

Conscious Closet: Sustainable Fashion E-Commerce Platform

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Abstract—The fashion industry is a significant contributor to global environmental degradation, accounting for approximately 10% of carbon emissions and consuming immense water resources. Conscious Closet is an innovative e-commerce platform that connects eco-conscious consumers with sustainable fashion producers. By leveraging modern web technologies, intuitive user interfaces, and a commitment to transparency, the platform fosters sustainable fashion consumption. This report outlines the motivation, objectives, implementation, key features, challenges, and future prospects of the project.

Index Terms—Sustainability, E-commerce, Fashion, Blockchain, Transparency, Education.

I. INTRODUCTION

The global fashion industry contributes 10% of carbon emissions and 85% of annual textile waste ends up in landfills. Despite these challenges, growing consumer awareness underscores the need for sustainable solutions. For instance:

- 73% of millennials prioritize sustainable fashion.
- 68% seek transparent product information.
- 89% desire educational resources for informed decisions.

Conscious Closet aims to address these challenges by combining technology, education, and transparency to foster sustainable consumption.

II. OBJECTIVES

The primary goals of Conscious Closet include:

- 1) Developing a user-friendly e-commerce platform.
- 2) Bridging the gap between eco-conscious consumers and verified sustainable producers.
- 3) Ensuring secure and seamless online shopping.
- 4) Educating users about sustainable consumption practices.

III. PROPOSED MODEL AND IMPLEMENTATION

A. Technical Architecture

B. Technology Stack

- **Backend:** Django (Python web framework).
- **Frontend:** HTML, CSS, JavaScript.

- **Design Framework:** Bootstrap.
- **Payment Integration:** Stripe API.
- **Database:** Postgress.

C. System Components

The platform comprises:

- Secure user authentication with two-factor login.
- Product management with advanced filtering.
- A shopping cart supporting wishlist functionality.
- Integrated payment processing via Stripe.
- Order tracking for a seamless experience.

IV. KEY FEATURES

A. User Management

- **Login, Registration, Authentication:** Secure user login and registration functionality, allowing users to create accounts and log in to the platform.
- **Profile Management:** Users can manage their personal profile, including updating personal information and changing passwords.

B. Product Catalog

- **Product List, Details, and Filtering:** A catalog of sustainable fashion products, where users can view product details, including descriptions, prices, and images. Products can also be filtered by different criteria.
- **Search Functionality and Pagination:** Users can search for products based on different keywords, and pagination is used to navigate large lists of products efficiently.

C. Shopping Experience

- **Wishlist and Cart:** Users can add items to their wishlist and shopping cart for easy future access, managing the products they are interested in purchasing.
- **Order History and Real-time Tracking:** Users can review their order history and track the status of current orders.

- **Secure Payment Integration with Stripe:** Payments are securely processed through the Stripe API, providing a safe transaction experience for users.
- **Invoice Generation:** After completing a purchase, an invoice is generated for the user for record-keeping.

D. Additional Features

- **Contact Us and About Us:** Sections are included for users to reach out with questions (Contact Us) and learn more about the platform's mission (About Us).

V. DEMONSTRATION

Screenshots of key UI components:

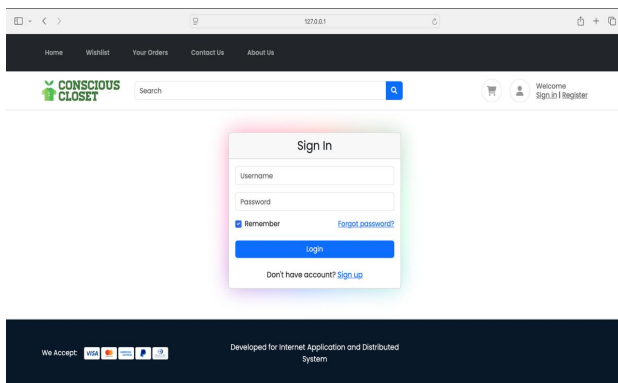


Fig. 1. Login Page

The login page allows users to access their accounts securely by providing valid credentials.

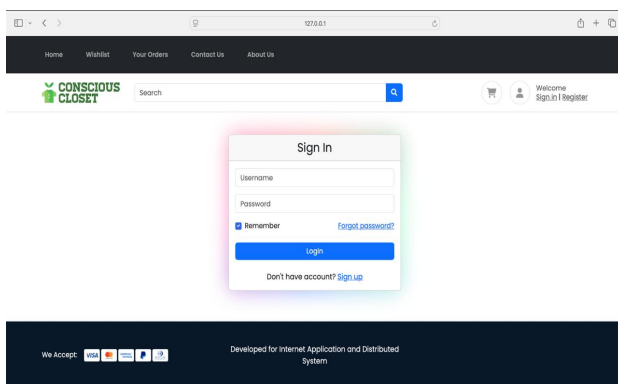


Fig. 2. Signup Page

The signup page enables new users to register by entering their details.

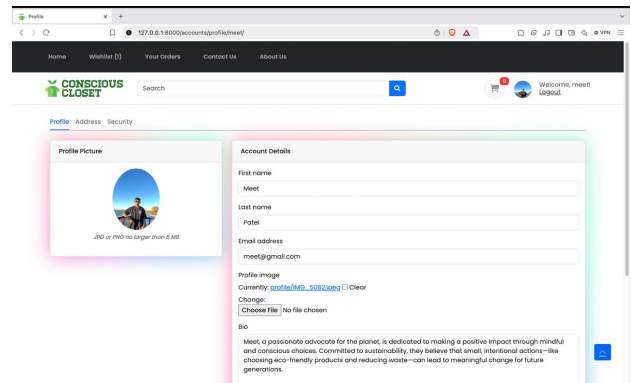


Fig. 3. User Profile Management

The user profile page allows users to view and update personal information.

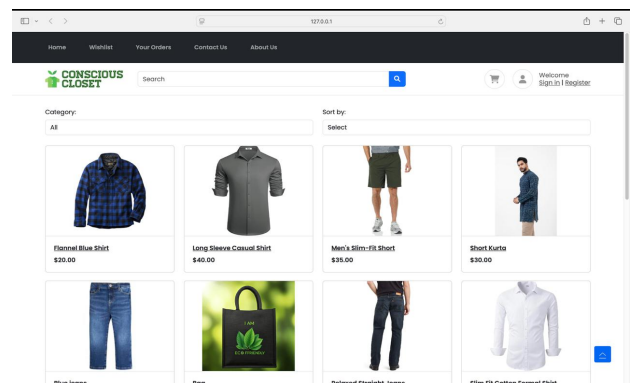


Fig. 4. Home Page

The home page provides a welcoming interface showcasing available products.

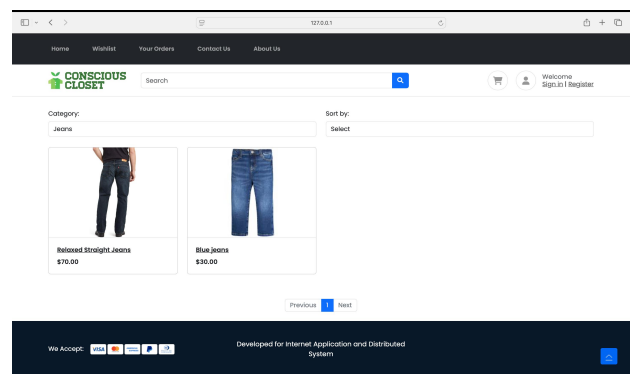


Fig. 5. Home Page Filter

The home page filter allows users to narrow down their search based on categories.

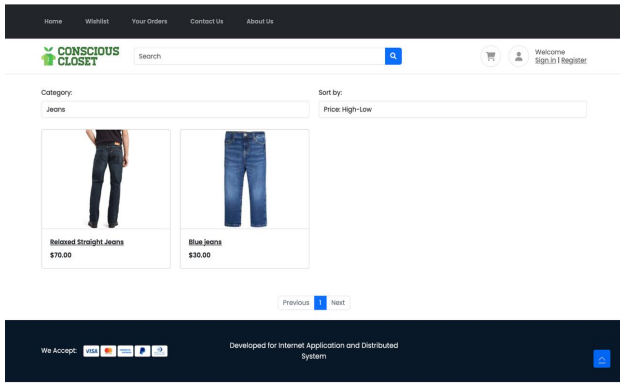


Fig. 6. Home Page Filters and Sorting
Combining filters and sorting to refine product searches on the home page.

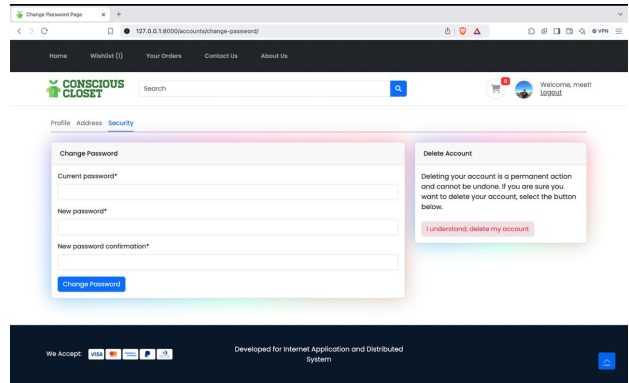


Fig. 9. Password Change
Interface for changing the user's account password.

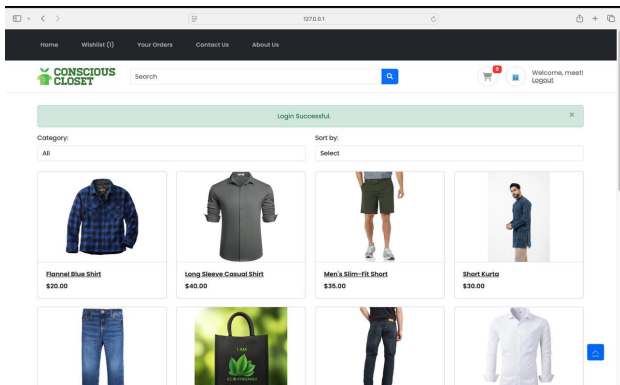


Fig. 7. Login Success
Confirmation screen indicating successful login to the user's account.

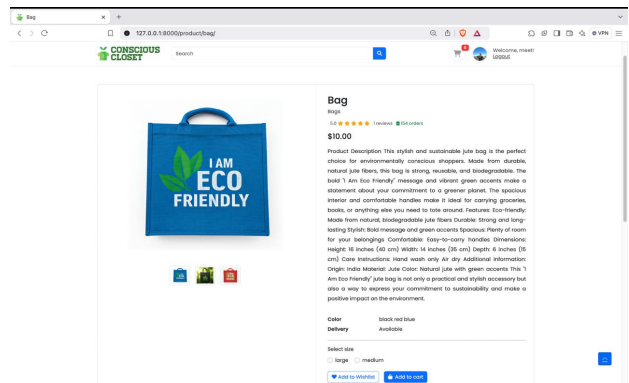


Fig. 10. Product Page
Detailed view of a product, including specifications, pricing, and options.

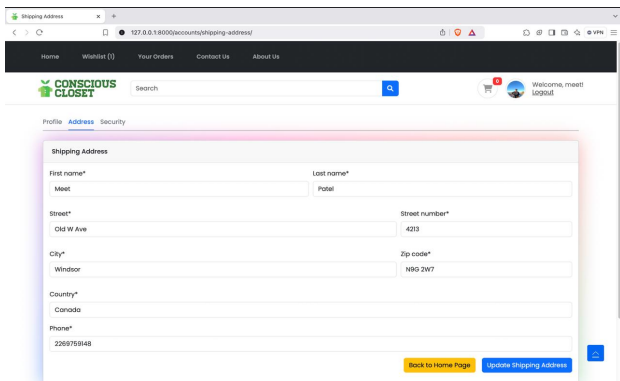


Fig. 8. Address Change
Page for updating or adding a delivery address for orders.

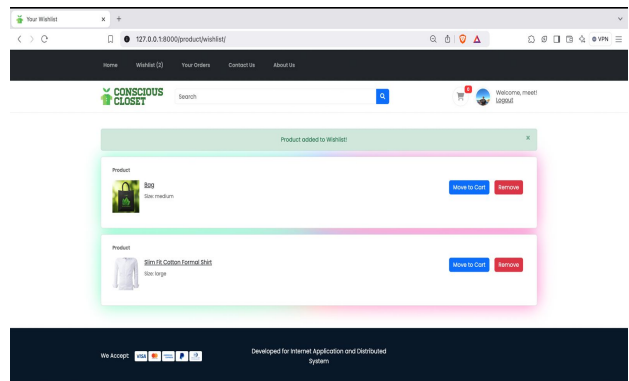


Fig. 11. Wishlist
List of products that the user has saved for future reference.

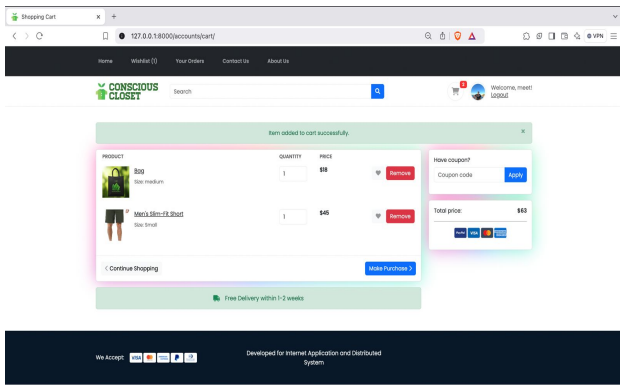


Fig. 12. Add to Cart Page
Page showcasing the functionality of adding items to the shopping cart.

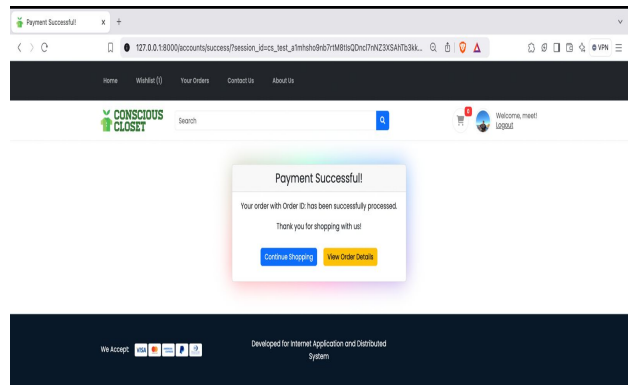


Fig. 15. Payment Processed
Confirmation screen for a successful payment transaction.

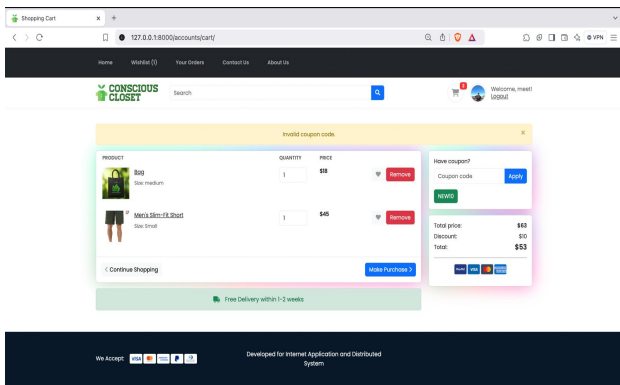


Fig. 13. Coupon Code Applied
Page displaying the successful application of a discount coupon.

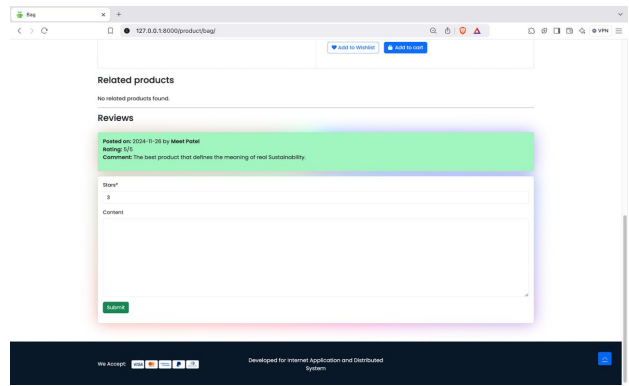


Fig. 16. Product Review
Page allowing users to leave reviews and ratings for purchased products.

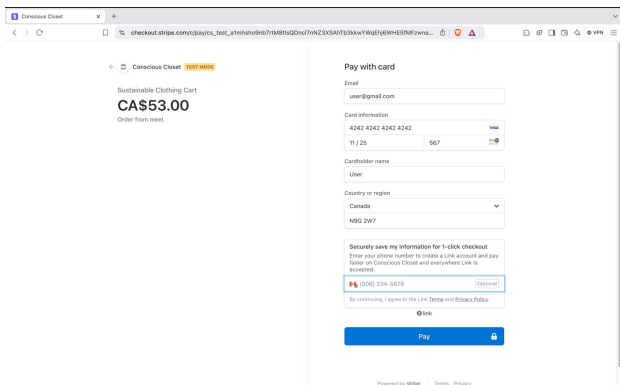


Fig. 14. Stripe Payment Gateway
Interface for making secure payments using the Stripe gateway.

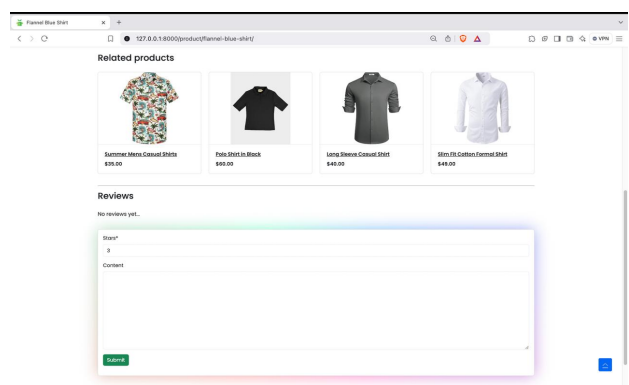


Fig. 17. Related Products
Suggestions for similar or complementary products based on user interests.

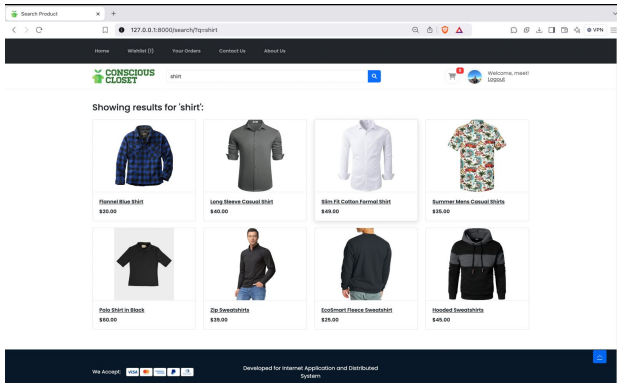


Fig. 18. Search Functionality
Feature to search for products using keywords or filters.

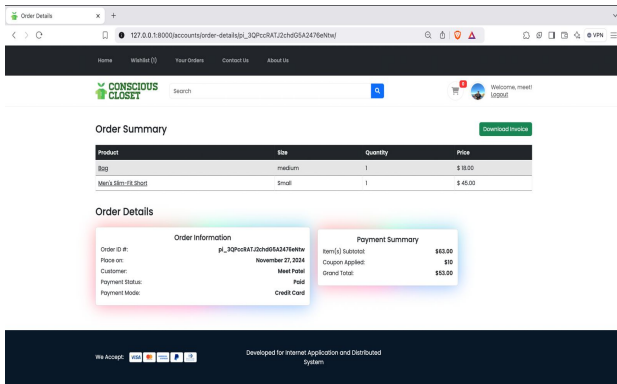


Fig. 19. Order Details
Detailed breakdown of a specific order, including items, pricing, and status.

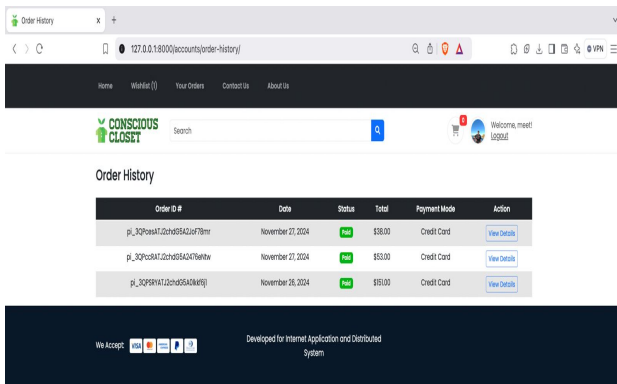


Fig. 20. Order History
Page showing a history of the user's past orders with summary details.

Additional images include homepage, product details, wish-list, shopping cart, payment gateway, order history, and contact/about pages.

VI. CHALLENGES

The primary challenges encountered include:

- Implementing robust authentication mechanisms.
- Ensuring responsive UI design.
- Securely integrating Stripe payment gateway.
- Managing complex user interactions and database optimization.

VII. FUTURE WORK

Future enhancements will focus on:

A. Blockchain Supply Chain Management

- Immutable records for product origins.
- Transparent supplier credentials.

B. Supply Chain Transparency

- Granular tracking of product lifecycle.
- Multi-tier supplier verification.

C. Educational Integration

- Interactive modules for sustainability learning.
- Gamified experiences promoting eco-conscious choices.

VIII. CONCLUSION

Conscious Closet provides a robust platform for sustainable fashion e-commerce. It combines technology and education to empower users toward informed consumption, marking a pivotal step toward a sustainable future.

ACKNOWLEDGMENTS

We thank the University of Windsor, our project advisors, and the sustainable fashion community for their guidance.

Project Repository: <https://github.com/abhishek-rma7/conscious-closet>

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