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# Second-Hand Marketplace Platform – ShareMate

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**Abstract**

With the growing demand for affordable and sustainable consumption, users are increasingly turning to peer-to-peer rental and resale platforms. However, existing marketplaces like OLX and Quikr often face challenges related to trust, verification, and data transparency, which discourage users from engaging confidently. Low user trust, fraudulent listings, and inefficient transaction handling are examples of hidden issues that can compromise user safety and platform reliability. Existing systems do not have an integrated, community-focused approach; instead, they rely solely on basic user ratings and fragmented listings. This paper presents ShareMate, a community-driven second-hand rental and resale platform designed to ensure secure, verified, and transparent exchanges among users. The platform uses AI-driven recommendations and multi-layered verification to scan listings for hidden risks, and generates complete trust and sustainability reports. Furthermore, the system integrates smart deposit handling and sustainability tracking, allowing users to better understand the positive environmental impact of their resource reuse. By integrating multi-content threat detection with consequence visualization, this work proposes a unified solution to improve cybersecurity awareness and promote safe online practices. The rapid growth of online rental and resale platforms underscores the need for trustworthy, transparent, and sustainable systems to serve both urban and semi-urban communities. Existing second-hand marketplaces, such as OLX and Quikr, are often fragmented, unregulated, and struggle to establish user confidence due to a lack of structured frameworks and effective verification mechanisms.

**Keywords:** Second-Hand Marketplace; Peer-to-Peer Rentals; AI-Driven Recommendations; User Verification System; Location-Based Matching; Sustainable Consumption; Community Sharing Platform.

**How to Cite This Article**

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## Introduction

The rapid growth of online resale and rental platforms highlights the need for trustworthy, transparent, and sustainable systems that can serve both urban and semi-urban communities. In many regions, existing second-hand marketplaces are fragmented, unregulated, and often fail to establish user confidence due to the absence of verification mechanisms and structured rental frameworks. While platforms like OLX and Quikr cater primarily to urban audiences, they do not effectively address the challenges of peer-to-peer trust, fraudulent listings, or sustainable consumption. This gap creates a practical challenge: designing a marketplace that not only facilitates efficient item exchange but also ensures safety, accountability, and accessibility across diverse user environments. Any technological framework intended to promote resource sharing and reuse must therefore be developed with inclusivity, transparency, and community engagement as core design principles rather than Second-Hand Marketplace Platform – ShareMate assuming a one-size-fits-all solution. Building a trustworthy transaction model is central to making the platform beneficial for both lenders and borrowers. Unlike conventional listing systems that rely solely on user ratings, ShareMate integrates multi-layered verification, deposit protection, and behavioral feedback mechanisms to assess credibility.

### Literature Survey

Foroozanfar, M. H. et al. (2025). A sustainability perspective for sharing economy business. Examines how attitude toward sharing economy, subjective norms, perceived behavioural control influence behavioural intention to use sharing platforms. Adds "technical characteristics" as an influencing factor. The study highlights how attitudes toward environmental protection, subjective norms (social influence), and perceived behavioral control significantly influence users' intentions to engage in sharing or renting platforms[1]

Vasil, M., Chopdar, P. K., Buhalis, D., & Das, S. S. (2024). Value co-creation in the sharing economy: Revisiting relationships between platform, users, and resources. .Journal of Contemporary Hospitality Management This paper "Value Co-creation in the Sharing Economy: Revisiting Relationships between Platform, Users, and Resources" explore how collaboration between platforms, users, and shared resources drives value creation in sharing economy ecosystems[3]

Zarifis, A., Cheng, X., & Kroenung, J. (2024). Collaborative consumption for low and high trust requiring business models. Journal of Business Research) In their study "Collaborative Consumption for Low and High Trust Requiring Business Models" examine how different sharing economy platforms manage trust and collaboration between users. The paper differentiates between business models that require high trust (like peer-to-peer rentals) and those needing lower trust (like platform-managed services)..[4].

Akadji, I., Marliani, G., & Laksono, M. A. (2024). The impact of trust in platform providers on user participation and economic benefits in the sharing economy. Sustainability, 16(18), 9097 This paper"The Impact of Trust in Platform Providers on User Participation and Economic Benefits in the Sharing Economy" analyze how trust in platform providers influences user engagement and economic outcomes. The study finds that users are more likely to participate actively when platforms demonstrate transparency, security, and reliability. [5]

Tjokrosaputro, M. (2024). Value co-creation in the sharing economy platform: The role of 732 ethical perceptions. International Journal of Contemporary Hospitality Management This research Role of Ethical Perceptions" investigates how ethical perceptions and responsible behavior influence value co-creation in sharing economy platforms. [6]

Du, Q. A. (2024). Governance technology in the sharing economy. Journal of Open Innovation.Technology,.Market.and.Complexity the paper "Governance Technology in the Sharing Economy" explores how digital governance mechanisms—such as blockchain, smart contractsand accountability in sharing economy platforms. The study highlights that effective governance technology reduces fraud, data misuse, and operational inefficiencies while improving user confidence. [7]

Clemens, V. (2024). Multi-level value creation in the sharing economy. Journal of Service Research. This paper in the paper "Multi-level Value Creation in the Sharing Economy" examines how value is generated across multiple levels individual, platform, and societal within sharing economy ecosystems. The study explains that user participation, platform innovation, and community benefits collectively drive economic, social, and environmental value. [8]

Guttentag, D., Smith, S., & Li, F. (2024). Trust and reputation mechanisms in peer-to peer.sharing.platforms.Journal.of.Business. This study in the paper "Trust and Reputation Mechanisms in Peer-to-Peer Sharing Platforms" examine how trust and reputation systems influence user participation and engagement in peer-to-peer sharing platforms. It also emphasizes that strong reputation mechanisms help reduce perceived risk, encourage repeated usage, and strengthen platform sustainability.[9]

Kou, Y., Chen, J., & Li, C. (2018). Incentive mechanisms for crowdsourcing platforms: A survey. ACM Computing Surveys, 51(1) This study in the paper "Incentive Mechanisms for Crowdsourcing Platforms: A Survey" explore various incentive strategies designed to encourage user participation and contribution in crowdsourcing and sharing platforms. It highlights that carefully designed incentive mechanisms can increase user activity, improve content quality, and sustain platform growth.[10]

- Limitations of Existing Work: Existing second-hand rental platforms are often limited to specific categories such as vehicles, electronics, or furniture, which reduces their usefulness for users seeking multiple rental options on a single platform. Many systems provide only basic listing and booking features without ensuring product quality, trust, or transparency between owners and renters.Some approaches also lack proper user verification, secure payment methods, and damage protection policies, creating hesitation among users. In addition, poor user interfaces, limited search and filter options, weak customer support, and the absence of review-based rating systems reduce the practical usefulness of current platforms for non-technical users.

**Problem Statement**

Fragmented local marketplaces, low trust between users, and inconsistent verification mechanisms cause inefficient item rentals, disputes, and low user engagement in second-hand sharing platforms. A unified, scalable platform is needed with risk-based verification, transparent reputation and rating systems, fraud-resistant incentives, and streamlined onboarding workflows to enable timely, trustworthy, and efficient peer-to peer item rentals.

Existing rental platforms often lack proper communication channels, secure payment integration, and real-time availability tracking, which creates inconvenience for both owners and renters. Many users also face difficulties in comparing rental prices, checking item conditions, and identifying genuine listings. [4

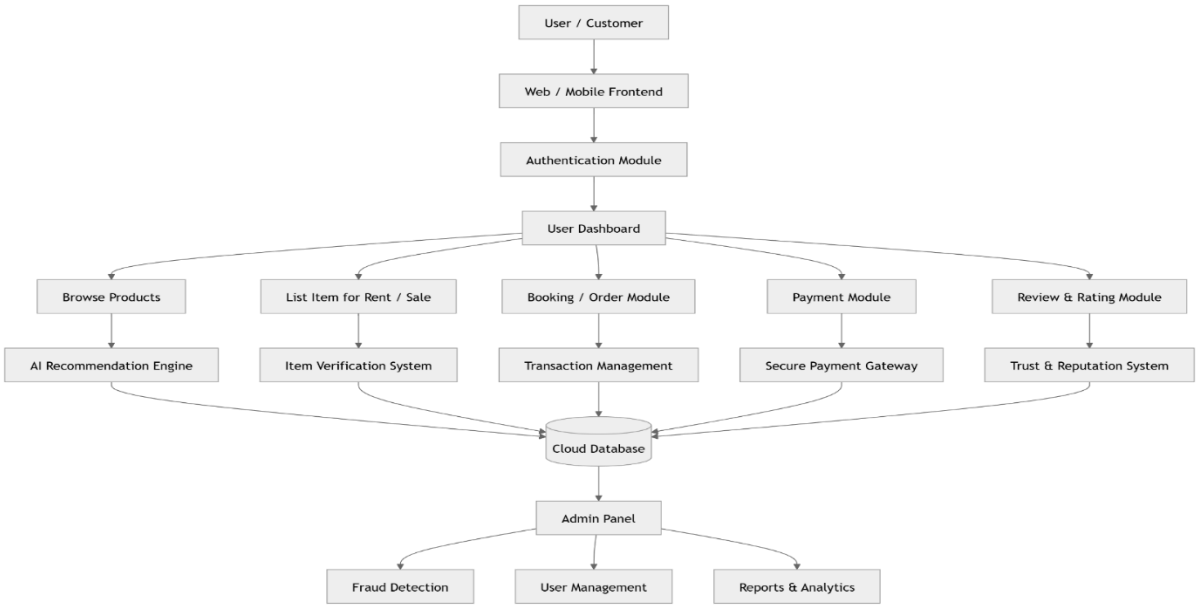



***Fig. 1.*** *System architecture of ShareMate showing the interaction between users, marketplace modules, trust verification systems, transaction handling, and user-facing outputs.*

**System Requirements**

The efficient operation of ShareMate depends on a combination of suitable database support, compatible software tools, and adequate hardware resources. The following requirements summarize the recommended environment for development, testing, and practical deployment.

*Database Requirements:*

- MySQL or PostgreSQL for production data storage..
- SQLite may be used for lightweight local development and testing.

*Software Requirements (Platform Choice):*

- Operating System: Windows 10/11 or Linux.
- Coding Language: Java, JavaScript, HTML, CSS.Frontend: React.
- Backend: Spring Boot / Java Servlet / JSP.
- IDE: VS Code or equivalent editor.
- Web Browser: Google Chrome or any modern browser.

*Hardware Requirements:*

- System: Intel i5 or equivalent processor.
- RAM: 8 GB minimum.
- Hard Disk: 256 GB minimum available storage.
- Network: Stable internet connection for web access and API-based updates.

**Methodology**

The development of the ShareMate system follows a structured methodology to ensure secure transactions, efficient item rentals, trust verification, and reliable web-based deployment. The methodology consists of multiple phases, including data collection, preprocessing, platform development, system integration, and result generation. [1]

*Data Collection and Preprocessing:*

- I User registration details are collected for account creation and identity verification.
- Product/item data such as images, descriptions, category, pricing, and rental duration are uploaded .
- Location data is processed to enable nearby product search and local marketplace matching.
- The collected data is validated, cleaned, and structured into machine-readable formats for smooth platform operations.

*Recommendation and Trust Model Development:*

- AI-assisted modules are used to recommend products based on user preferences, browsing history, and location.
- Verification modules are used to detect fake listings, suspicious activities, and duplicate product uploads.
- User ratings, reviews, and transaction history are converted into trust scores.

*System Development and Integration:*

- A React-based user interface is used for content upload, report access, and visual dashboard rendering.
- Backend services such as Spring Boot / Django REST API manage input validation, booking requests, transaction handling, and notifications.
- MySQL / PostgreSQL stores user data, product details, rental history, payments, and reviews for future access.

*System Workflow:*

- Users register/login through the web interface.
- Sellers upload second-hand products for rent or sale with images and pricing details..
- Buyers search items using category, price, and location filters..
- The backend validates listings and displays recommended products.
- The final dashboard displays order status, booking history, ratings, reviews, and transaction reports..

**Results And Discussion**

The ShareMate system was implemented and evaluated to assess its transaction efficiency, platform stability, recommendation performance, and user-facing usability. The platform successfully managed representative user registrations, product listings, booking requests, rental transactions, and secure payments, generating consolidated outputs through an interactive dashboard with trust indicators and transaction summaries. The observed system performance ranged between **80–90%** on representative test samples, demonstrating that the system is effective for practical deployment and community-based second-hand rental support.The system produces multiple outputs that enhance both analytical depth and user understanding. These include an overall risk score categorized as low, medium, or high severity, along with a metadata exposure report for image and document inputs. It also identifies suspicious links and phishing indicators from URLs

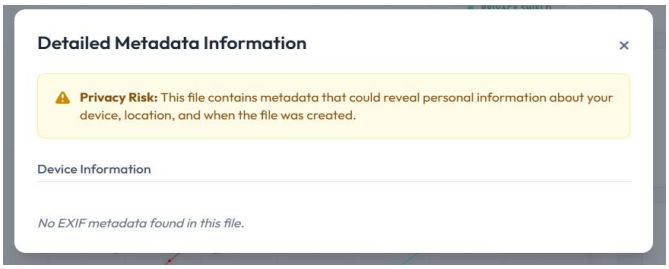
The system produces multiple outputs that enhance both operational efficiency and user understanding. These include an overall trust score categorized as low, medium, or high reliability, along with product availability reports for listed items. It also identifies suspicious listings, duplicate products, and incomplete user profiles during verification processes. A recommendation engine highlights suitable products based on user preferences, category selection, and nearby location matching, while the dashboard visualization presents insights through booking status, rental history, and transaction summaries. Additionally, the system provides notifications and safety recommendations to promote secure and trustworthy transactions.

The user-facing dashboard significantly enhances usability and accessibility. The trust meter simplifies seller reliability evaluation, the booking panel increases transparency of rental transactions, and the transaction history module translates system records into clear user activity summaries. Despite these strengths, some limitations remain. High-resolution product images require longer upload and processing

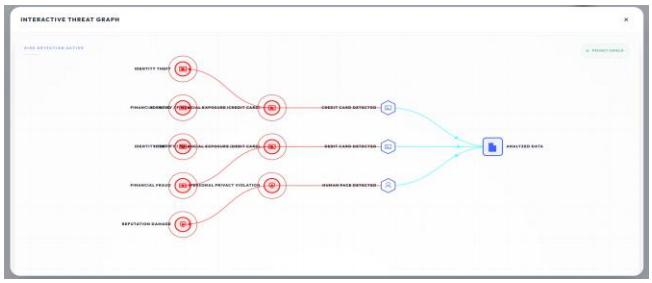
time, and the current evaluation is limited in scale..


*(a) Full report screen.*


*(b) Risk meter visualization.*




*(c) Metadata exposure result.*




*(d) Consequence-chain visualization.*

## Conclusion

The ShareMate system successfully integrates second-hand product listing, secure rental transactions, AI-assisted recommendations, trust verification, and web-based dashboard visualization to provide users with a practical e-commerce rental platform. By managing product listings, bookings, payments, and user reviews within a single platform, the system helps users perform safe and convenient second-hand rentals and purchases that are often difficult in fragmented local marketplaces. The observed results indicate that the platform can reliably process representative user requests and present understandable dashboards that improve transaction transparency and user confidence.

The project demonstrates that combining automated recommendations with trust-oriented verification can make second-hand rental platforms more useful for both technical and non-technical users. Features such as seller ratings, secure payments, booking history, and product recommendations enhance usability and customer satisfaction.

## References

1. M. H. Foroozanfar et al., “A Sustainability Perspective for Sharing Economy Business,” 2025..
2. I. Rathnayake, J. Ochoa, N. Gu, R. Rameezdeen, L. Statsenko, and S. Sandhu, “Strategies for Enhancing Sharing Economy Practices Across Diverse Industries: A Systematic Review,” *Sustainability*, vol. 16, no. 20, p. 9097, 2024..
3. M. Vasil, P. K. Chopdar, D. Buhalis, and S. S. Das, “Value Co-Creation in the Sharing Economy: Revisiting Relationships Between Platform, Users, and Resources,” *International Journal of Contemporary Hospitality Management*, 2024.
4. A. Zarifis, X. Cheng, and J. Kroenung, “Collaborative Consumption for Low and High Trust Requiring Business Models,” *Journal of Business Research*, 2024.
5. I. Akadji, G. Marliani, and M. A. Laksono, “The Impact of Trust in Platform Providers on User Participation and Economic Benefits in the Sharing Economy,” *Sustainability*, vol. 16, no. 18, p. 9097, 2024.
6. Q. A. Du, “Governance Technology in the Sharing Economy,” *Journal of Open Innovation: Technology, Market, and Complexity*, 2024.
7. M. Tjokrosaputro, “Value Co-Creation in the Sharing Economy Platform: The Role of Ethical Perceptions,” *International Journal of Contemporary Hospitality Management*, 2024.
8. V. Clemens, “Multi-Level Value Creation in the Sharing Economy,” *Journal of Service Research*, 2024.
9. D. Guttentag, S. Smith, and F. Li, “Trust and Reputation Mechanisms in Peer-to-Peer Sharing Platforms,” *Journal of Business Research*, 2024.
10. Y. Kou, J. Chen, and C. Li, “Incentive Mechanisms for Crowdsourcing Platforms: A Survey,” *ACM Computing Surveys*.