

Imaginative Artisans Using Mern Stack

Akash. S¹, Dr. S. Prasanna²

¹MCA Department of Computer Applications, VISTAS

²Professor, Department of computer application (PG), VISTAS

DOI : <https://doi.org/10.51583/IJLTEMAS.2025.140400067>

Abstract: This project is aimed at women artisans in “Imaginative Artisans” for transformational purposes to empower them with a special site where they can display their unique crafts and talents. By using MongoDB, Express.js, React.js, Node.js (MERN stack), the project seeks to bridge the gap between talented artisans and potential buyers to promote economic independence, recognition and community support. In essence, it solves the problem of many brilliant female artisans who have no platform specifically designed for them where they can display their skills and earn sustainable income. The project will build an intuitive and visually appealing platform that meets the different needs of both buyers and craftsmen through thorough research, user-centered design as well as agile development methods. Some key features include: authentication of users; ability to manage profiles; display of products; processing orders; having community forums and personalized suggestions. This makes the platform scalable, flexible and interactive thereby ensuring a smooth user experience since it is powered by MERN stack. The project also focuses on data privacy and security by putting in place adequate measures that would protect the user information and ensure compliance with data protection laws. To keep up with the changing needs and desires of its customers, the project seeks to develop further and improve itself over time, through continuous iteration, user feedback, performance monitoring.

Keywords: MERN Stack, Women Empowerment, Artisans, E- commerce Platform, Digital Marketplace, Community Support

I. Introduction

The "Imaginative Artisans" project is a transformative initiative that aims to empower women artisans. It provides them with a dedicated digital platform to showcase their unique crafts and skills. Through this platform, talented artisans can connect with potential buyers, fostering economic independence, recognition, and community support. The project utilizes modern technologies like the MERN (MongoDB, Express.js, React.js, Node.js) stack to bridge the gap between artisans and buyers. This creates a vibrant marketplace for handmade products while preserving cultural heritage and promoting entrepreneurship among women artisans. The project addresses the challenges faced by many skilled women artisans who lack access to suitable platforms for showcasing their talents and earning a sustainable income

II. Literature Survey

Women who make crafts face difficulties. Studies show training programs help them get skills. Creating things brings money. The "Imaginative

Artisans" project looks at these issues. It considers how technology could let

artisans sell online. Women struggle with job opportunities and income. Digital

platforms may solve these problems by displaying handmade goods. The

project explores helping women become self-sufficient through artisanal work.

It builds on past research to improve women artisan's lives.

- [1] Dr. Priya Sharma's case study titled "Empowering Women Artisans Through Handcrafts," published by IEEE in 2023, examines the impact of the Imaginative Artisans initiative on women artisans. The study delves into how the project has empowered women economically, facilitated skill development, and promoted community engagement. Through thorough analysis, it is observed that the Imaginative Artisans initiative has made substantial contributions to the economic empowerment and skill enhancement of women artisans, fostering a sense of community and collaboration among them.
- [2] In the Journal of Digital Innovation's 2021 publication, Dr. Rajesh Singh explores "Digital Transformation in Tailoring: A Study on Artisanal Empowerment." This study delves into how digital technologies are integrated into the tailoring industry, specifically focusing on empowering artisans. Investigating the impact of technology adoption on traditional tailoring practices, the research observes that digital tools have enabled artisans to enhance productivity, broaden market access, and maintain traditional techniques. These advancements play a crucial role in economically empowering artisans and ensuring the sustainability of the industry..
- [3] Dr. Neha Patel's review published in Cultural Studies Review in 2020, Dr. Neha Patel illuminates "The Role of Embroidery in Cultural Preservation." Drawing from insights gleaned from the Imaginative Artisans project, the review delves into the significance of embroidery in sustaining cultural heritage. It explores the historical and cultural contexts of embroidery, highlighting its pivotal role in preserving cultural traditions and identities. Through embroidery, artisans find a powerful medium for expressing creativity and upholding cultural values across generations, thereby contributing to the continuous

preservation of cultural heritage.

- [4] Dr. Ananya Gupta's survey, published by IEEE in 2023, delves into "Innovations in Handcrafts: A Survey on Emerging Trends." The survey explores advancements in handcrafts, encompassing areas such as tailoring and embroidery, and assesses their impact on artisanal practices.
- [5] In a study published on Google Scholar in 2023, Majahiddin, Yurisna Tanjung, and Nurhasanah Nasution explore the "Implications of Local Knowledge Construction in Empowerment Practices of Women's Groups at Batik Liza Mangrove Studio" in Pematang Johar village, Deli Serdang regency. The research highlights that women participating in the program experienced increased confidence and skill development, leading to improved ability to meet daily needs. However, while the program positively impacted family well-being, the income generated from batik sales fell short of covering all expenses, indicating potential challenges in achieving full economic sustainability..
- [6] In the Sustainable Development Journal, Dr. Sanjay Kumar presents a paper titled "Sustainable Development through Handicrafts," which examines the role of handicrafts in fostering sustainable development, particularly through the lens of the Imaginative Artisans project. The paper evaluates the project's impact on economic growth, environmental conservation, and social inclusion through handcraft. The observation underscores the significant contribution of handicrafts in promoting sustainable development by offering livelihood opportunities, preserving traditional skills, and safeguarding cultural heritage. This, in turn, contributes to poverty reduction and environmental sustainability, highlighting the pivotal role of handicrafts in fostering holistic development

III. Dataset

The Imaginative Artisans project uses **MongoDB Atlas**, a cloud- based NoSQL database, to store and manage data efficiently. MongoDB is ideal for this application due to its flexibility in handling diverse data structures such as product listings, user profiles, chat messages, and orders. The database stores documents in a JSON-like format, enabling faster queries and scalability.

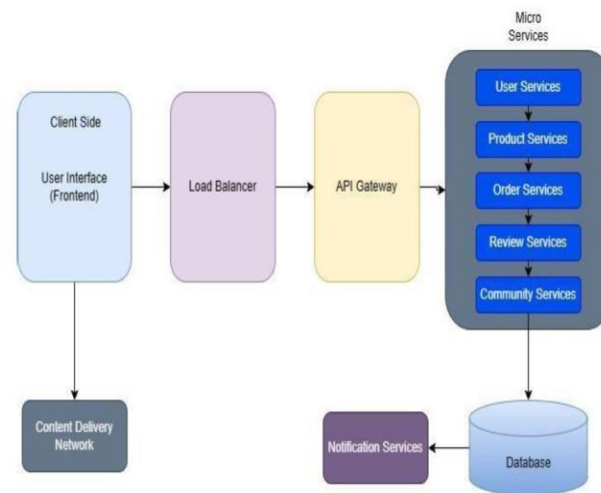
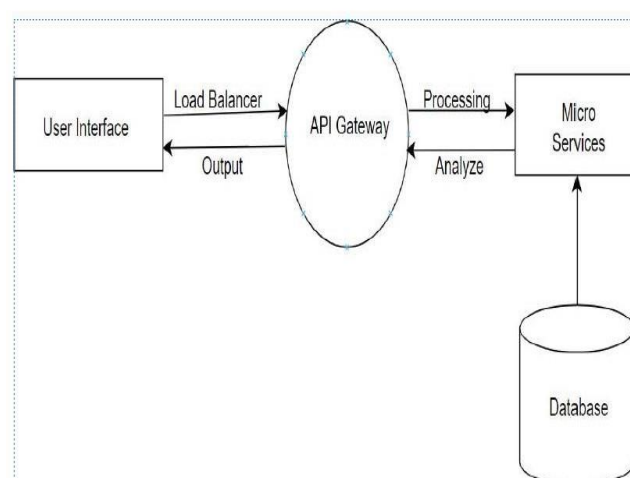
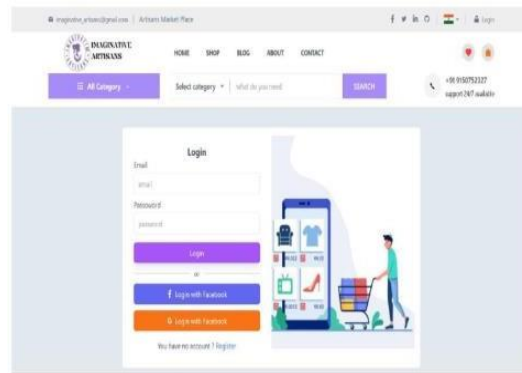


Fig 3.1 Architecture diagram For Imaginative Artisans



Data Flow Diagram

User Registration Data



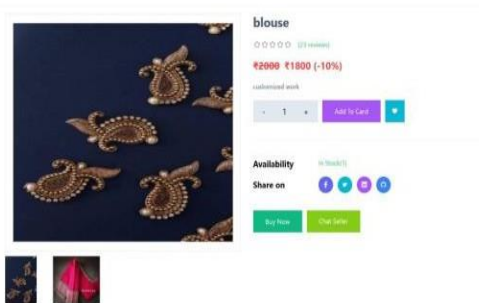
Buyer Login

- **Database Role:** Stores user details in a users collection.
- **Purpose:** Helps authenticate and authorize users based on their role (artisan, buyer, or admin).
- **Fields:** name, email, password, role, profileInfo.

Security: Passwords are securely hashed using bcrypt before being stored

Product Data

- **Database Role:** Stored in the products collection.
- **Purpose:** Displays artisan-made products on the platform for buyers.
- **Fields:** product Name, description, price, category, images, artisan Id. **Use Case:** Enables buyers to browse and purchase items listed by artisans.



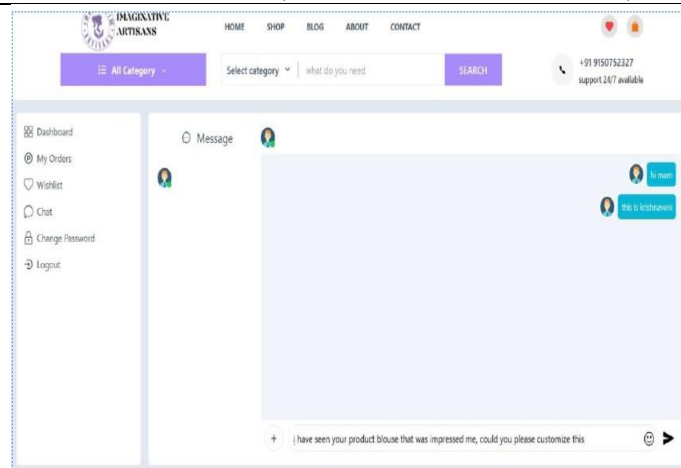
Products

Order Data

- **Database Role:** Stored in the orders collection.
- **Purpose:** Tracks buyer purchases and order status.
- **Fields:** order Id, buyer Id, product Id, quantity, status, order Date.
- **Use Case:** Helps buyers view order history and artisans manage their sales.

Communication Data

- **Database Role:** Stored in the messages or chats collection.
- **Purpose:** Allows messaging between buyers and artisans.
- **Fields:** sender Id, receiver Id, message, timestamp.
- **Use Case:** Facilitates real-time or delayed communication for product queries and support.

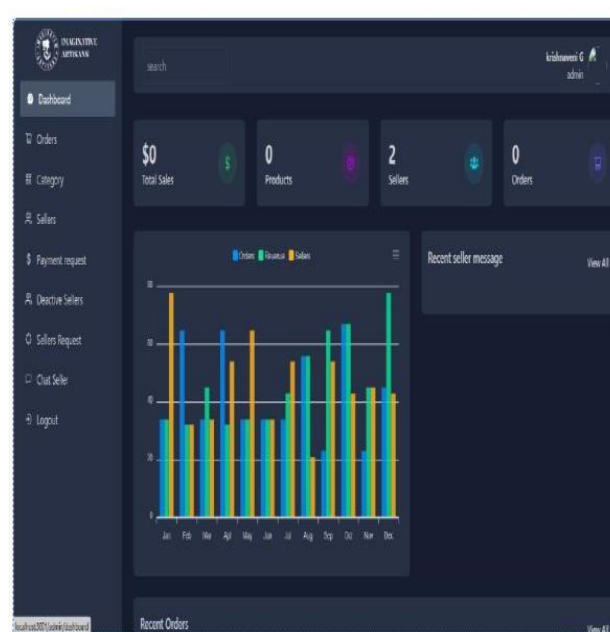


Chat With Seller

Admin Analytics Data

Database Role: Aggregated using MongoDB queries across various collections.

- Purpose: Gives admins insight into platform usage and sales.
- Metrics Tracked: Number of users, top-selling products, order counts, revenue.
- Use Case: Displayed in admin dashboards for monitoring system performance.



IV. Implementation

The development of the Imaginative Artisans platform began with a detailed analysis of requirements and proceeded with modular implementation using the **MERN Stack** (MongoDB, Express.js, React.js, Node.js). The focus was to build a user-friendly, secure, and scalable web application to empower women artisans by allowing them to showcase and sell handmade products online.

Modules Implemented

The system was designed using the modular approach to ensure separation of concerns, easier testing, and future scalability. The major modules implemented in this project are:

1. User Management Module

- Handles user registration, login, and profile updates.

- Role-based access control (Buyer / Artisan / Admin).
- Ensures secure login with password hashing and token-based authentication using JWT.

2. Product Management Module

- Artisans can add, update, or delete handcrafted product listings.
- Products include title, description, price, category, and image uploads.
- Buyers can view, filter, and purchase products.

3. Order Management Module

- Buyers can place orders for products listed by artisans.
- Tracks order status: pending, shipped, delivered.
- Enables artisans to manage their incoming orders efficiently.

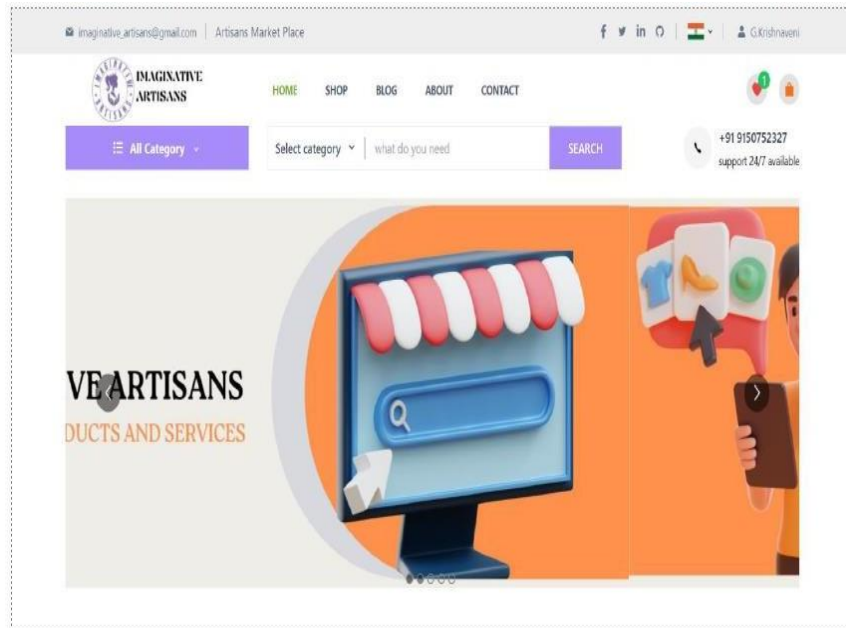


Figure 1 User Login

4. Communication Module

- Implements chat feature between buyers and artisans.
- Supports real-time or asynchronous messaging.
- Messages are stored in MongoDB and retrieved for continuity.

5. Admin Module

- Admins have access to manage users, products, and categories.
- View statistics like total users, total sales, and product listings.
- Dashboard interface implemented using chart libraries for visual analytics.

6. Certificate Upload and Verification Module

- Artisans can upload skill or participation certificates (optional).
- Stored securely using Cloudinary with database reference links.
- Ensures authenticity and improves buyer trust.

7. Analytics and Dashboard Module

- Tracks total number of users, total orders, sales, and top categories.
- Helps admin understand system performance and user engagement.

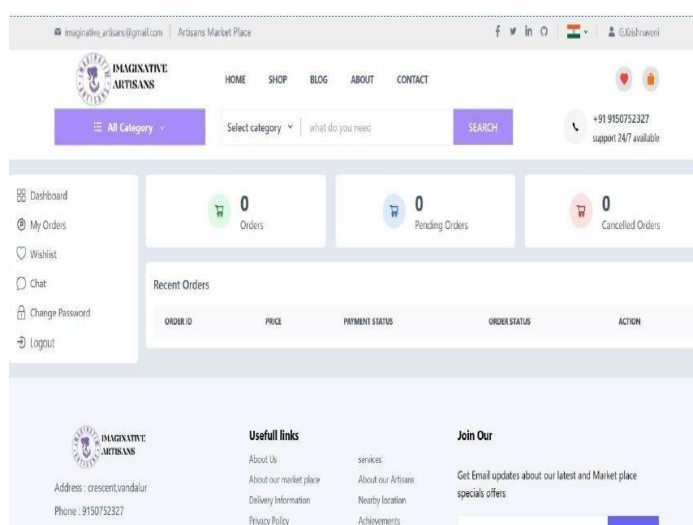


Figure 2 Buyer Profile

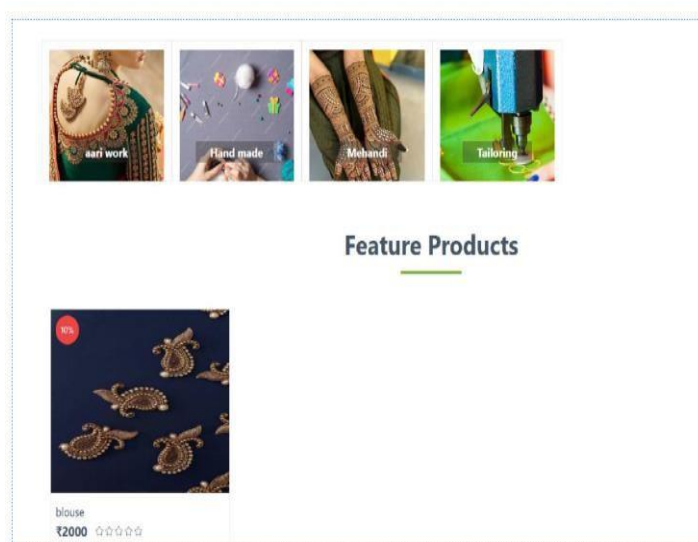


Figure 3 Features of Product

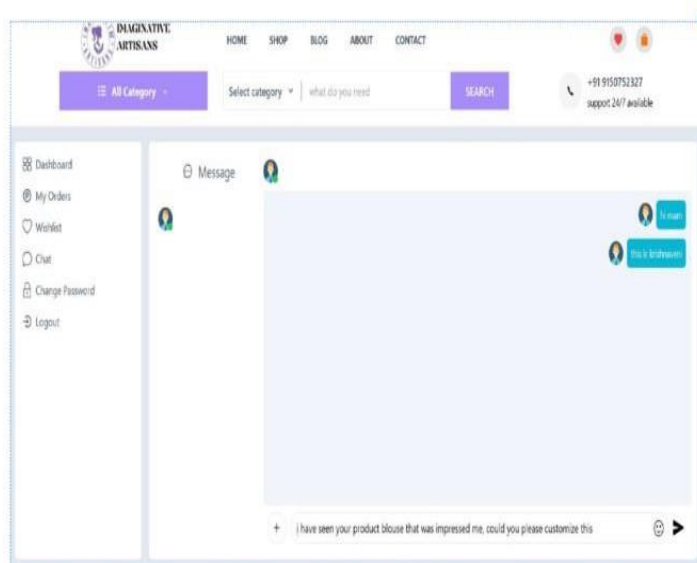


Figure 4 Chat With Seller

Artisan Activities

Artisans are the primary content creators on the platform. They can manage their products, profile, and engage with buyers.

Artisan Functionalities:

- Register and log in to the system.
- Create and manage a personal profile.
- Add, update, or delete handcrafted product listings.
- Upload product images.
- View and manage orders received.
- Chat with customers for queries and order discussions.

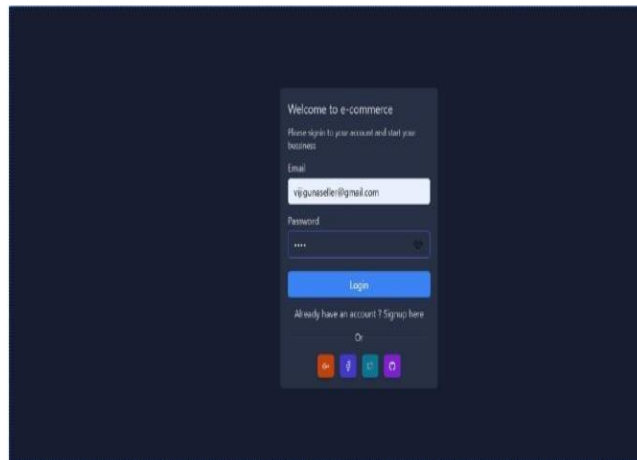


Figure 5 Artisan Login



Figure 6 Artisan Dashboard

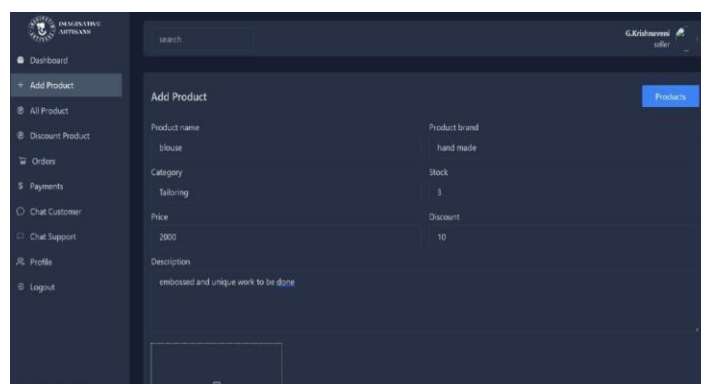


Figure 7 Add Product Of Artisan

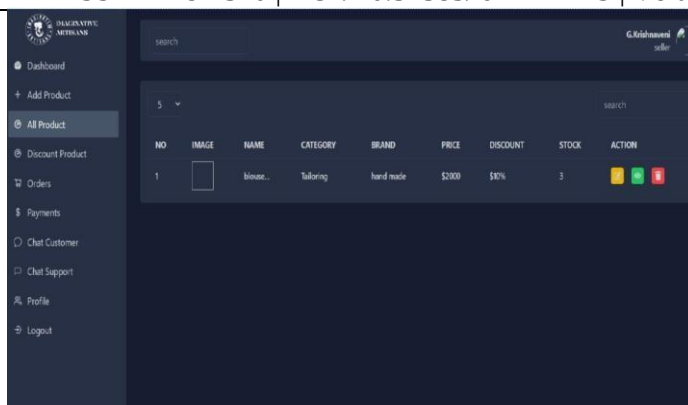


Figure 8 Product Listing Of Artisans

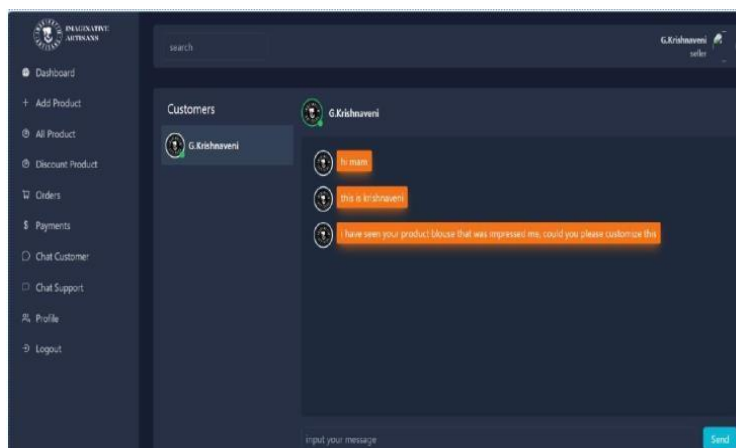


Figure 9 Chat With Buyer

Admin Activities

Admins are responsible for overseeing the platform and managing users, categories, and reports.

Admin Functionalities:

- Admin login to secure dashboard.
- View total users, products, orders, and revenue.
- Manage artisan and buyer accounts (approve, block, remove).
- Add or edit product categories.
- Monitor and delete inappropriate products or messages.
- View sales analytics and reports

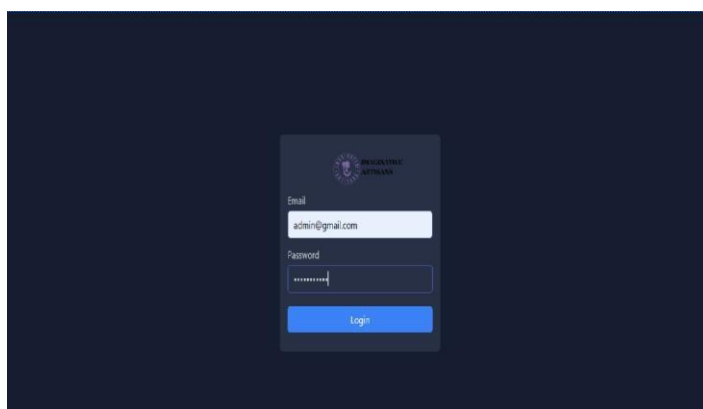


Figure 10 Admin Login

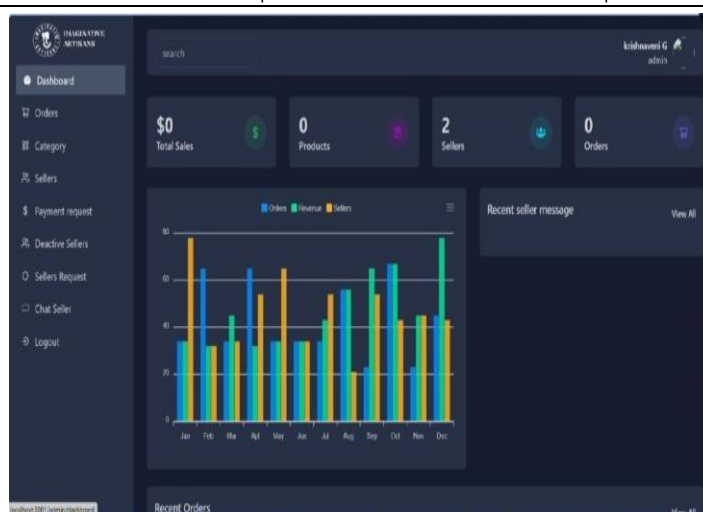


Figure 11 Admin Dashboard

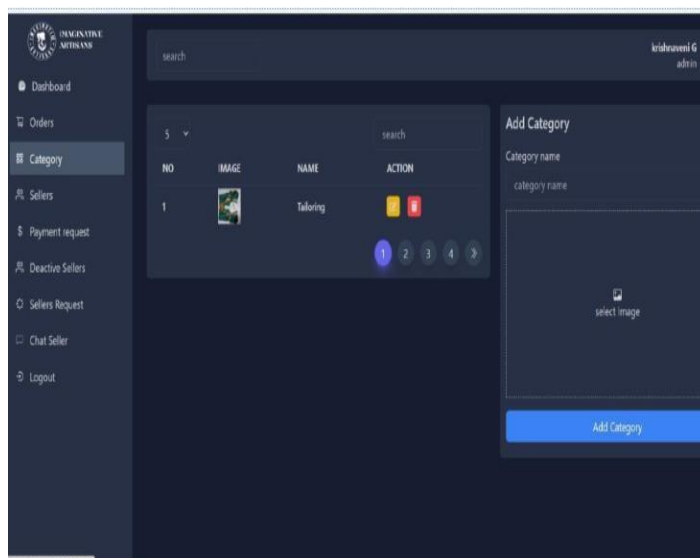


Figure 12 Admin Category

V. Scope of the Project

The scope of this project is to develop a full-fledged online platform that empowers women artisans in Tamil Nadu and other regions by allowing them to showcase, promote, and sell their handcrafted products. The platform serves as a digital marketplace, eliminating the traditional limitations

faced by artisans such as limited local reach, lack of marketing support, and absence of a central platform.

It enables secure user registration, product listings, order

tracking, and communication between buyers and sellers. The platform also includes admin functionalities to oversee and manage all system activities. With a focus on ease of use,

responsiveness, and accessibility, this system bridges the gap between artisans and a wider audience using modern technologies like the MERN stack.

The platform is designed to:

- Digitally support artisan-led entrepreneurship.
- Promote cultural heritage through crafts.
- Encourage self-reliance and sustainable income for women artisans.
- Serve as a scalable model for similar social impact platforms.

VI. Future Work

The following features are proposed as future improvements to extend the functionality and outreach of the platform:

1. Mobile Application

Develop Android/iOS apps to make the platform accessible on mobile devices.

2. Language Localization

Support multiple regional languages for wider adoption across rural and urban areas.

3. AI-Powered Product Recommendations

Suggest relevant products to buyers based on past behavior using AI algorithms.

4. Blockchain Integration

Enable product authenticity verification and secure payment tracking using blockchain.

5. Virtual Workshops and Training

Introduce video-based or live training modules to enhance artisan skills.

6. Partnerships with NGOs & Government Schemes

Collaborate with support organizations for grants, funding, and promotion.

7. Voice Search and Accessibility Features

Add voice-enabled commands and tools for differently-abled users.

8. Advanced Analytics Dashboard

Improve insights for artisans and admins using visual reports and trends.

9. Marketplace Expansion

Allow artisans to connect globally with export and shipping integrations.

10. Feedback and Rating System

Implement a review system to build trust and help artisans improve quality

VII. Conclusion

The "Imaginative Artisans" project aims to empower women artisans in Tamil Nadu by using offering them with a devoted online platform to showcase and promote their hand-crafted crafts. Through cautious analysis of person necessities and remarks, we have developed a complete answer that

addresses the demanding situations faced with the aid of artisans and shoppers within the present system. By leveraging era and network engagement, we've got created a user-friendly platform that enables seamless transactions, fosters accept as true with, and promotes economic empowerment for artisans.

References

1. Dr. Priya Sharma, "Empowering Women Artisans Through Handcrafts", IEEE, 2023.
2. Dr. Rajesh Singh, "Digital Transformation in Tailoring", Journal of Digital Innovation, 2021.
3. Dr. Neha Patel, "The Role of Embroidery in Cultural Preservation", Cultural Studies Review, 2020.
4. Dr. Ananya Gupta, "Innovations in Handcrafts: A Survey on Emerging Trends", IEEE, 2023.
5. Majahiddin et al., "Implications of Local Knowledge Construction in Empowerment Practices", Google Scholar, 2023.
6. Dr. Sanjay Kumar, "Sustainable Development Through Handicrafts", Sustainable Development Journal.
7. Ahl, H., "Why Research on Women Entrepreneurs Needs New Directions", Entrepreneurship Theory and Practice, 2006.
8. Duflo, E., "Women's Empowerment and Economic Development", Journal of Economic Literature, 2012.
9. Agbo, F. O., & Isa, M. A., "Scientific Skills and Concept Learning by Rural Women", Science Education International, 2017.
10. Carree, M., & Thurik, R., "The Impact of Entrepreneurship on Economic Growth", Handbook of Entrepreneurship Research, 2003