Online Marketplace Platform for Artisans

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***Abstract*—Maharashtra is blessed with a vibrant heritage of indigenous handicrafts like pottery, wooden toys, Kolhapuri chappals, and handcrafted decorative items inspired by art traditions like Warli, Madhubani, and Maithili paintings. Yet, despite their significance, artisans from this region grapple with problems concerning access to markets, dependency on middlemen, and presence in the digital world. This paper suggests Online Marketplace for Artisans, a web platform that aims to connect artisans directly to consumers and therefore eliminate middlemen, thus promoting Maharashtra's native crafts worldwide. The platform is developed using Spring Boot, AngularJS, Node.js, and React.js so that the project can provide security, scalability, and usability. Some of its important features include a product catalog with easy navigation, secure payment integration, real-time inventory management, and multilingual support for enhanced accessibility. The study analyzes the platform's prospects in increasing artisans' earnings, conserving traditional crafts, and expanding the market. Highlights of this research indicate how technology can be leveraged to enable artisans' empowerment and support the sustainability of Maharashtra's handicraft tradition.**

***Index Terms*—Online Market, Maharashtra Artisans, Pottery, Toys,Kolhapuri Chappals, Handicrafts, Digital Empowerment, E-Commerce.**

I. Introduction

Maharashtra is best known for diverse and vibrant handicrafts that trace back to its cultural and artistic traditions. Of course, the state has skilled artisans producing pottery, wooden toys(like Sawantwadi toys), Kolhapuri chappals really well crafted. It has also a big variety of handicraft decorative items like tea coasters and keychains, and wall paintings adorned with Warli, Madhubani, and Maithili art. These traditional crafts not only reflect on the heritage of Maharashtra but also play significant roles in the livelihood of many thousands of artisans from rural and semi-urban regions. Unfortunately, despite being artistically sound and culturally representative, artisan businesses have very limited market access, dependency on mediators, lack of financial support for accessing markets altogether, and mostly do not get exposure to any digital platforms for their selling.

In this modern digital world, e-commerce has changed the face of whole retail trade and made it easier for businesses to become global. Such advance in technology, however, is fruitless for many artisans who cannot take the leap into online selling because of reasons such as technological illiteracy, logistical challenges, and dominance of commercial sellers on mainstream e-commerce sites. The results of all these are that now the local artisans depend on very small regional markets or some middlemen, who take a handsome amount of their earning along with them. Adding to all this, there is no unique digital marketplace for native handicraft, which leaves Maharashtra's artisan community with fewer options for growth.

Fig. 1: Handicrafts of Maharashtra

Limitations : Technical, operational, financial, security, legal, and user limits are all present in an online marketplace platform. Technically, performance is slowed down by problems with third-party integration, scalability, and server outages. The user experience is compromised by inadequate search and filtering. The primary operational concerns are logistics, vendor management, and quality control. Profits are impacted financially by high startup costs, reliance on commission revenue, and payment gateway fees. Users and vendors are put at risk by security concerns including data leaks and phony reviews. Complexity is increased by legal concerns about consumer protection, intellectual property, and taxes. Lack of personalization, vendor competition, and customer trust can all limit engagement and sales. solid tech infrastructure, effective vendor policies, solid security, and customer-centricity are necessary to overcome these constraints.

II. Related Work

E-commerce has revolutionized the way artisans sell their products, providing them with access to broader markets, reducing dependency on intermediaries, and enabling direct interaction with customers. However, artisans still face challenges such as digital illiteracy, platform management complexities, and competition from mass-produced goods. The Technology Acceptance Model (TAM) has highlighted factors influencing consumer behavior towards artisan markets, such as ease of access, secure transactions, and unique handcrafted items. However, geographical limitations and lack of external market force considerations restrict the applicability of these modelsPolitical economy approaches have examined the adoption of e-commerce by artisans in the Global South, revealing that digital platforms enhance market access but also create power imbalances between platform owners and artisans, affecting pricing and revenue generation. Additionally, user experience and platform design are crucial aspects of online marketplaces, with optimized UX/UI design significantly impacting adoption and retention.

Despite these advancements, challenges persist, such as reputation and feedback systems, biased ratings, and fake reviews. Social media platforms like Facebook Commerce have been proposed to increase marketplace reach, but their long-term impact on e-commerce frameworks and consumer behavior remains uncertain. This study aims to address these gaps by developing an online marketplace tailored for Maharashtra artisans, focusing on indigenous crafts such as pottery, Sawantwadi toys, Kolhapuri chappals, and handmade handicrafts.

TABLE I: Literature Review

Year	Publication Journal	Title	Methodology
2025	Master's thesis, Lapland University of Applied Sciences	Artisans in the Digital World – Building Brand Awareness of Small Artisan Businesses in Digital Platforms [1]	The research employed a mixture of research approaches, collecting qualitative data from interviews with owners of small artisan firms in Finland and quantitative data from an online questionnaire.
2025	The Journal of Oriental Research Madras	E-commerce and Textile Artisan Markets: A TAM-Based Exploration of Consumer Behavior Shifts [2]	The study applies the Technology Acceptance Model (TAM) to analyze consumer behavior shifts in textile artisan markets due to e-commerce. Data was collected from 200 consumers in the Kachchh district and analyzed using statistical tests.
2024	International Multidisciplinary e-Journal	Revolutionizing Rural Economies: E- Commerce Solutions for Local Artisans and Agro-Based Producers [3]	The study is based on primary data collected through interviews with rural artisans and agro-based producers. Data analysis was conducted to assess e-commerce adoption and its impact on market access.
2023	Routledge (Book Chapter, DOI: 10.4324/97810 03391746-6)	Digital Platforms and the Global South: Reconfiguring Power Relations in the Cultural Industries [4]	The study employs a political economy approach, analyzing government reports, industry documents, and media sources. It includes fieldwork from Assam (2020) and Tamil Nadu (2022) with 20 semi-structured interviews with artisans, policymakers, and industry representatives

2023	Mathematics	A Study on the Choice of Online Marketplace Co-Opetition Strategy Considering the Promotional Behavior of a Store on an E-Commerce Platform [5]	The study constructs an onsite and offsite promotion decision model involving an e-commerce platform, a store, and a content platform. It analyzes different decision scenarios— decentralized decision, centralized decision, and promotion investment sharing—using mathematical modeling and numerical analysis.
2021	E3S Web of Conferences.	Online Marketing of Food Products through Marketplace Platform: A Study of Community Based Online Marketplace of BEDUK-MUTU [6]	The study used a descriptive and survey research design, interviews, and literature review to analyze BEDUK-MUTU marketplace's marketing and business strategies, focusing on the Muhammadiyah community's economic development potential.
2021	International Journal of Production Economics (Elsevier)	Strategic Introduction of Marketplace Platform and Its Impacts on Supply Chain [7]	The study uses game theory to analyze merchants and manufacturers' decision-making processes when using online marketplace platforms,considering factors like supply chain strategies, platform fees, and competition, along with Nash and Stackelberg equilibrium.
2021	Electronic Commerce Research and Applications (Elsevier)	Platform sharing: From reseller to marketplace [8]	The study explores the relationship between third- party vendors and online retailers, focusing on the impact of allowing outside sellers on pricing, competition, and profits, and how consumer responses to pricing adjustments affect the success of this strategy.
2021	Benchmarking : An International Journal	Seller experiences assessment in online marketplace: .a scale development study [9]	The study utilized an inductive approach, involving qualitative interviews with six sellers, expert reviews, EFA, and CFA, and validated the scale using a final dataset of 195 sellers.
2020	Future Internet	E-Marketplace as a Tool for the Revitalization of Portuguese Craft Industry: The Design Process in the Development of an Online Platform [10]	The project focuses on usability and design in creating an online marketplace for Portuguese craftspeople, using UX/UI research techniques, benchmarking, usability testing, System Usability Scale, and heatmaps to enhance user experience.
2019	IOP Conference Series: Materials Science and Engineering	Service- Oriented Architecture for E-Marketplace Model Based on Multi-Platform Distributed System [11]	The study introduces a service-oriented architecture (SOA) that combines multiple e- commerce platforms into a single marketplace, enabling real-time product updates, transactions, and shipping integration using APIs and XML data formats.

III. Proposed Method

This research adopts a systematic methodology in the design, development, and deployment of an online marketplace platform for artists. The native inhabitants of Maharashtra have an approach towards handicrafts such as pottery, Sawantwadi toys, Kolhapuri chappals, and hand-made art-based handicrafts to develop the online marketplace in a systematic way. The proposed system is intended as a web-based platform offering an interactive and user-friendly interface using HTML, CSS, and JavaScript for front-end. Methodology has stages such as requirement analysis, system design, development, testing, and deployment.

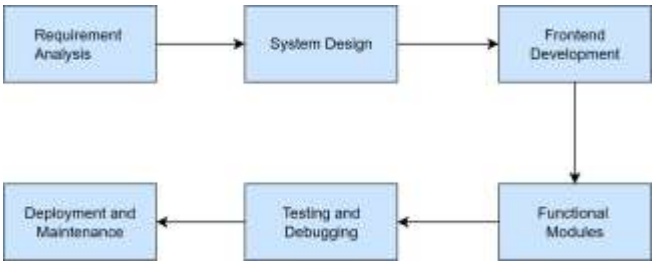

Fig. 2: Implementation Steps

A. Requirement Analysis

This phase is to identify the key functions and characteristics that the place requires. The broad requirements before the system are:

1) Roles of user: Artisans (sellers), customers (buyers), and administrators. Product listing: The artists are to upload the product description and in-depth images and prices.

2) Shopping cart and checkout: Customers add products to their respective carts and checkout securely.

3) Search and filtering: The users would try to search for their products according to their category, price, and geographic area of the artisan.

4) Reviews and ratings: The products would be reviewed by the customers to build trust and credibility.

B. System Design

The structured system is an architecture designed using the three-tier concept:

1) Frontend (Client-side): In HTML, CSS and JavaScript to induce responsivity and engagement.

2) Backend (Server-side): While this methodology is centered on the client-side operations, the backend operations may include database management and business logic carries through with Node.js, Express.js and development of API-based systems.

3) Database: Database is used for storing user-related to information and product-related information would use MySQL or Firebase.

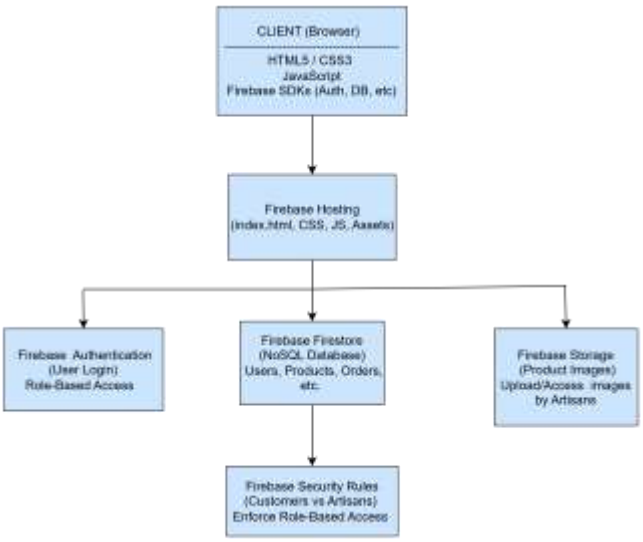

Fig. 3: Technological Flowchart

C. Frontend Development

In this section UI and UX are developed with

1) HTML: Typed for any web page development and arrangement of the content.

2) CSS: In the styling would make children eye-grabbing and responsive to any device.

3) JavaScript: Making platform dynamic in adding product search and filtering, along with user-interactive functions.

D. Functional Modules

The platform is divided now into major functional modules:

1) Homepage and Navigation: Gives a glimpse of featured artisans and trending handicrafts. The navigation bar links product categories, log in/signup, and cart.

2) User Authentication and Dashboard: Sellers: Register and log in and manage their product listings. Customers create accounts to buy and review products.

3) Product Listing/Search: Artisans can also add, update, and delete the products. Search products browse, filter and search by customers.

4) Shopping Cart and Checkout: Items can be added to the cart by users and checked out. Using third-party APIs such as Razorpay or Paypal, it can be integrated into the payment gateway in case of any.

5) Reviews and Ratings : Customers can submit and give ratings on products. Real-time reflection of users' ratings is done through JavaScript.

IV. Result and Discussion

The KreativeCraft platform was successfully developed as a web-based solution to connect Maharashtrian artisans with customers. The project achieved the following results:

- A user-friendly and responsive interface was built using HTML, CSS, and JavaScript, adapted to both the artisans and the customers.
- Firebase Authentication was successfully implemented to enable secure log-in and role-based access for artisans and customers.
- An Artisan Dashboard was developed that allows artisans to upload products with images, view and manage their listings in real time.
- Customer module was implemented with features that include product browsing, wish list, cart, and working 'buy now' checkout functionality.
- All user and product data are stored and retrieved from Firebase Firestore, with product images managed using Firebase Storage.
- The platform effectively supports real-time interactions, empowering artisans to showcase traditional products and helping customers explore authentic hand-crafted items.

A. Customer Login Analysis

The database activity for the developed system was monitored using Firebase's analytics tools between April 18 and April 24, 2025 (Fig. 4). The number of reads peaked on April 19 at more than 500, followed by a gradual decline, resulting in a total of 15 reads for the current period, which is a 46.4% decrease compared to the previous week. Similarly, the number of writes peaked at approximately 20 on April 19, declining to 2 on April 24, marking a reduction of 60%.

Fig. 4: Customer Login Analysis

This trend reflects the initial system testing phase, during which features like user authentication, product uploads, and cart operations were validated. Following successful testing, database interactions stabilized, indicating that the system entered a maintenance and real-user usage phase. These observations confirm the readiness of the system for a wider deployment with minimal real-time database load.

B. Artisan Login Analysis

The database interactions for the system were tracked using Firebase analytics between April 18 and April 24, 2025 (Fig. 5). During this period, the number of reads reached 72, while the number of writes totaled 7. A significant peak in reads was observed on April 18 with nearly 450 operations, after which the reads sharply declined, stabilizing close to zero between April 19 and April 23, before a slight increase on April 24. In terms of writes, a peak was noted on April 18, followed by minimal to no activity until a small rise again on April 24.

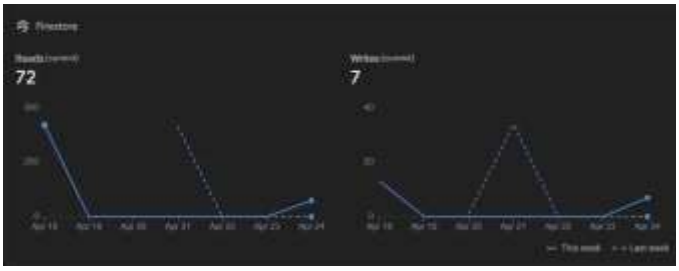

Fig. 5: Artisan Login Analysis

This pattern indicates intensive testing activities at the beginning of the week, focusing on validating key system functionalities such as user registration, login, product upload, and wishlist operations. The later reduction in database activity demonstrates the system's movement towards stabilization and readiness for live deployment, minimizing unnecessary database reads and writes and thus optimizing resource usage.

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