DOCUMENTATION

FARMCONNECT

Introduction

FarmConnect is a web platform built to bring farmers and consumers together, removing middlemen and creating a direct connection between them. This allows farmers to take charge of their product pricing, leading to better profits and more independence. One of the platform's standout features is the bargaining tool, which makes price negotiations open and fair for everyone involved. We also put a high priority on keeping user data secure, using Java for backend development and Firebase for real-time, secure data management.

Software and Hardware Requirements

Software:

- **JDK (Java Development Kit):** Powers the backend logic and ensures smooth database connectivity.
- **IDE (Integrated Development Environment):** We have used NetBeans for development.
- **HTML, CSS, JavaScript:** Used to design and style the frontend for an interactive, user-friendly experience.
- **MySQL:** A relational database for storing user data, transactions, and product information.
- **JSP (JavaServer Pages):** Dynamically generates web pages and handles user interactions.
- **Bootstrap:** A framework that helps create responsive, mobile-friendly web pages.
- **JSTL and EL:** These technologies simplify the management of dynamic content on JSP pages.
- **Apache Tomcat:** A web server to run and manage the website.

Hardware:

- **Server:** Either cloud-based or on-premise, hosting the website and handling all traffic.
- **Development Machine:** Used for building and testing the website.
- **Database Server:** Hosts MySQL or another database to handle all user and transaction data.

Implementation

1. **Project Setup:**
   The website is built using JDK and an IDE like IntelliJ IDEA or Eclipse. We focus on modularity to make the platform easy to expand and maintain.
2. **Database Design:**
   A clear and efficient MySQL schema stores user details, products, transactions, and price negotiation data. Tables are created to manage all this information seamlessly.
3. **Database Connectivity with JDBC:**
   JDBC connects the backend to the MySQL database, making sure that data like user information and transactions flow smoothly between the front end and backend.

4. **DAO Classes:**
   These classes are responsible for all interactions with the database, ensuring smooth operations like creating, reading, updating, and deleting user and product data.

5. **Frontend Development:**
   HTML templates are used to build the structure of the website, while CSS and Bootstrap style the pages. JavaScript brings it all together, providing interactive features and form validation.

6. **Form Validation with JavaScript:**
   JavaScript helps ensure that users enter the correct data into forms, minimizing errors before submitting information.

7. **Servlet Configuration:**
   Servlets handle user requests and responses, processing tasks like registration, login, and transactions, while passing data between the frontend and backend.

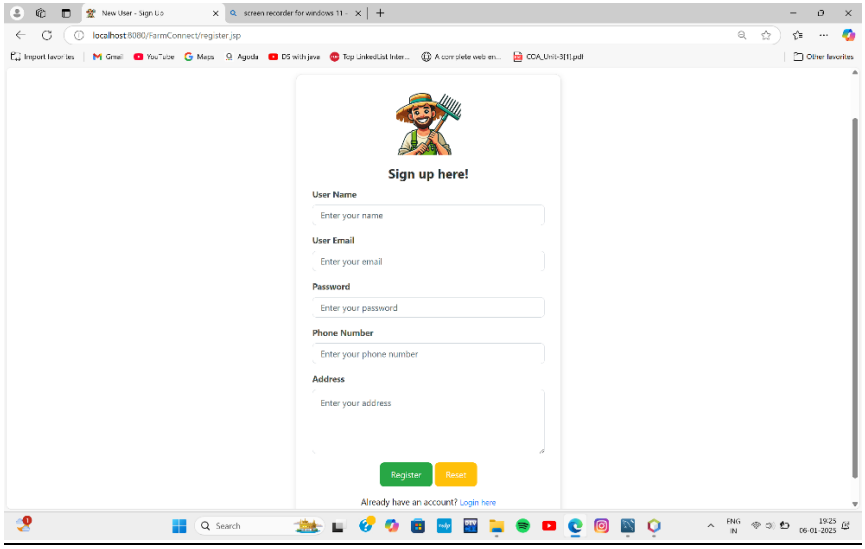
8. **doGet and doPost Methods:**
   These methods manage the retrieval and submission of data on the website. For instance, the doGet method retrieves data, and the doPost method handles updates or new submissions like user registration or price negotiations.

9. **User Registration and Profile Management:**
   The platform allows users to sign up, manage their profiles, and control their products and pricing directly.

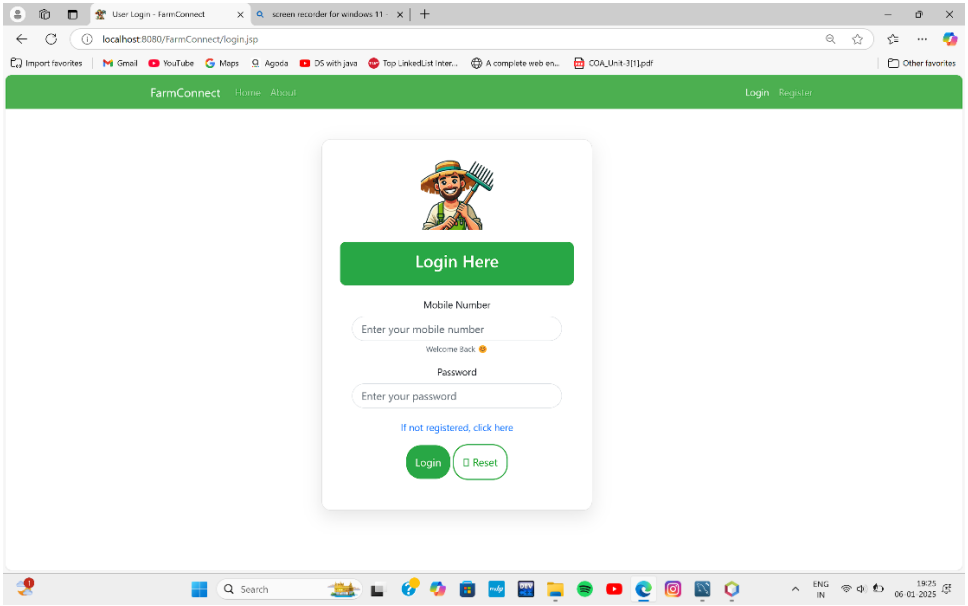
10. **JSP Integration:**
    JSP is used to dynamically show user data like product listings, profiles, and transaction history. JSTL and EL help manage the content easily, making sure it displays in an organized way.

Project Prototype

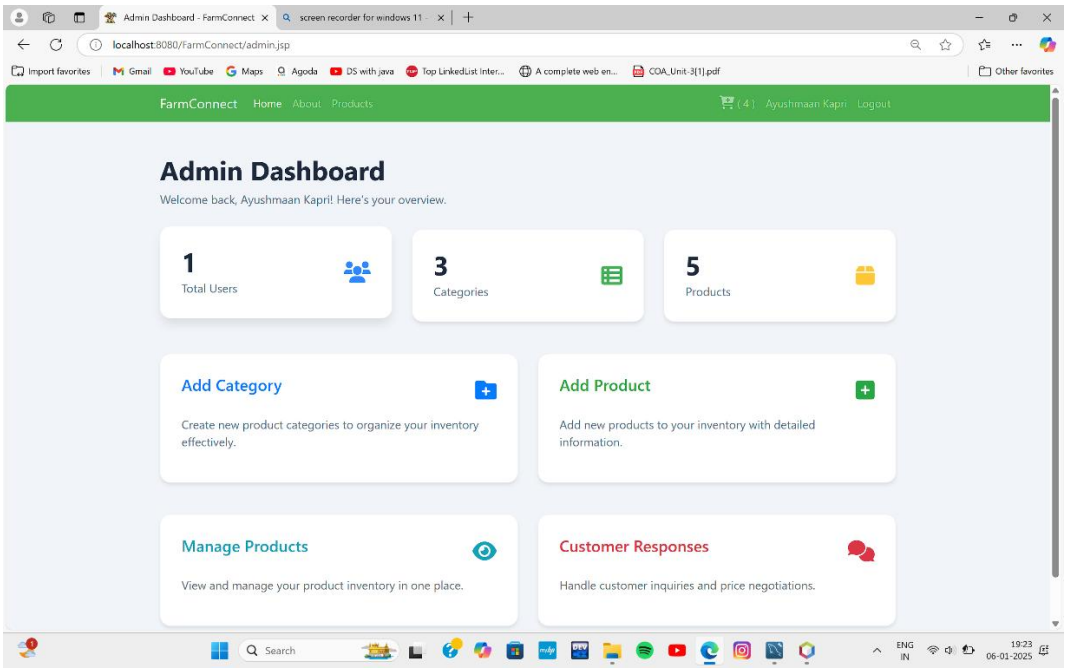
Registration Page



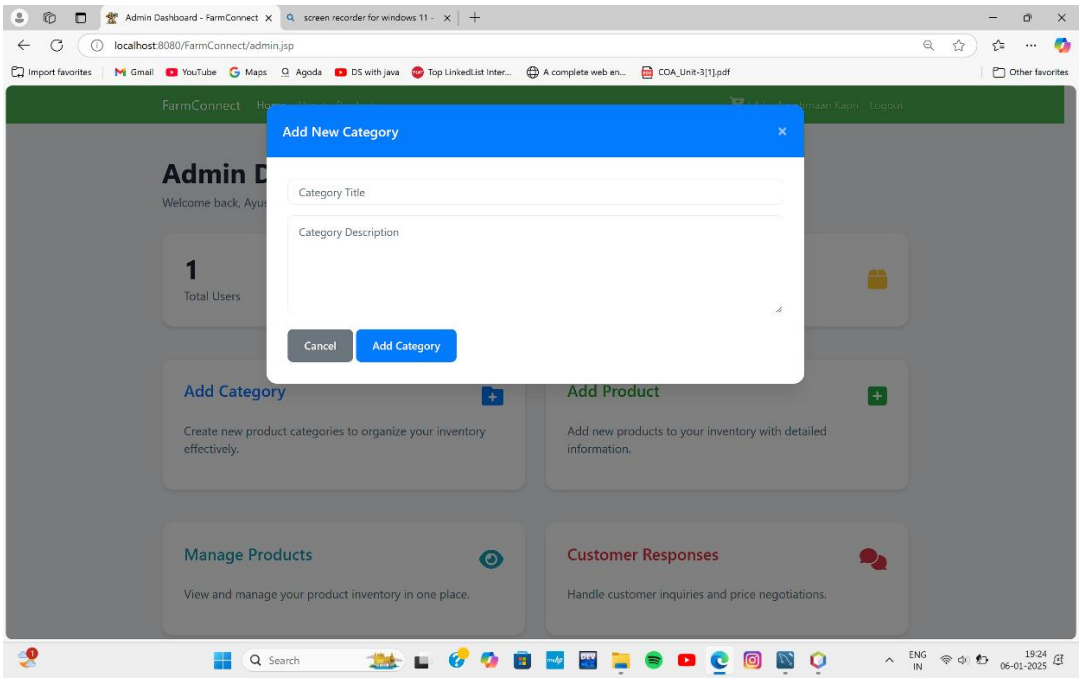
Login Page



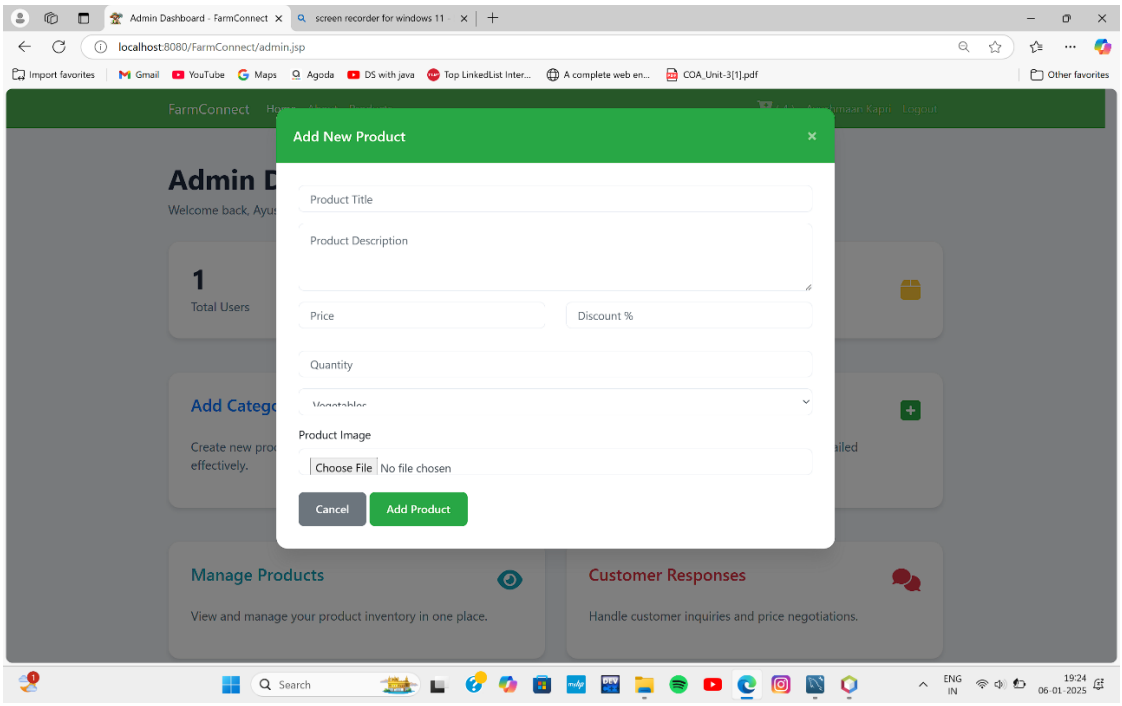
Admin Page



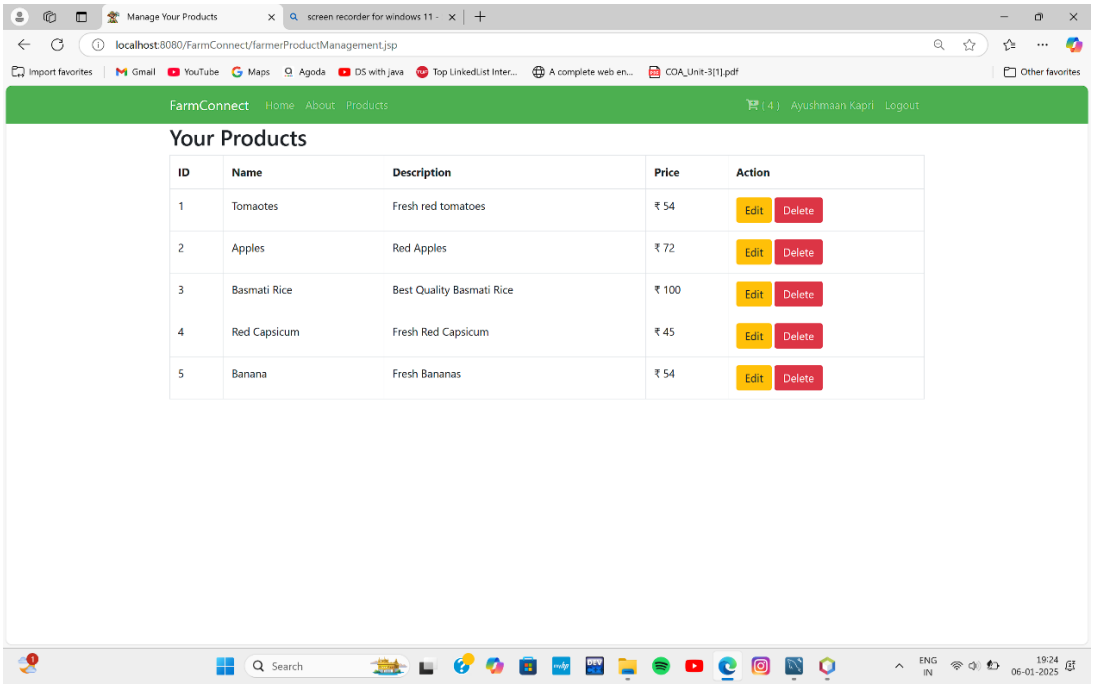
Add Category Page



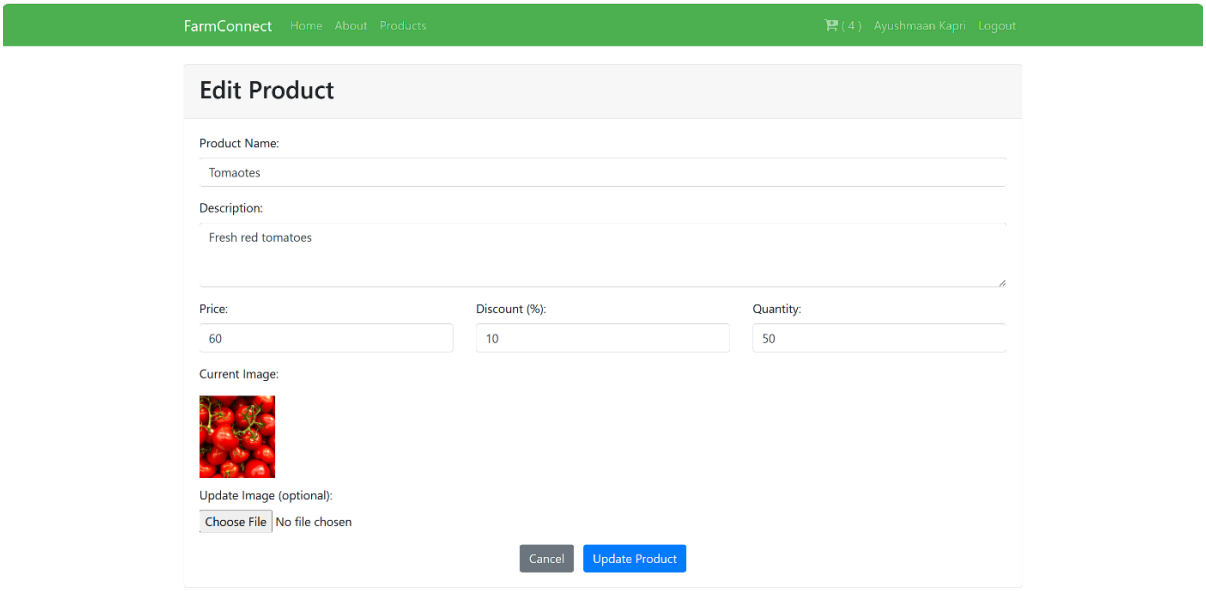
Add Product



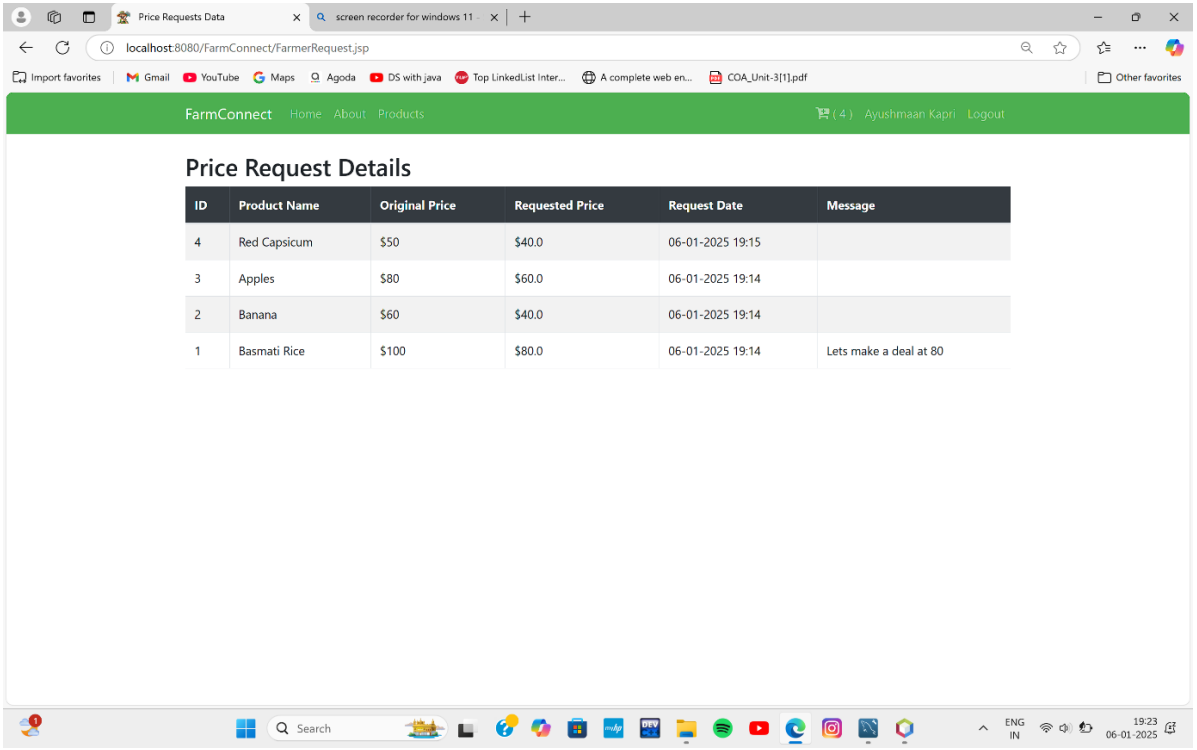
Manage Products



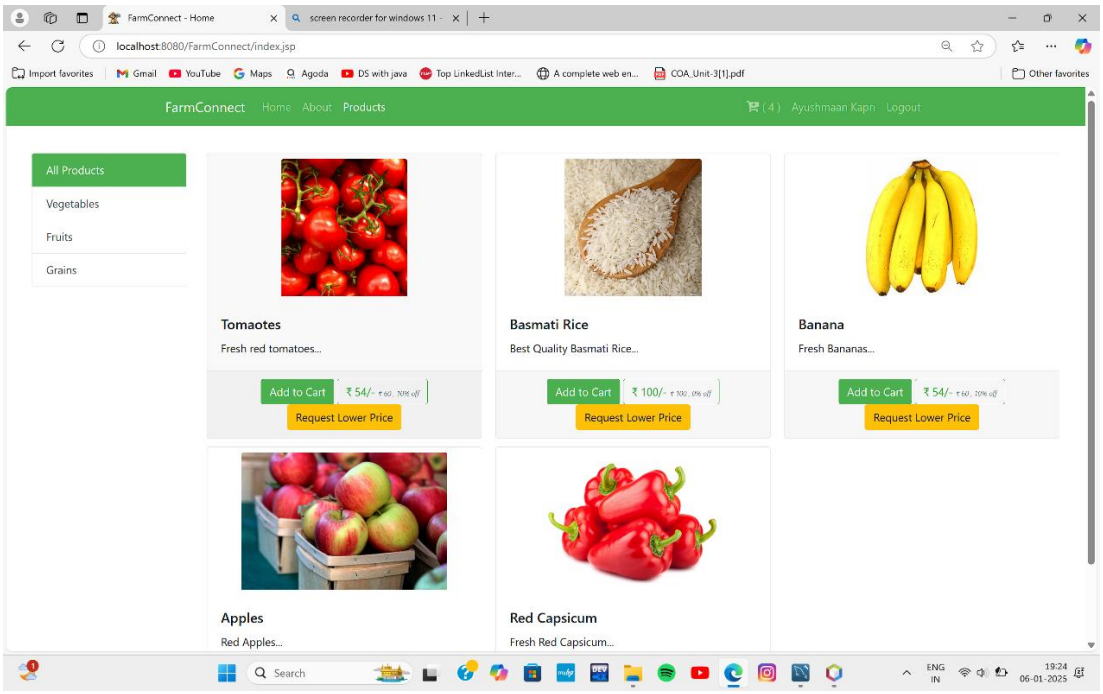
Edit Products



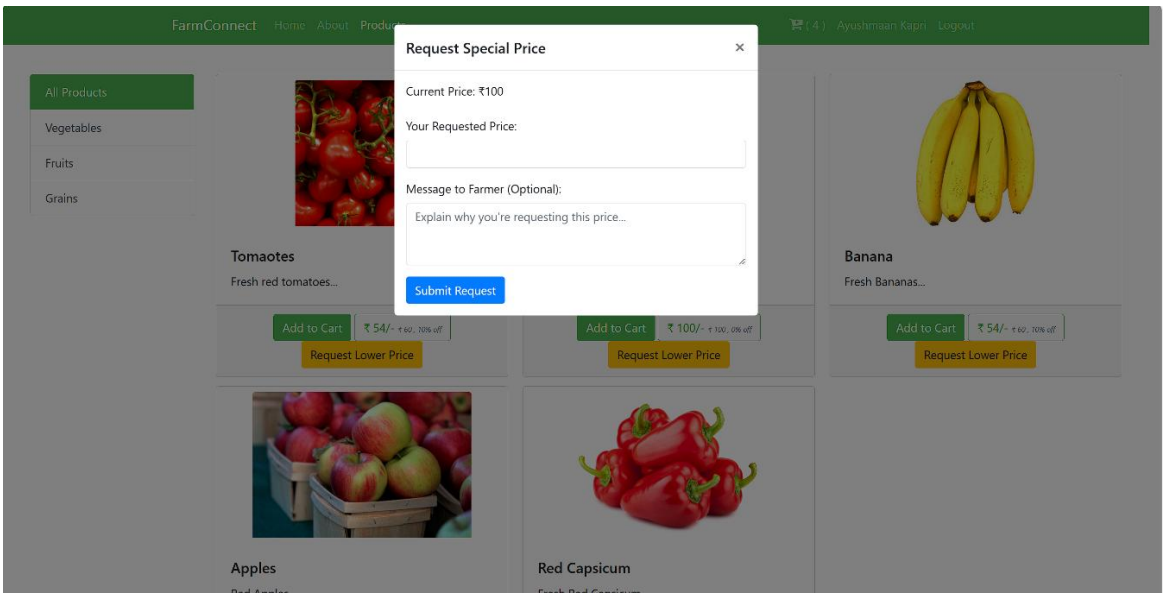
Customer Responses



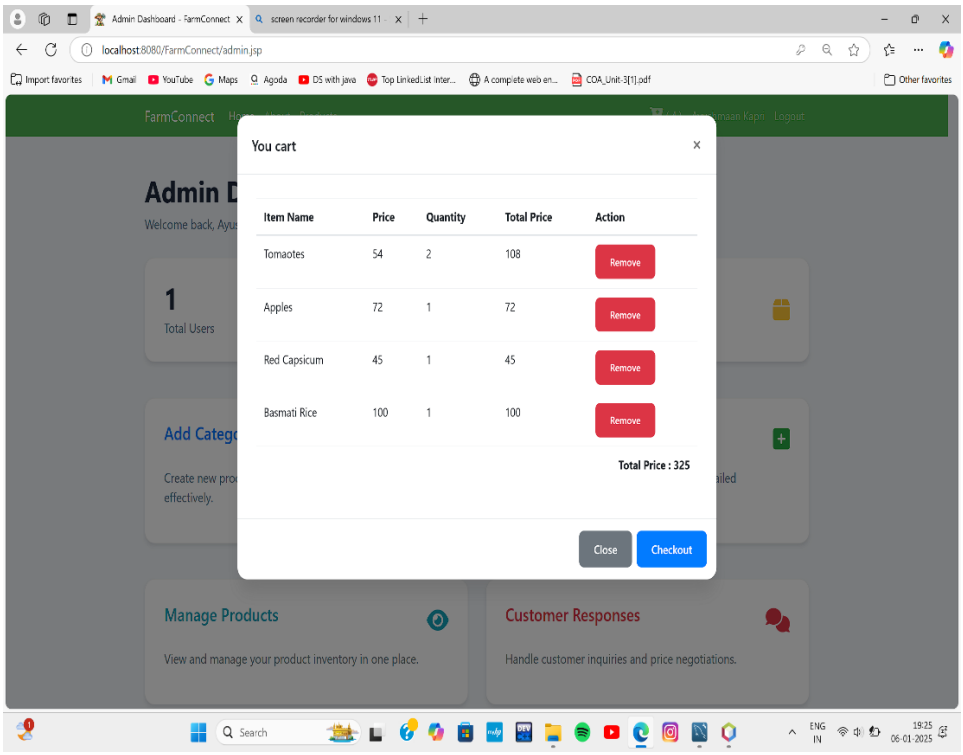
Products (Customer View)



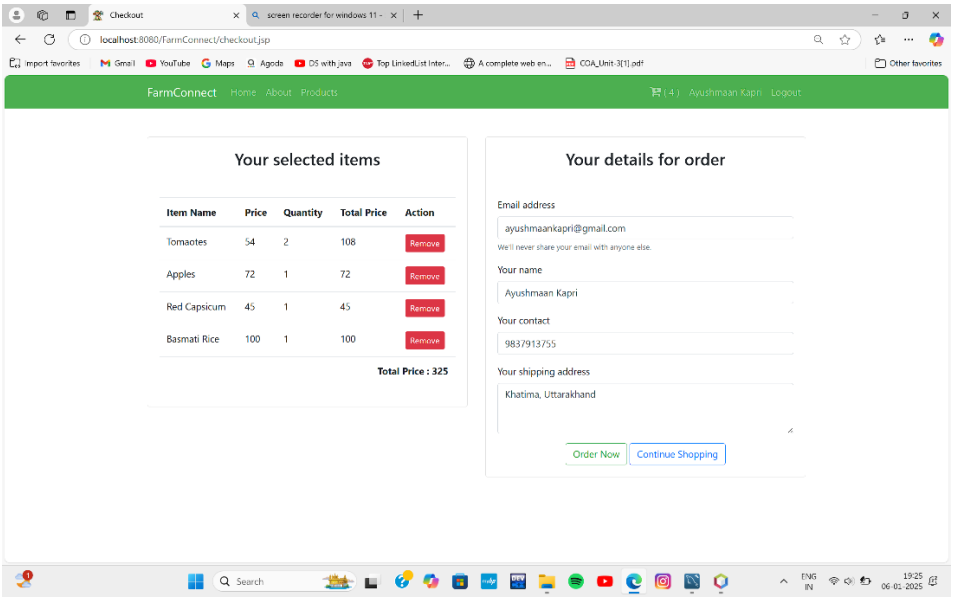
Request Special Price



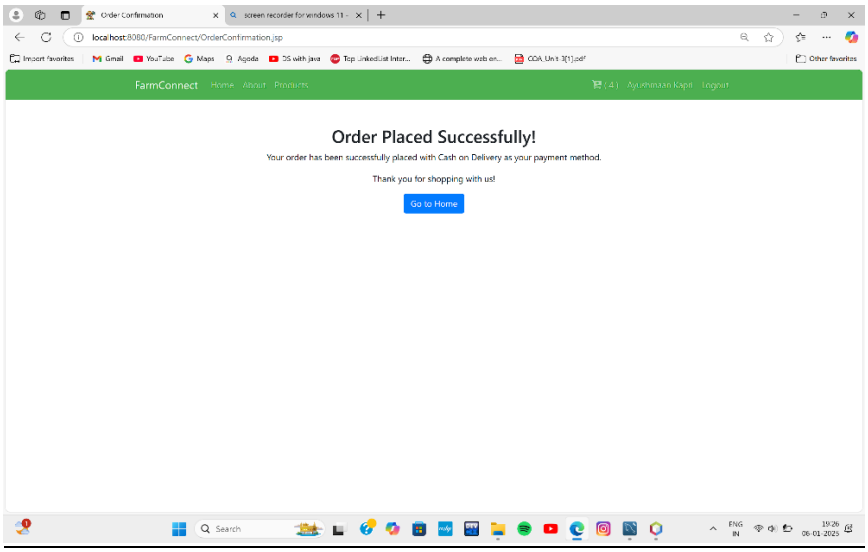
Cart



Checkout Page

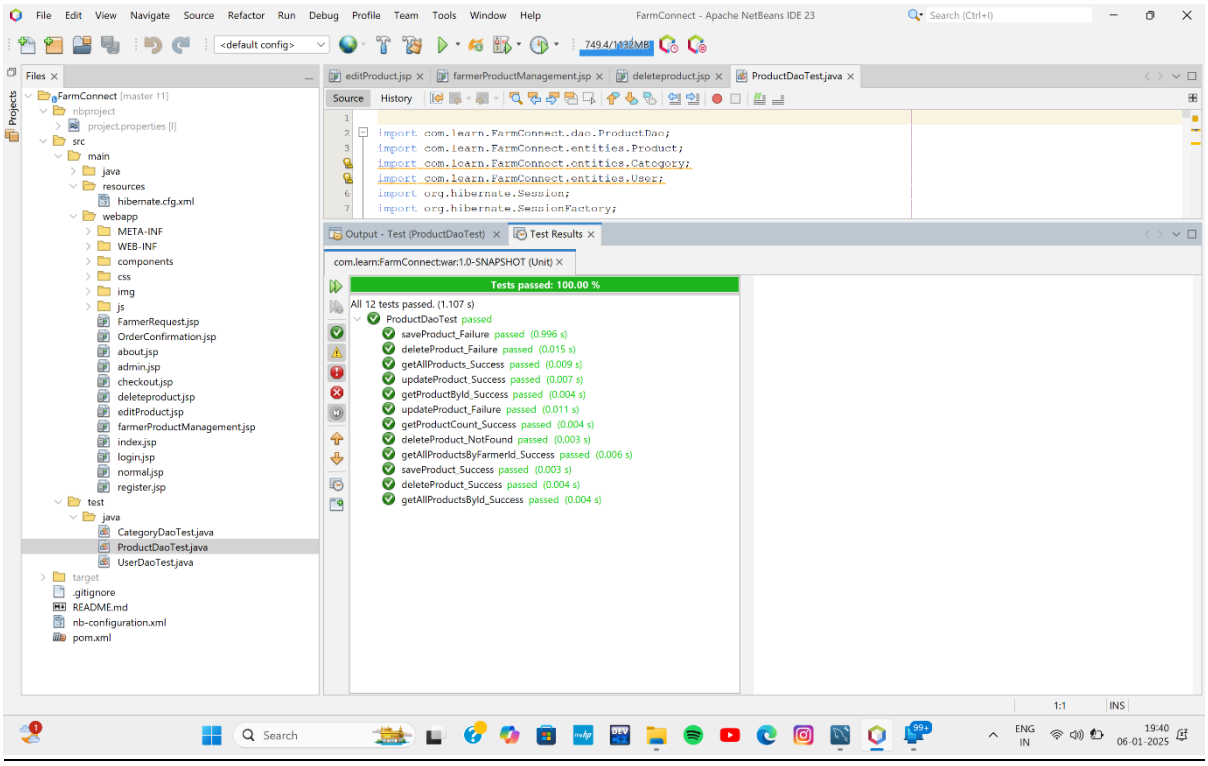


Order Confirmation

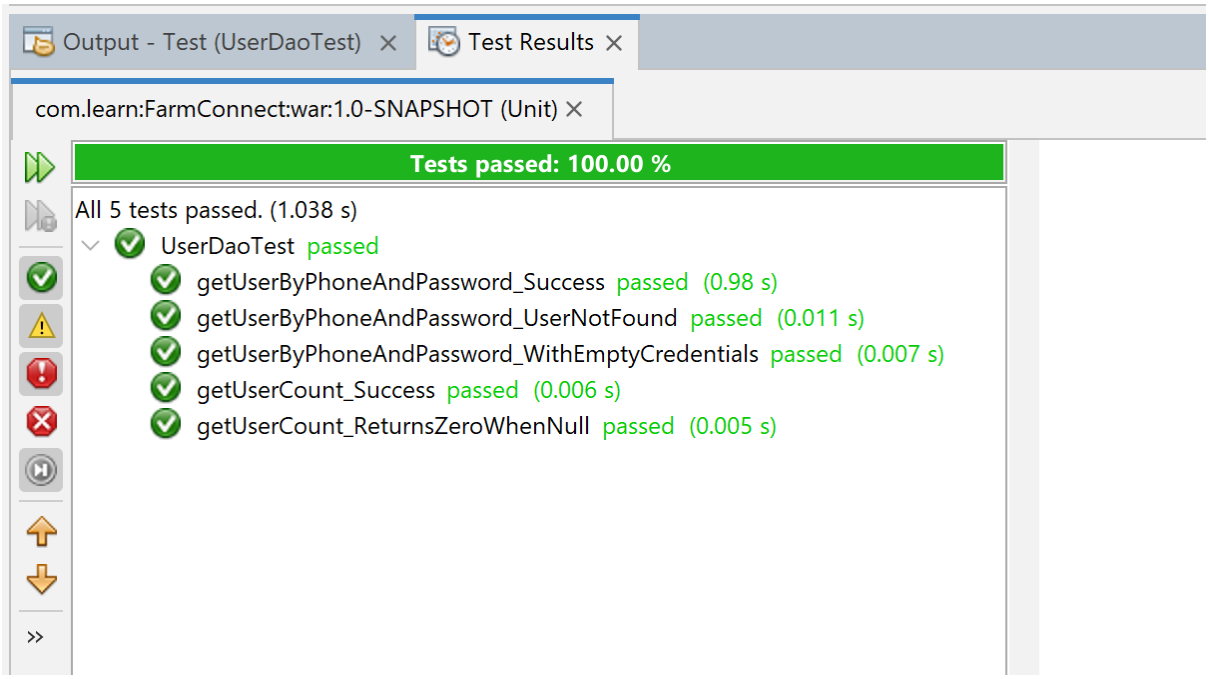


Test Pages

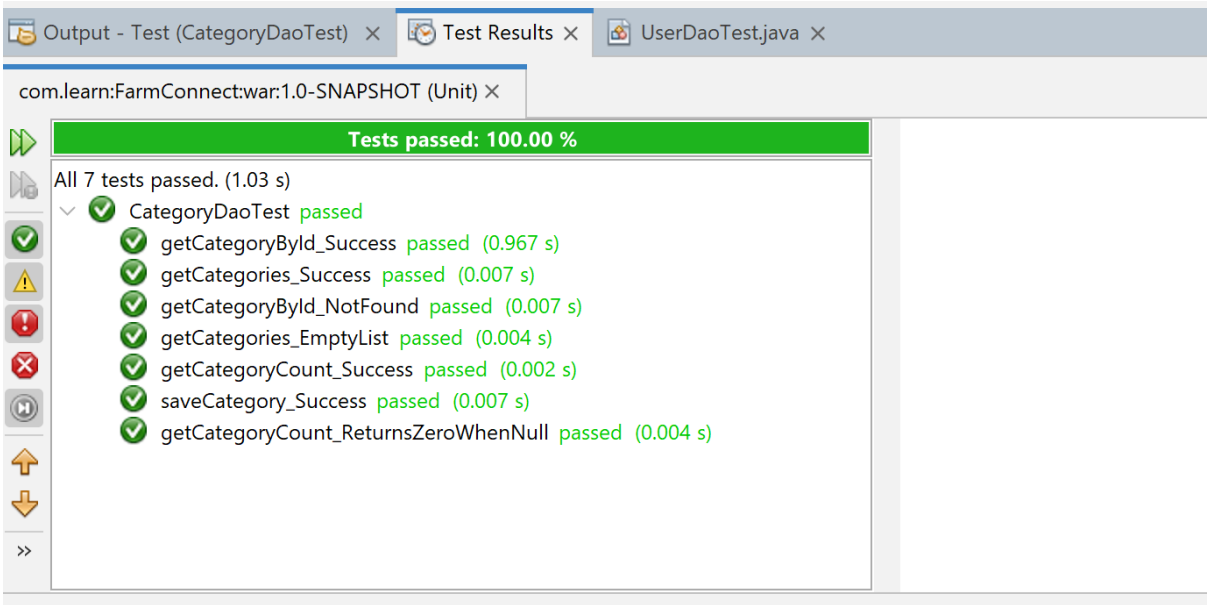
Product Dao Test



User Dao Test



Category Dao Test



Results

- **Empowered Farmers:**
  By removing middlemen, farmers now have full control over the prices of their products, leading to increased profits.
- **Transparent and Fair Pricing:**
  The bargaining feature gives both farmers and consumers the opportunity to negotiate prices fairly, ensuring everyone is satisfied.
- **Efficient Data Handling:**
  Firebase ensures that data is securely stored and updated in real-time, while JDBC helps facilitate smooth communication between the website and database.
- **User-Friendly Interface:**
  Built with HTML, CSS, JavaScript, and Bootstrap, the platform is designed to work seamlessly on any device, providing a great experience for every user.
- **Secure Transactions:**
  Transactions are encrypted and secure, ensuring that all user data, especially payment details, are protected.

Conclusion

FarmConnect is more than just a website; it's a solution to farmers' challenges in reaching consumers and getting fair product prices. By cutting out the middlemen, the platform empowers farmers to control their pricing and connect directly with consumers. With a focus on security, responsiveness, and simplicity, FarmConnect is setting the stage for a more sustainable and fair agricultural marketplace. Using technologies like Firebase, JDBC, JSP, and Bootstrap, we've built a platform that’s secure, scalable, and ready to meet the needs of both farmers and consumers in a digital world.