste-to-worth initiatives.
- Provide a platform for customers to browse and buy eco-products.
- Inspire community engagement and eco-awareness.

2. Functional Requirements Validation

- Product Catalogue: Display handcrafted eco-friendly products with detailed descriptions and images.
- E-Commerce Integration: Allow users to add products to cart, purchase, and track orders.
- Secure Payment Gateway : Enable safe transactions (credit/debit cards, UPI, wallets).
- User Accounts: Option to create an account for easy ordering and tracking.
- Feedback and Reviews: Customers can leave product reviews and share feedback.
- Blog Section: Regular posts about sustainability tips, eco-living guides, DIY upcycling ideas.
- Contact Form / Chat Support: Easy way for users to get in touch or ask questions.

3. Non-Functional Requirements Validation

- Performance: Website should load within 2-3 seconds even with multiple images.
- Responsiveness: Fully optimized for mobile, tablet, and desktop views.
- SEO Optimization: Use SEO best practices to rank for eco-friendly and sustainable keywords.
- Security: SSL Certificate for secure browsing and transactions.
- Scalability: Website should handle increasing traffic as Green Era grows.

4. User Experience (UX) Validation

- Simple Navigation: Easy-to-find menu for Home, Shop, About Us, Blog, Contact.
- Eco-Friendly Design Theme: Earthy colours, natural textures, and minimalist design elements.
- Storytelling: Highlight the "story behind the products" to emotionally connect with customers.

5. Content Validation

- About Us Page: Communicates Green Era's vision and mission powerfully.
- Product Stories: Each product should mention the material it saves and how it supports sustainability.
- Educational Content: Blog or info section to teach about environmental conservation and circular economy.

6. Testing & Feedback Validation

- Website should be tested with real users before launch.
- Feedback from early users should be collected to refine features.
- Ensure the website aligns with the sustainability values in every interaction.

Final Verdict:

- If all these points are addressed and validated, the Green Era website will strongly reflect your brand's mission and deliver a meaningful, smooth, and eco-conscious experience to users!

2.8 Minimum Hardware And Software Requirements

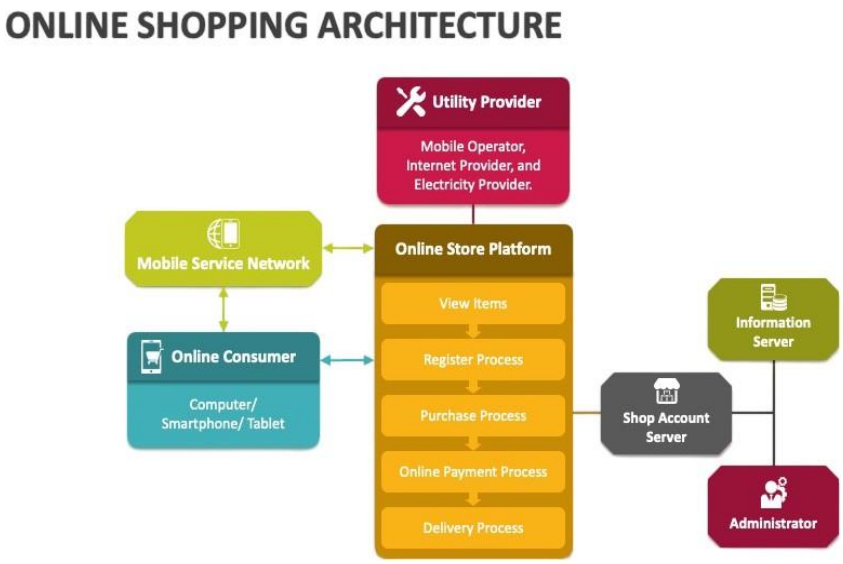
Hardware Requirements

- Processor : Intel core i3 or equivalent (2.0 GHz or Higher)
- RAM : 4 GB or more
- Storage : 500 MB free disk space or more
- Display : 1366 x 768 resolution (or higher)

Software Requirements

- Front-End : HTML, CSS, JavaScript
- Back-End : PHP
- Database : MySQL
- Server : Apache
- Documentation Tool : Microsoft Word 2007 , Microsoft Power Point 2007
- Operating System : Microsoft Windows 10

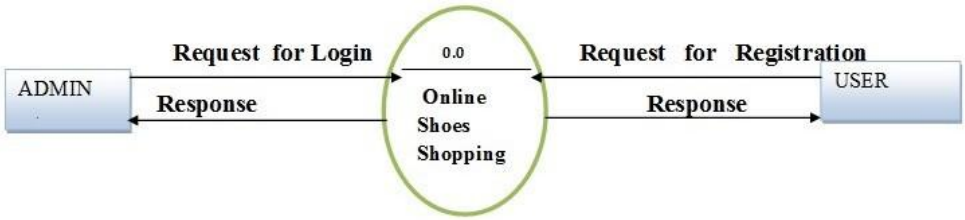
2.9 System Architecture



4. System Architecture

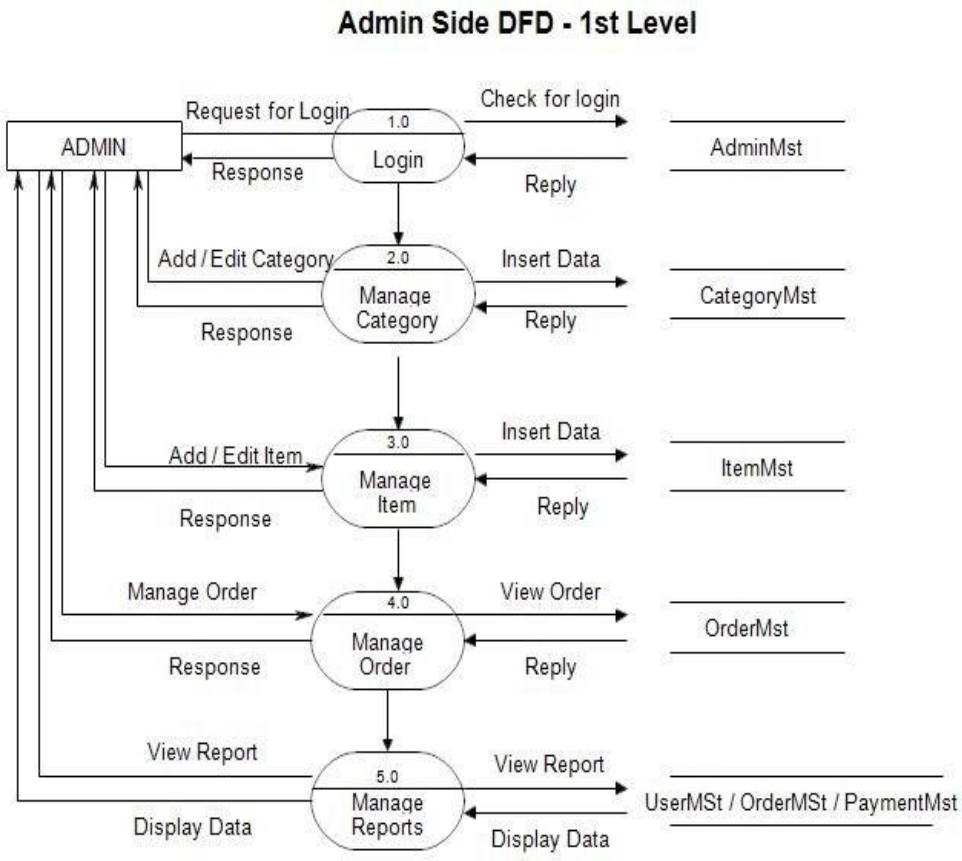
2.10 Data Flow Diagram

- **0 level**



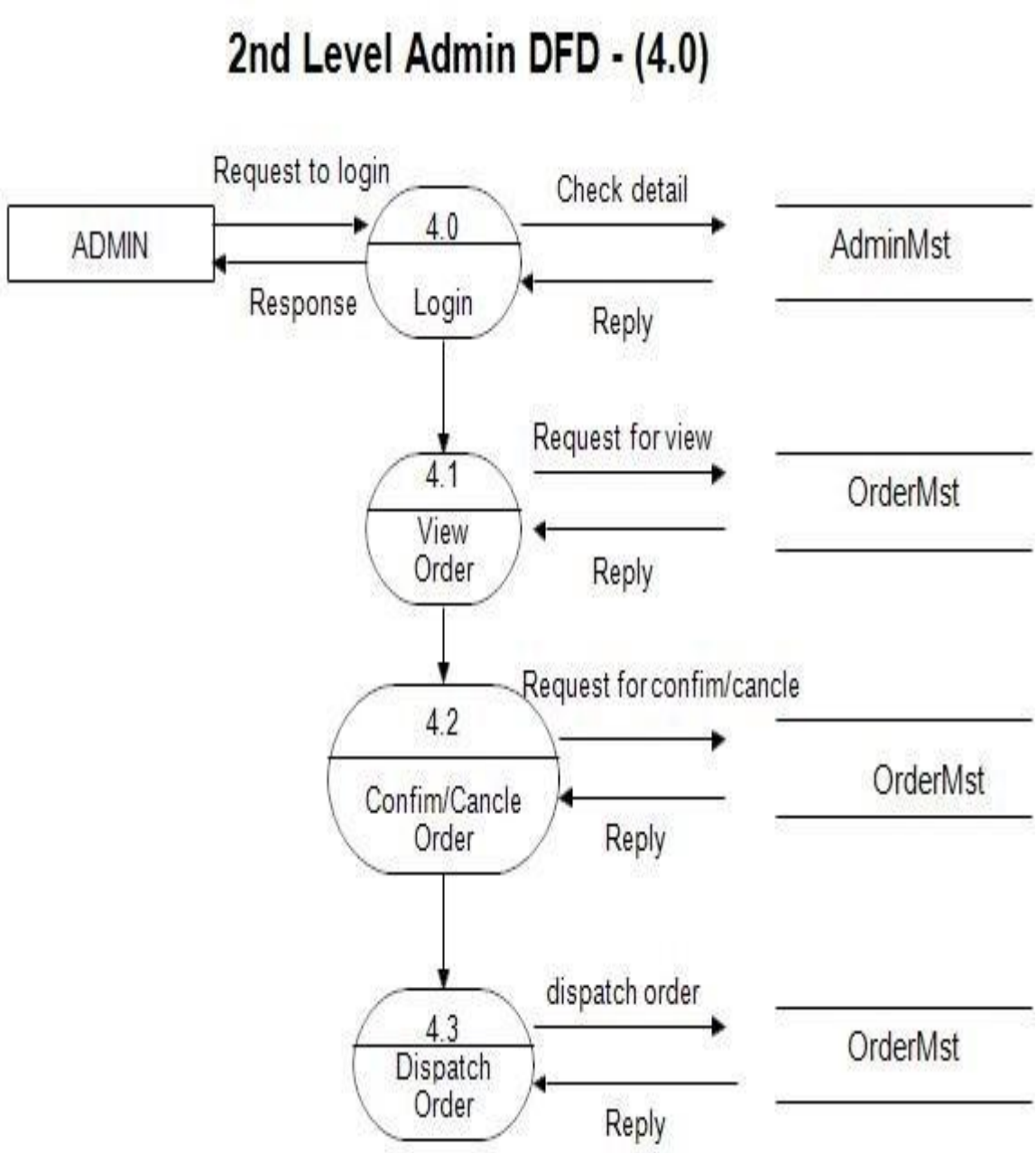
5. 0-Level DFD

- **1 level**



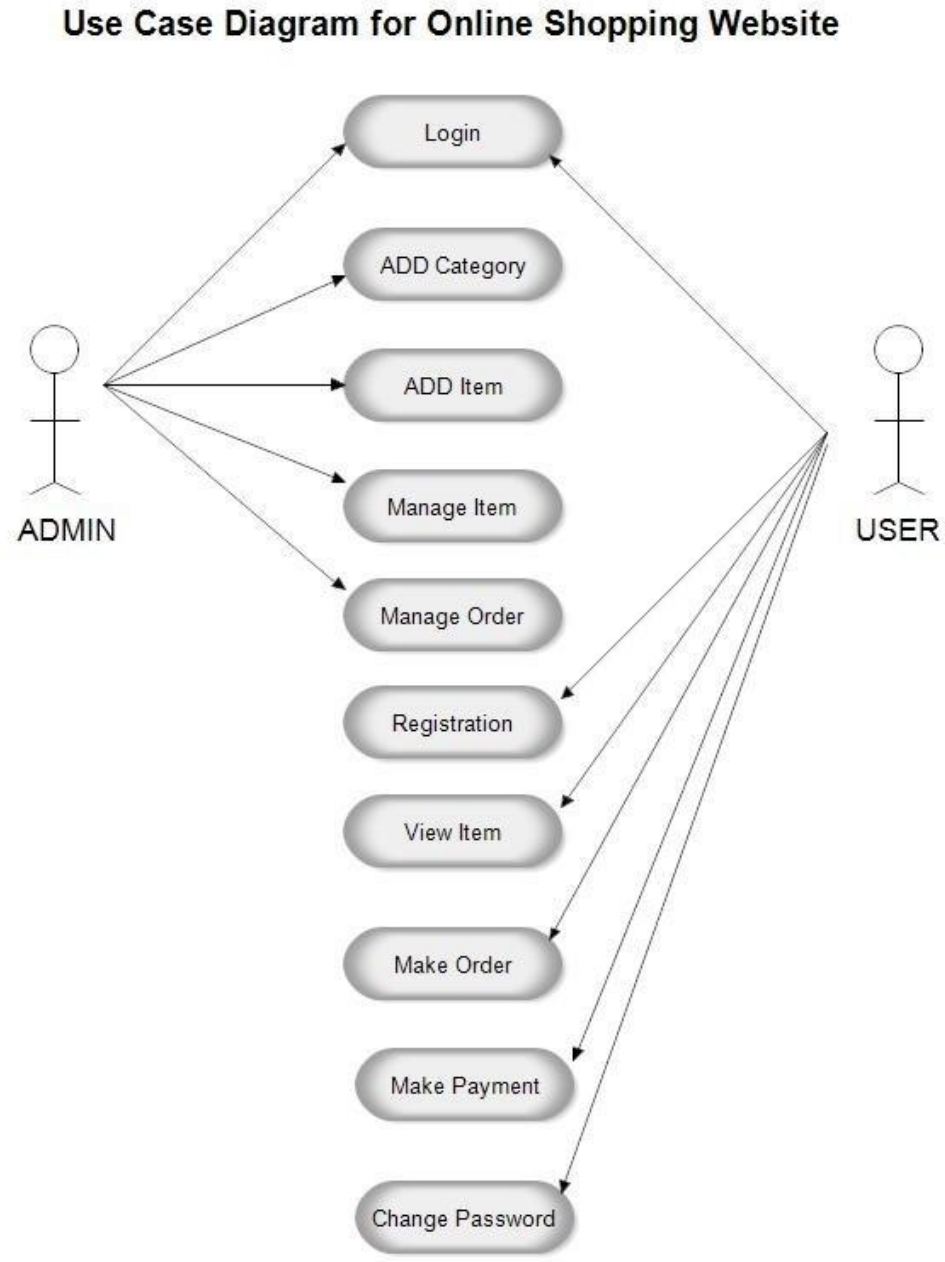
6. 1-Level DFD

- **2 level**



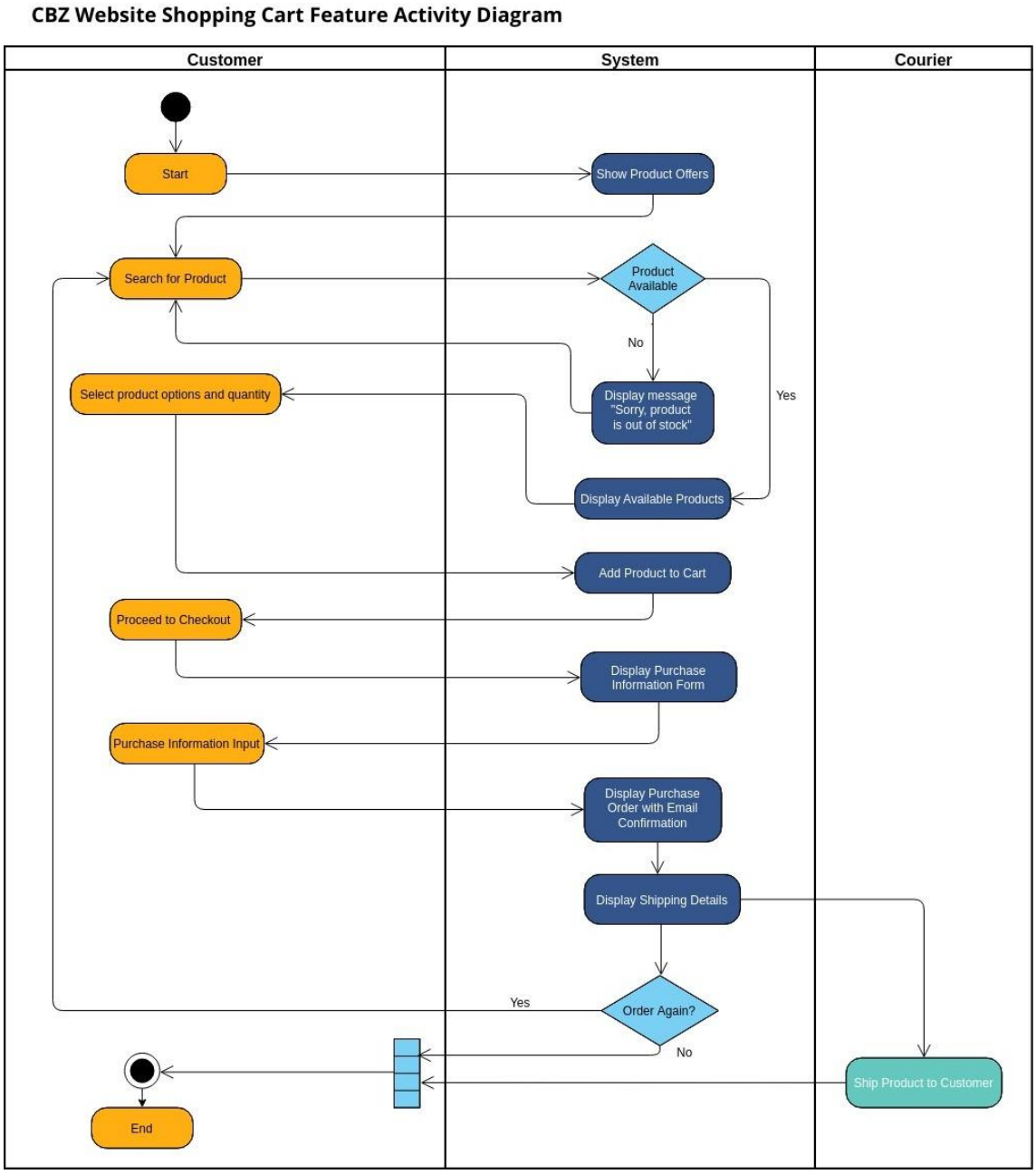
7. 2-Level DFD

2.11 Use Case



8. Use Case

2.12 Activity Diagram



9. Activity Diagram

3

Chapter 3 : System Design

3.1 Database Design

3.1.1 Data Dictionary

- PRODUCT

SR NO.	FIELD_NAME	DATA TYPE	FIELD LENGTH	CONSTRAINT	DESCRIPTION
1	COCONUT	VARCAR2	20		COCONUT PRODUCT
2	SOIL	VARCAR2	20		SOIL PRODUCT
3	BAMBOO	VARCHAR2	20		BAMBOO PRODUCT
4	WOOD	VARCHAR2	20		WOOD PRODUCT

1. Data Dictionary (product)

- CUSTOMER

SR NO.	FIELD_NAME	DATA TYPE	FIELD LENGTH	CONSTRAINT	DESCRIPTION
1	CUSTOMER_ID	INT	20		CUSTOMER ID
2	BILLING _NO	INT	20		BILLING NO
3	PURCHASE	VARCAR2	20		PRODUCT PURCHASED BY CUSTOMBER

2. Data Dictionary (customer)

- USER

SR NO.	FIELD_NAME	DATA TYPE	FIELD LENGTH	CONSTRAINT	DESCRIPTION
1	NAME	VARCAR2	20		NAME OF USER
2	EMAIL	VARCAR2	20	UNIQUE KEY	UNIQUE EMAIL-ID
3	PASSWORD	VARCAR2	20	NOT NULL	SECURED PASSWORD

3. Data Dictionary(user)

- CONTACT US

SR NO.	FIELD_NAME	DATA TYPE	FIELD LENGTH	CONSTRAINT	DESCRIPTION
1	FIRST NAME	VARCAR2	20		FIRST NAME
2	LAST NAME	VARCAR2	20		LAST NAME
3	EMAIL	VARCAR2	20	UNIQUE KEY	UNIQUE EMAIL-ID
4	TITLE OF THE QUERY	VARCAR2	20		QUERY TITLE
5	WRITE YOUR QUERY	VARCAR2	1000		DESCRIBE YOUR QUERY

4. Data Dictionary(contact us)

- MODE OF PAYMENT

SR NO.	FIELD_NAME	DATA TYPE	FIELD SIZE	CONSTRANINT	DESCRIPTION
1	COD	VARCAR2	20		CASH ON DELIVERY
2	UPI	INT	20		USING UPI ID
3	CREDIT CARD	INT	20		USING CREDIT CARD NUMBER
4	NET-BANKING	INT	20		USING NET-BANKING
5	DEBIT CARD	INT	20		USING DEBIT CARD NUMBER

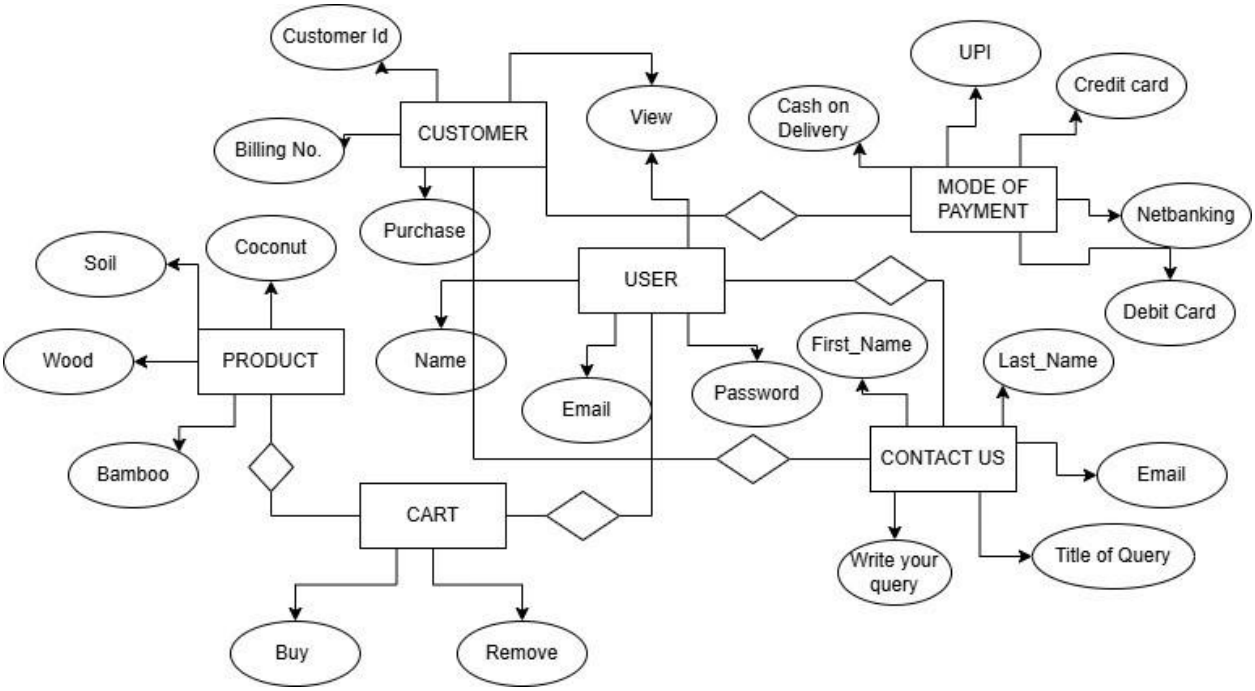
5. Data Dictionary(mode of payment)

- CART

SR NO	FIELD_NAME	DATA TYPE	FIELD SIZE	CONSTRAINT	DESCRIPTION
1	ADD	VARCHAR2	10		ADD A NEW PRODUCT INTO THE CART
2	REMOVE	VARCHAR2	10		REMOVE THE PRODUCT FROM THE CART

6. Data Dictionary(cart)

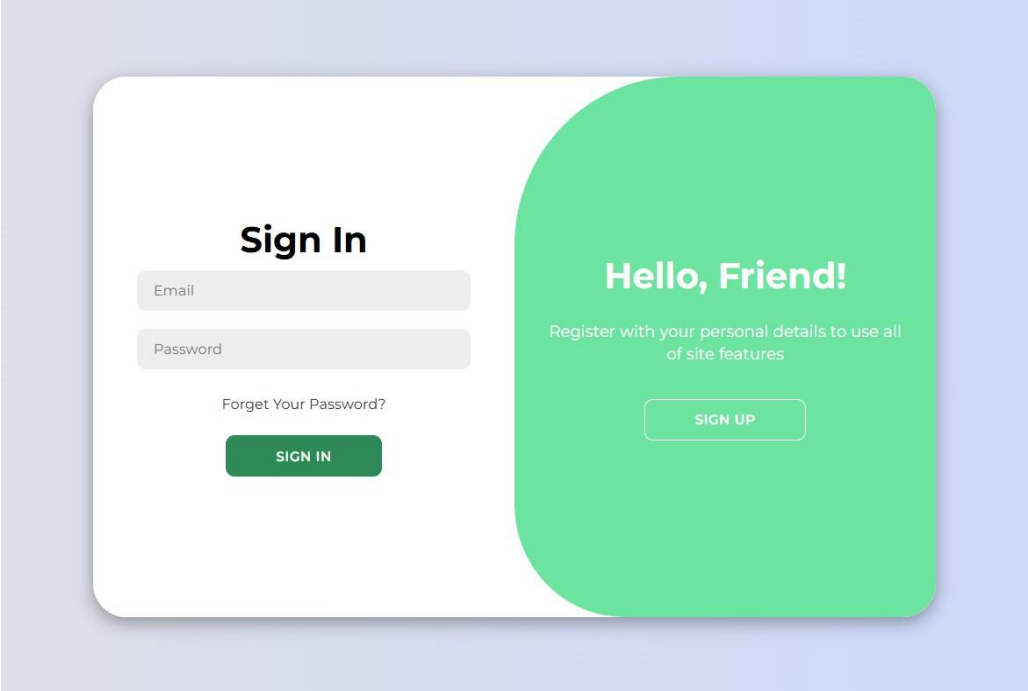
3.1.2 Entity-Relationship Diagram



10. E-R Diagram

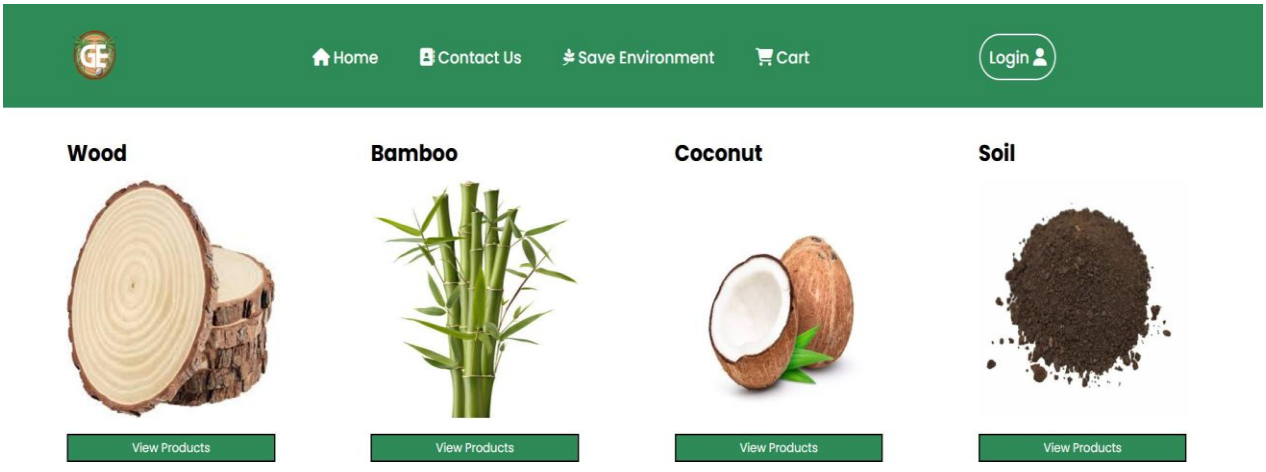
3.2 GUI Design

- SIGN IN PAGE :



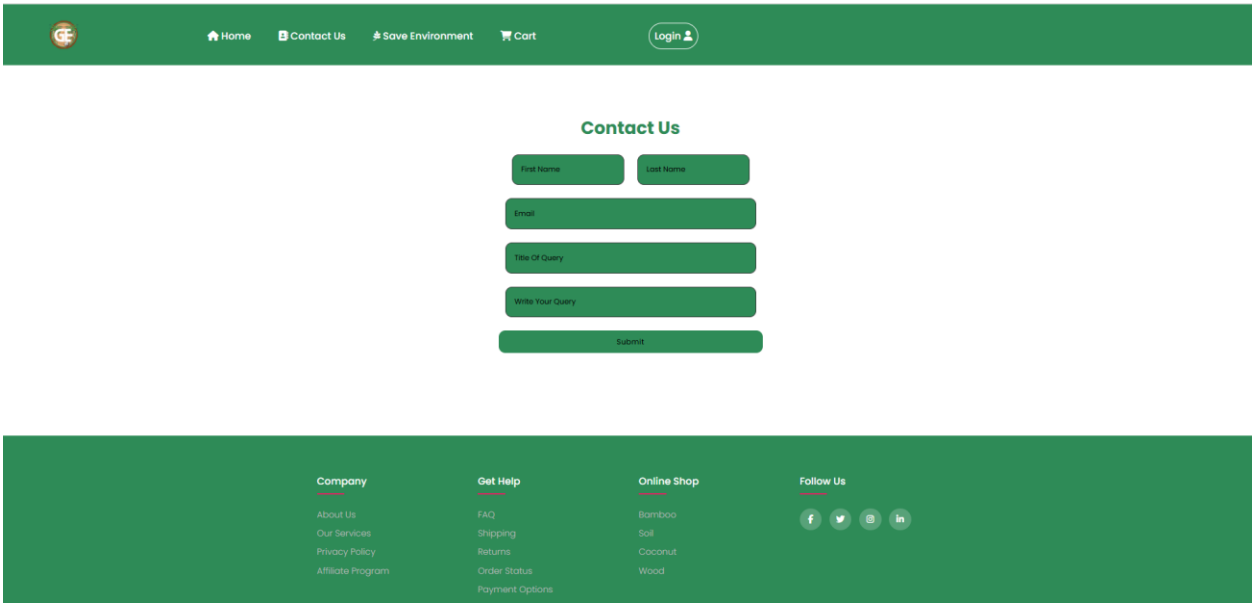
11. Sign in page

- PRODUCT SECTION



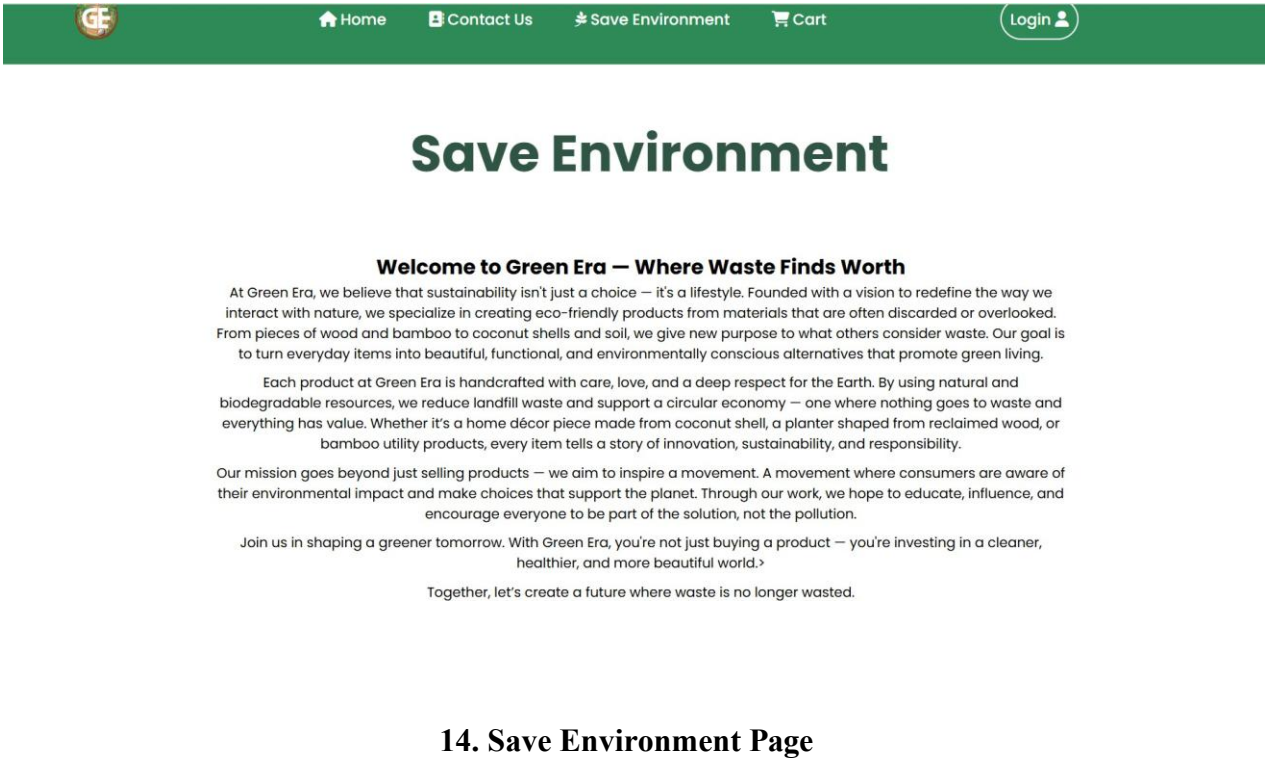
12. Product Section

- CONTACT US PAGE



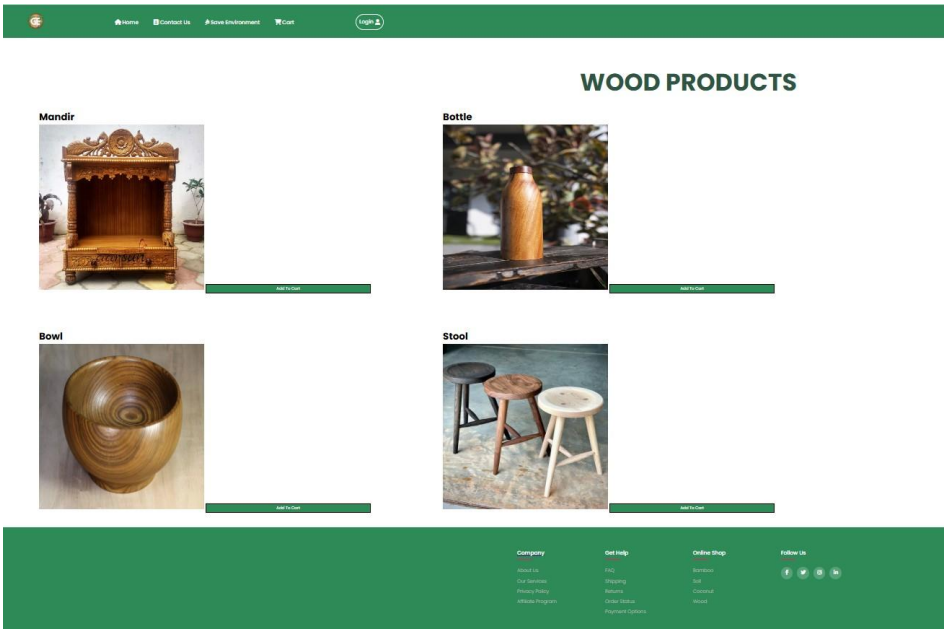
13. Contact Us Page

- SAVE ENVIRONMENT PAGE



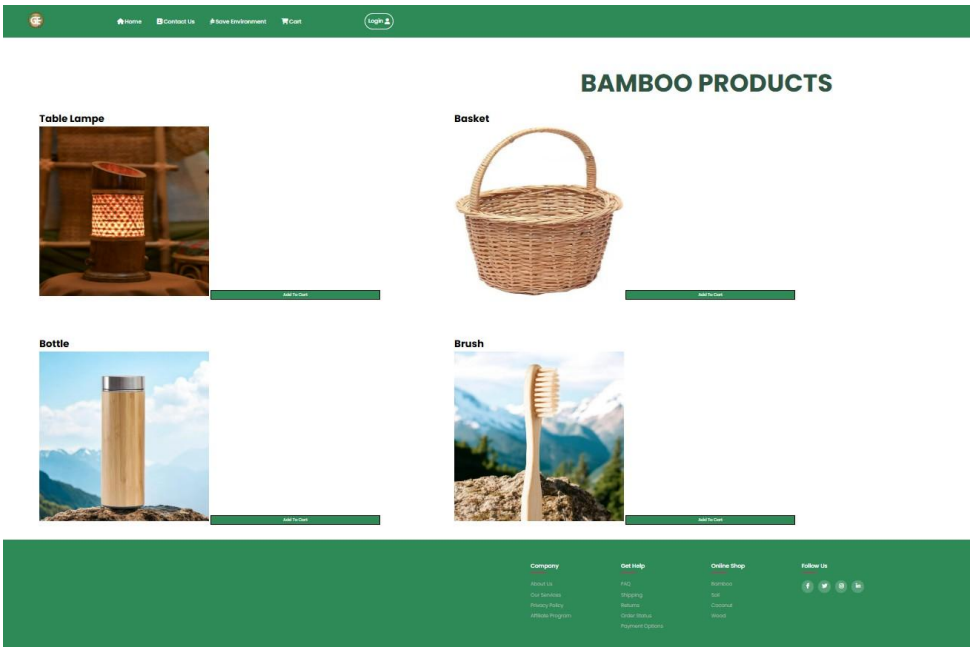
14. Save Environment Page

- WOOD PRODUCTS PAGE



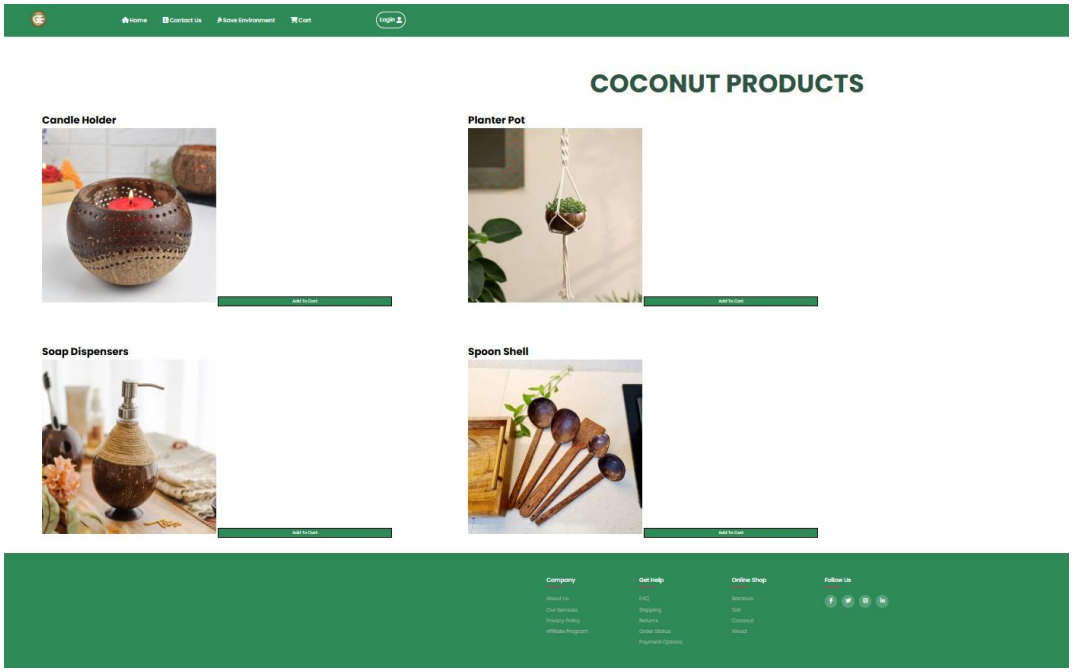
15. Wood Products Page

- BAMBOO PRODUCTS PAGE



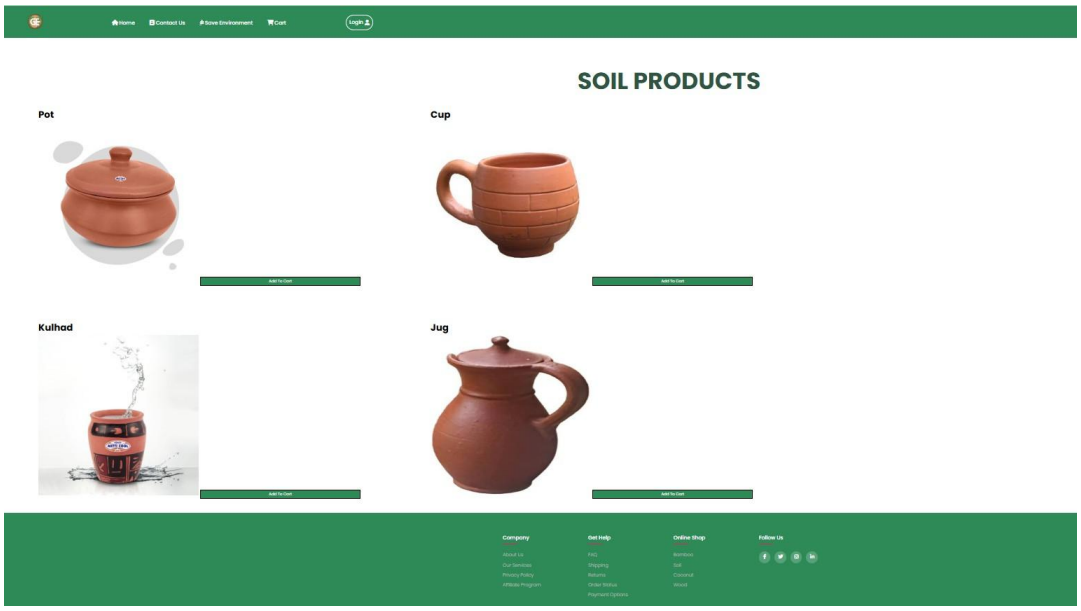
16. Bamboo Products Page

- COCONUT PRODUCTS PAGE



17. Coconut Products Page

- SOIL PRODUCTS PAGE



18. Soil Products Page

4

Chapter 4 : System Development

4.1 Coding Standard

4.2 Tools Explanation

4.1 Coding Standards

Different modules specified in the design document are coded in the Coding phase according to the module specification. Good software development organizations want their programmers to maintain to some well-defined and standard style of coding called coding standards. They usually make their own coding standards and guidelines depending on what suits their organization best and based on the types of software they develop. It is very important for the programmers to maintain the coding standards otherwise the code will be rejected during code review.

Purpose of Having Coding Standards :

- A coding standard gives a uniform appearance to the codes written by different engineers.
- It improves readability, and maintainability of the code and it reduces complexity also.
- It helps in code reuse and helps to detect error easily.
- It promotes sound programming practices and increases efficiency of the programmers.

Some of the coding standards are given below :

1. Limited use of global: These rules tell about which types of data that can be declared global and the data that can't be.
2. Standard headers for different modules: For better understanding and maintenance of the code, the header of different modules should follow some standard format and information.

   The header format must contain below things that is being used in various companies :

   - Name of the module
   - Date of module creation
   - Author of the module
   - Modification history
   - Synopsis of the module about what the module does
   - Different functions supported in the module along with their input output parameters
   - Global variables accessed or modified by the module

3. Naming conventions for local variables, global variables, constants and functions
   Some of the naming conventions are given below:
   - Meaningful and understandable variables name helps anyone to understand the reason of using it.

- Local variables should be named using camel case lettering starting with small letter (e.g. local data) whereas Global variables names should start with a capital letter (e.g. Global data). Constant names should be formed using capital letters only (e.g. CONSDATA).

- It is better to avoid the use of digits in variable names.
- The names of the function should be written in camel case starting with small letters.
- The name of the function must describe the reason of using the function clearly and briefly.

4. Indentation: Proper indentation is very important to increase the readability of the code. For making the code readable, programmers should use White spaces properly. Some of the spacing conventions are given below:

   - There must be a space after giving a comma between two function arguments.
   - Each nested block should be properly indented and spaced.
   - Proper Indentation should be there at the beginning and at the end of each block in the program.
   - All braces should start from a new line and the code following the end of braces also start from a new line.

5. Error return values and exception handling conventions: All functions that encountering an error condition should either return a 0 or 1 for simplifying the debugging.
6. Avoid using a coding style that is too difficult to understand: Code should be easily understandable. The complex code makes maintenance and debugging difficult and expensive.
7. Avoid using an identifier for multiple purposes: Each variable should be given a descriptive and meaningful name indicating the reason behind using it. This is not possible if an identifier is used for multiple purposes and thus it can lead to confusion to the reader. Moreover, it leads to more difficulty during future enhancements.
8. Code should be well documented: The code should be properly commented for understanding easily. Comments regarding the statements increase the understandability of the code.
9. Length of functions should not be very large: Lengthy functions are very difficult to understand. That's why functions should be small enough to carry out small work and lengthy functions should be broken into small ones for completing small tasks.
10. Try not to use GOTO statement: GOTO statement makes the program unstructured, thus it reduces the understandability of the program and also debugging becomes difficult.

4.2 Tools Explanation

PHP

- PHP is a server-side scripting language. PHP is open-source and free to use.
- PHP is used to create dynamic and interactive web pages.
- PHP is open-source and free to use.
- PHP is a powerful and versatile language.
- PHP is used by millions of developers around the world.
- PHP is a general-purpose language, but it is most commonly used for web development.
- PHP can be used to create a wide variety of web applications, from simple static websites to complex e-commerce platforms.
- PHP is a fast and efficient language.
- PHP is easy to learn and use.
- PHP has a large and active community of developers.
- PHP is supported by a wide range of hosting providers.
- PHP is a secure language.
- PHP is constantly evolving and improving.
- PHP is a reliable and scalable language.
- PHP is a powerful tool that can be used to create amazing things.
- PHP is a great choice for anyone who wants to create dynamic and interactive web pages.
- PHP is a valuable skill for any web developer.
- PHP is a powerful language that can be used to create a wide variety of web.

MYSQL

- MySQL Server is a relational database management system (RDBMS).
- MySQL Server is a popular choice for web applications.
- MySQL Server is open-source and free to use.
- MySQL Server is a fast and efficient database.
- MySQL Server is easy to learn and use.
- MySQL Server is scalable and reliable.
- MySQL Server is secure.
- MySQL Server is supported by a large community of developers.
- MySQL Server is used by millions of websites and applications around the world.
- MySQL Server is a powerful tool that can be used to store and manage data.

- MySQL Server is a versatile database that can be used for a wide variety of applications.
- MySQL Server is a reliable database that can be used to store mission-critical data.

HTML

- HTML is the standard markup language used to create web pages.
- HTML structures the content on the web using elements like headings, paragraphs, links, and images.
- HTML is open-source and free for anyone to use.
- HTML is simple yet powerful for building websites and applications.
- HTML is used by millions of developers, designers, and companies worldwide.
- HTML is a fundamental technology of the World Wide Web, along with CSS and JavaScript.
- HTML allows you to build a wide variety of web-based applications, from simple landing pages to complex web platforms.
- HTML is lightweight and loads quickly in web browsers.
- HTML is easy to learn and has a straightforward, readable syntax.
- HTML has a large, active community providing support, tutorials, and resources.
- HTML is supported by all modern web browsers.
- HTML can be combined with CSS and JavaScript to create interactive and dynamic websites.
- HTML continues to evolve, with new versions like HTML5 bringing powerful features like audio, video, and better mobile support.

CSS

- CSS is the language used to style and design HTML web pages.
- CSS controls the layout, colo urs, fonts, spacing, and overall visual appearance of a website.
- CSS is open-source and free to use.
- CSS is powerful and flexible, enabling detailed and complex designs.
- CSS is used by millions of developers and designers around the world.
- CSS is an essential technology alongside HTML and JavaScript for web development.
- CSS allows you to create responsive designs that work across mobile, tablet, and desktop devices.
- CSS is efficient, separating content (HTML) from presentation (style).
- CSS is easy to learn with a clear and structured syntax.
- CSS has a massive community offering resources, frameworks, and support.

- CSS is supported by all modern browsers.
- CSS can be enhanced with preprocessors like SASS and LESS for more advanced features.

Java Script

- JavaScript is a high-level, interpreted programming language used to create dynamic and interactive websites.
- JavaScript adds behaviour to web pages, like animations, forms validation, interactive maps, and more.
- JavaScript is open-source and free to use.
- JavaScript is a powerful and versatile language.
- JavaScript is used by millions of developers around the world.
- JavaScript is a core technology of the World Wide Web, alongside HTML and CSS.
- JavaScript can be used to build web apps, mobile apps (with frameworks like React Native), server-side apps (with Node.js), and even games.
- JavaScript is fast, running directly in the browser or on the server.
- JavaScript is relatively easy to learn, especially for those with basic programming knowledge.
- JavaScript has a massive and very active community, offering endless libraries, tools, and frameworks.
- JavaScript is supported by all modern web browsers without the need for plugins.
- JavaScript can be used with popular libraries and frameworks like React, Angular, Vue.js, and jQuery.
- JavaScript is continuously evolving, with modern standards like ES6+ introducing powerful new features**.**

Chapter 5 : Testing

5.1 Testing Strategy

5.2 Testing Methods

5.3 Test Cases

5.1 Testing Strategy

- Unit Testing
- Integration Testing
- Validation Testing
- System Testing

ï? **Green Era Website — Testing Strategy**

1. Objective
   - The goal is to ensure that the Green Era website delivers a seamless, secure, eco-friendly, and user-centric experience across all platforms and devices — promoting trust, engagement, and sustainable shopping.

2. Types of Testing

   - Functional Testing: To verify that all website features (shop, cart, checkout, user accounts, etc.) work as expected.
   - Usability Testing: To ensure the website is easy to navigate, visually pleasing, and offers a smooth user journey.
   - Performance Testing: To check the website's speed, load time, and behavior under different traffic conditions.
   - Security Testing: To protect user data, secure transactions, and prevent attacks like SQL injection, XSS, etc.
   - Compatibility Testing: To ensure the website works across various browsers (Chrome, Safari, Firefox, Edge) and devices (mobile, tablet, desktop).
   - SEO Testing: To validate that the website follows SEO best practices for better search engine visibility
   - Accessibility Testing: To ensure the website is usable for people with disabilities (ADA/WCAG compliance).
   - Regression Testing: To make sure new updates don't break existing functionality.

3. Testing Tools

- Functional Testing: Selenium, Manual Testing (Checklists)
- Performance Testing: Google Page Speed Insights, GT Metrix, Lighthouse
- Security Testing: OWASP ZAP, SSL Checker, Word fence (for WordPress)
- Browser Compatibility: Browser Stack, CrossBrowserTesting.com
- SEO Testing: Ahrefs, SEMrush, Screaming Frog SEO Spider

4. Testing Stages and Activities

a) Pre-Launch Testing

- Full functional testing of all pages and actions (login, purchase, feedback form).
- Load testing to handle expected visitor traffic.
- SEO audit to ensure basic search optimization
- Basic security scan (SSL, form validation, payment gateway security).
- Content proofreading (correct grammar, brand consistency).

b) Post-Launch Testing

- Monitor website performance daily for the first week.
- Set up error tracking (using tools like Sentry, Hotjar).
- Collect customer feedback about usability.
- Immediate patching of any reported bugs or vulnerabilities.

c) Ongoing Testing

- Monthly performance audits.
- Security updates and penetration testing every quarter.
- New feature testing before deployment (staging environment).

5. Test Environments

- Development Server: For coding and internal testing.
- Staging Server: For final review before going live.
- Production Server: The live Green Era website.

- Summary

  Testing will be continuous and iterative, just like Green Era’s commitment to sustainability ï1.

  By performing rigorous testing across all areas — functionality, speed, security, and accessibility — we ensure a website that users trust, love, and keep returning to. This strategy will also safeguard our mission of delivering eco-conscious solutions with the highest quality online experience ® ✨.

5.2 Testing Methods

- Black Box Testing
- White Box Testing

ï? Green Era Website — Detailed Testing Methods

1. Manual Testing
   - Definition: Manual testing involves manually operating the website by testers without using automation tools.
   - Activities : Clicking through all website links and buttons, Filling and submitting all forms (registration, feedback, checkout), Manually checking product filtering, cart updating, order placing.
   - Purpose: To detect UI/UX glitches, logical errors, spelling mistakes, and unexpected behaviours that only a real human can notice.

2. Automated Testing

   - Definition: Automated testing uses scripts and tools to validate website functionalities repeatedly.
   - Activities: Automating login, add-to-cart, checkout flows using Selenium, Running scheduled test cases after code updates (Continuous Integration pipelines).
   - Purpose: To save time, reduce manual effort, and detect regressions early when features are added or changed.

3. Functional Testing

   - Definition: Validating that all features of the website work exactly as per the requirements.
   - Activities: Testing shopping cart operations (add/update/remove items), Verifying payment processing, coupon application, order confirmations, Checking login/logout functionality, password reset workflow.
   - Purpose: To ensure all critical functions serve their intended purpose without error.

4. Performance Testing

- Definition: Evaluating the speed, responsiveness, and stability of the website under different conditions.
- Activities: Measuring page load time for Home, Product, and Checkout pages, Stress testing the server by simulating multiple concurrent users.
- Purpose: To ensure the website remains fast and responsive even during high traffic, providing a good user experience and improving SEO.

5. Security Testing

- Definition: Assessing the website's ability to protect user data and resist cyberattacks.
- Activities: Ensuring all data transfers are encrypted (SSL/TLS), Validating input fields to prevent SQL Injection, Cross-site Scripting (XSS), Testing security of user accounts, admin panel, and payment gateway integrations.
- Purpose: To prevent data breaches, financial fraud, and maintain trust among customers.

5. Compatibility Testing

- Definition: Testing the website across different browsers, operating systems, and devices.
- Activities: Checking UI rendering and functionality on Chrome, Safari, Firefox, Edge, Testing responsiveness on Android and iOS devices, tablets, laptops.
- Purpose: To guarantee that users have a consistent and error-free experience, no matter how they access the website.

6. Usability Testing

- Definition: Evaluating how easy and intuitive the website is for users.
- Activities: Observing real or test users trying to browse and purchase products. Collecting feedback on navigation ease, readability, and design clarity.
- Purpose: To identify confusing layouts, unnecessary steps, or bottlenecks in the user journey that could hurt sales or satisfaction.

7. SEO Testing

- Definition: Checking that the website is optimized for search engines to enhance visibility and traffic.
- Activities: Validating the presence of meta titles, meta descriptions, structured data (schema markup), Ensuring image optimization, mobile-friendliness, and fast loading speeds, Verifying sitemap.xml and robots.txt are configured properly
- Purpose: To improve the website's chances of ranking higher on Google and other search engines, driving organic traffic.
-

Black Box Testing	White Box Testing
1. Black box testing techniques are also called functional testing techniques.	1. White box testing techniques are also called structural testing techniques.
2Black Box Testing is a software testing method in which the internal structure/ design/ implementation of the item being tested is NOT known to the tester	2. White Box Testing is a software testing method in which the internal structure/ design/ implementation of the item being tested is known to the tester.
3. It is mainly applicable to higher levels of testing such as Acceptance Testing and System Testing	3. Mainly applicable to lower levels of testing such as Unit Testing and Integration Testing
4. Black box testing is generally done by Software Testers	4. White box testing is generally done by Software Developers
5. Programming knowledge is not required	5. Programming knowledge is required
6. Implementation knowledge is not required.	6. Implementation knowledge is required

5.3 Test Cases

Signup Check :

Test Case						
Pre-condition : Signup Check						
Dependencies						
Ste p	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/ Fail)	Notes
1	Signup Model		User should be able to	You have Signup	Pass	Firstly , user have signup operations
2	Username	JayR				
3	Password	12356				
4	Confirm Password	12356				
5	Signup					
Conditions : User must enter correct details for signup. .						

7. Sign Up check

Login Check :

Test Case						
Pre-condition : Login Check						
Dependencies						
Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/	Notes
1	Login Model		User should be able to Login	You have logged in successful	Pass	Firstly , user have Login to perform operations
2	Username	JavR				
3	Password	12356				
5	Logged in					
Conditions : User must enter correct details for Login .						

8. Login check

Read :

Test Case						
Pre-condition : All categories working viewing						
Dependencies						
Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/ Fail)	Notes
1	select		User should redirect to the product page	User redirected to product page	Pass	When user click on the button then he/she will view the detail of product
2	view	View the product				
3	Add to cart					
Conditions : User can view product.						

9. Read

Order :

Test Case						
Pre-condition : All categories working order.						
Dependencies						
Step	Test Steps	Test Data	Exped Result	Actual Result	Status (Pass / Fail)	Notes
1	Add to cart		User should order the product	User can order the product	Pass	When user click on the button then he/she will order the product
2	Enter quantity	Number of product				
3	Order now					
Conditions : User can order the product						

10. Order

Contact Us :

Test Case						
Pre-condition : All categories working contact us						
Dependencies						
Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/ Fail)	Notes
1	Contact-us		User should redirect contact-us page	User redirected to contact-us page	Pass	When user click on the button then he/she will contact the owner of the website
2	Fill details	Customer should enter there details to contact				
3	submit					
Conditions : User can make contact.						

11. Contact Us

6

Chapter 6 : Conclusion

6.1 Benefits

6.2 Limitation

6.3 Future Enhancement

6.1 Benefits

- **Eco-Friendly Shopping** : Every product available on our website is crafted from sustainable, biodegradable, and recycled materials. When you shop at Green Era, you're supporting eco-conscious practices that reduce landfill waste and promote a greener planet.
- **Wide Range of Products** : Whether you're looking for home décor , utility products , or sustainable gifts , our online store has a variety of items crafted from materials such as bamboo , coconut shells , and reclaimed wood . All items are designed to fit your lifestyle and offer eco-friendly alternatives.
- **Transparency & Education** : Our website is not just a place to shop, but a hub of knowledge. Learn about the materials we use, the impact of waste on the environment , and how we're contributing to a circular economy. We aim to educate and inspire responsible choices.
- **Handcrafted Quality** : Each product is handmade with love, care, and attention to detail. With Green Era, you're not just buying a product — you're supporting artisans and skilled craftsmen who pour their passion into every creation.
- **Commitment to Sustainability** : By choosing Green Era, you're helping to reduce your carbon footprint . Our process involves using only the most sustainable resources and methods, ensuring that every purchase contributes positively to the environment.
- **Secure and Easy Shopping Experience** : Enjoy a seamless online shopping experience with our user-friendly website interface . From browsing products to checking out, everything is designed to ensure convenience, security, and satisfaction.
- **Support for a Circular Economy** : At Green Era, we believe in giving new life to materials that would otherwise end up as waste. Every product you buy helps close the loop in the circular economy by keeping valuable resources in use, reducing the need for new raw materials.

6.2 Limitation

- **Limited Product Availability** : As we focus on handcrafted and sustainable goods, our inventory may sometimes be limited due to the nature of the production process. Popular items may sell out quickly, and restocking may take time as we rely on artisans and eco-friendly materials.
- **Shipping Restrictions** : While we strive to make our products available worldwide, there may be certain shipping limitations depending on your location. Shipping to remote areas or certain international regions may involve additional costs or delays.
- **Product Customization** : Currently, we may not offer extensive customization options for our products. While we pride ourselves on handcrafted goods, personalized or custom orders may be limited due to production constraints.
- **Size and Colour Variations** : Since our products are made from natural, recycled, and reclaimed materials, slight variations in size, colour , and texture may occur. This ensures each piece is unique but may differ from the photos on the website.
- **Website Accessibility** : While we work to make our website as user-friendly as possible, there may still be some limitations when it comes to accessibility features for users with disabilities. We're continuously working to improve this aspect, but it might not be fully optimized at all times.
- **Payment Methods** : While we accept most major payment methods, some specific payment options may not be supported in certain regions. We are constantly working to expand and improve payment options for a broader customer base.
- **Stock Updates and Website Load** : Due to high demand or during sales events, there might be moments of delayed stock updates or slower website load times. We’re constantly upgrading our website’s infrastructure to enhance your browsing and shopping experience.
- **Environmental Impact of Shipping** : While we aim to minimize our carbon footprint, the shipping process itself still contributes to environmental impact. We encourage sustainable practices by offering eco-friendly packaging, but long-distance shipping may still contribute to emissions.
- **Limited Customer Service Hours** : Our customer service team is available during business hours. For urgent inquiries outside of these hours, response times may be longer. We're working on expanding support availability, but it may not be 24/7 just yet.

6.3 Future Enhancement

- **Expanded Product Customization** Options : We plan to introduce more customization features, allowing customers to personalize certain products (such as engraved names or custom sizes). This will give our customers the ability to create truly one-of-a-kind items that fit their unique needs.
- **Improved Shipping Options** : We are looking to expand our global shipping capabilities, including offering faster delivery times and more affordable shipping rates. We also aim to partner with carbon-neutral shipping providers to further reduce our environmental impact.
- **Enhanced Website Accessibility** : To make our website fully accessible to all users, we are working on implementing advanced accessibility features such as screen reader support, keyboard navigation, and colour contrast adjustments to ensure that everyone can enjoy a seamless browsing experience.
- **Subscription Services** : We are exploring the possibility of launching a subscription service for eco-friendly home products. Subscribers will receive a curated selection of sustainable products every month, making it easy to adopt a more eco-conscious lifestyle.
- **AR/VR Product Previews :** To give customers a better sense of how products will look in their space, we plan to integrate augmented reality (AR) and virtual reality (VR) features. This will allow users to visualize items like furniture or home décor in their homes before purchasing.
- **Sustainability Tracker** : We are working on adding a sustainability tracker to the website. This feature will allow customers to see the positive environmental impact they've made with each purchase, including the amount of waste diverted from landfills and the reduction in carbon emissions.
- **Loyalty and Rewards Program** : To thank our customers for their support, we plan to introduce a loyalty program. Customers will earn points for each purchase and can redeem them for discounts, exclusive products, or special offers.
- **Eco-Friendly Packaging Improvements** : We're committed to further reducing packaging waste. In the future, we plan to offer fully biodegradable or reusable packaging options and a packaging-free delivery option for customers who prefer it.
- **Live Chat Support** : We're planning to integrate live chat functionality, allowing for real-time customer support. This will help resolve any issues or answer questions quickly, improving the overall shopping experience.

Reference

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- https://mitticool.com

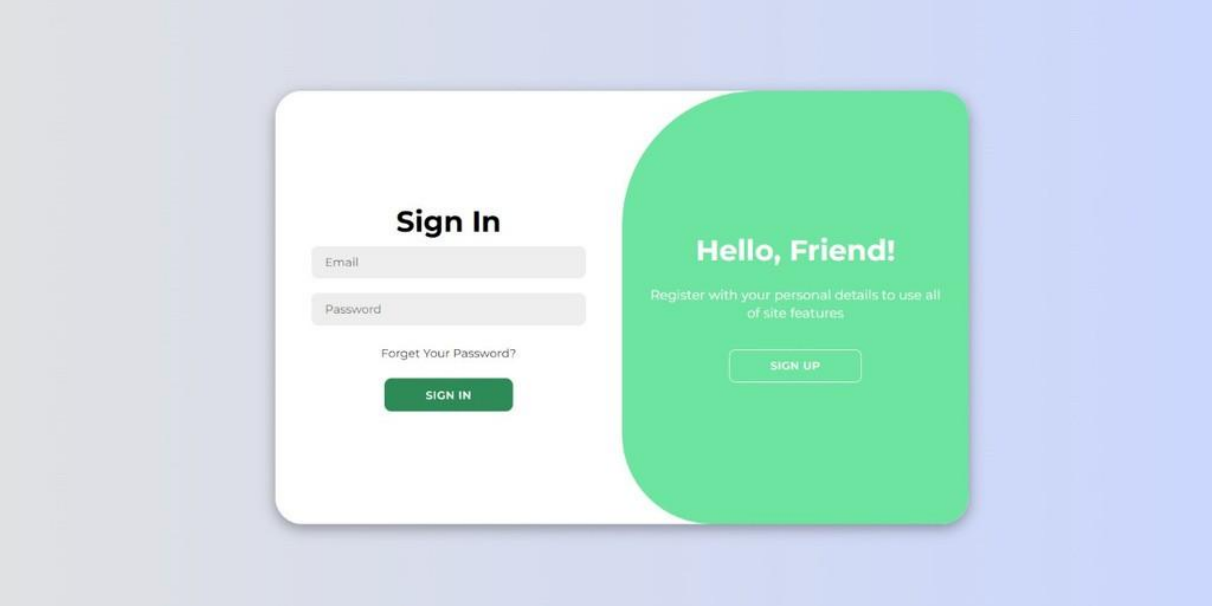
Appendix

User Manual

Step 1 : Home page of the website

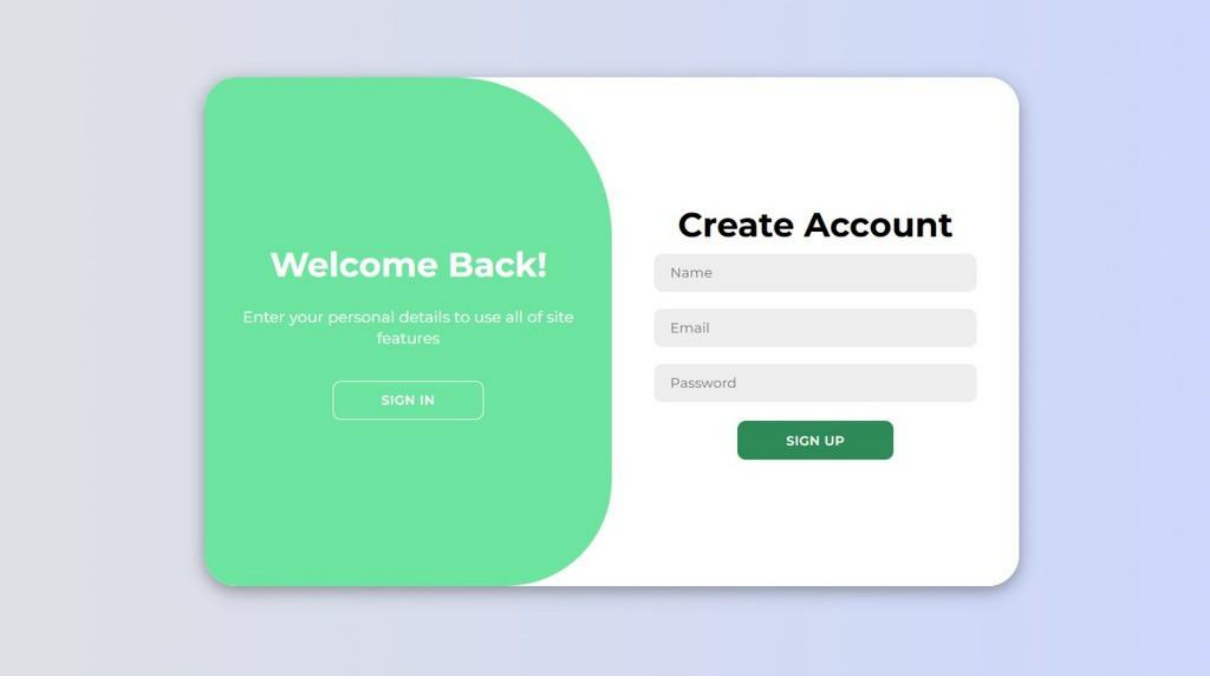
- this this the home page of the website where you can see all eco friendly based material as you can see wood products ,bamboo products ,coconut products ,soil products you can find products if you click on " view products " .

Step 2 : Sign-up page of the website



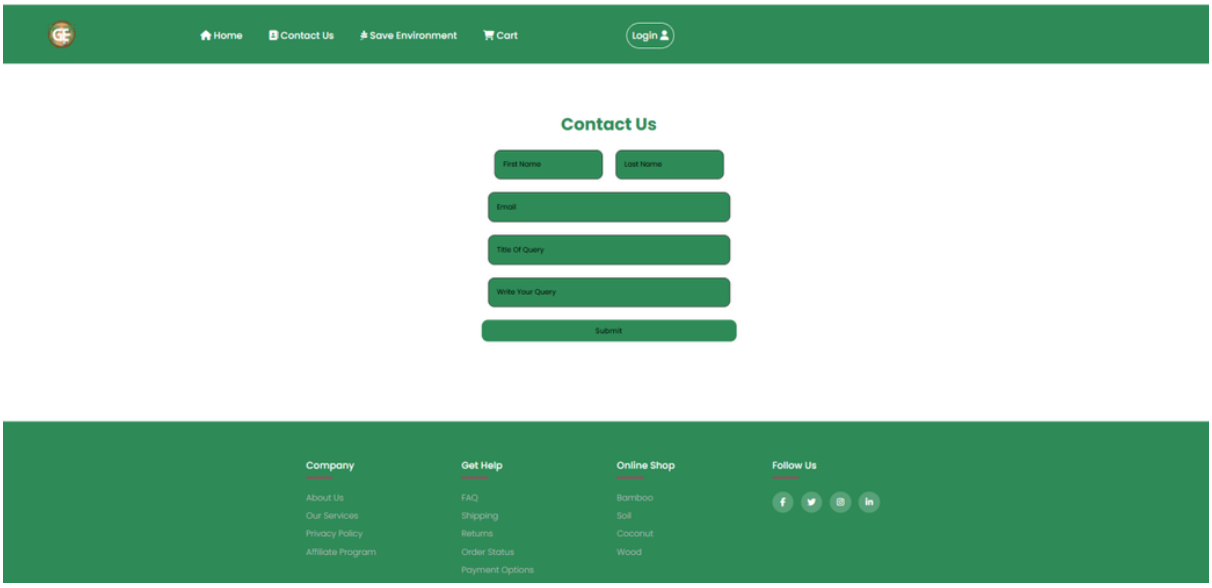
when you click on the “login” option given on the right hand side of the home page you will be re- directed to this sign-up page of our website if you are already a registered user click on “sign-up” option .

Step 3 : Create account page of the website :



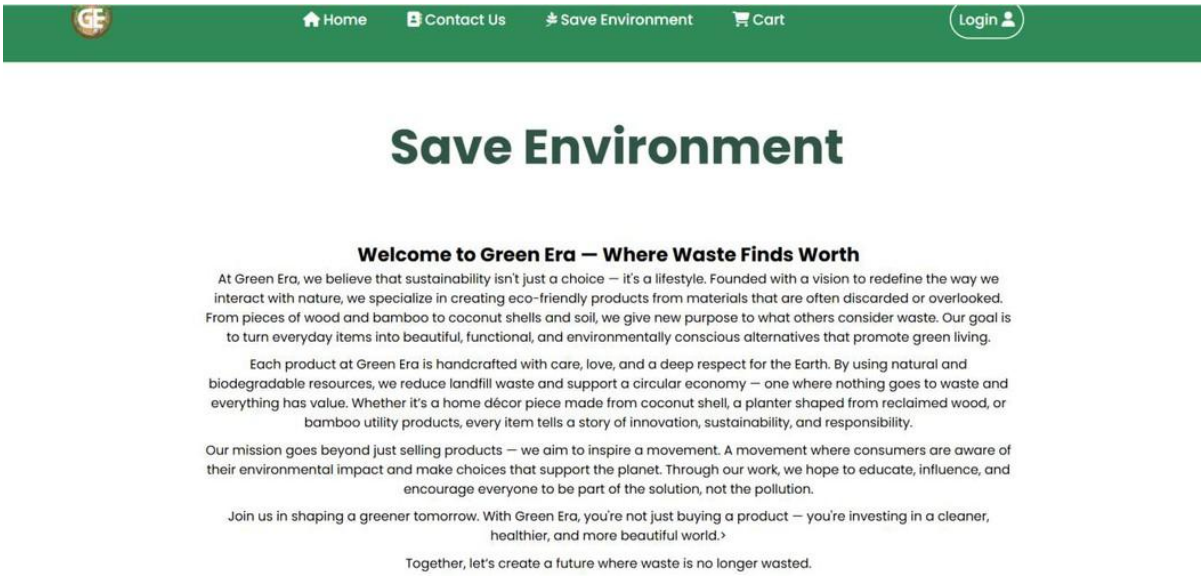
when you click on the “login” option given on the right hand side of the home page you will be re- directed to this sign-up page of our website if you are already a registered user click on “sign-up” option.

Step 4 : CONTACT US PAGE :



when you click on the “contact us ” in the navigation bar of the home page you will find the contact us page you will be able to contact us .

Step 5 : SAVE ENVIRONMENT PAGE :



when you click on the “save environment ” in the navigation bar of the home page you will find the save environment page you will be able to see a blog on save environment .