

Designing Freelance Platform for Indigenous Developers

By

Ishaq Usman

Kabir Umar

Department of Software Engineering
Bayero University Kano, Nigeria

&

Ahmad Abdulhamid Said

Department of Software Engineering
Northwest University Kano, Nigeria

Abstract

The absence of functional indigenous freelancing platforms, leaves local developers struggling with trust issues in financial transactions, limited visibility, and difficulty securing clients. Thus, suggesting the need to develop an indigenous platform that supports local freelancers through secure NGN-based payments, verified user profiles, and effective job-matching systems. This paper presents a freelancing platform developed to address the aforementioned challenges. The platform is developed using cutting edge technologies for scalability and efficiency. Usability testing was carried out using 50 anonymous users, comprising of 60% freelancers and 40% clients respectively. Overall usability testing result reveals that 70% of participants reported they were very satisfied and 26% were satisfied with their experience. 90% indicated they would recommend the platform to others, underscoring its potential for wider adoption. This result demonstrated the platform's effectiveness in empowering local freelancers, promoting trust, and fostering economic growth within Nigeria.

Keywords: *Freelancer platform, Software development, gig economy, short-term projects.*

Introduction

The rapid growth of the gig economy has revolutionized how work is done globally, creating opportunities for freelancers and clients to collaborate on short-term projects through digital platforms (Makhmanazarov et al., 2025) While international platforms like upwork.com, freelancer.com, and fiverr.com have succeeded in connecting freelancers to global clients, indigenous freelancing platforms remain largely underdeveloped (World Bank, 2023). This lack of robust local platforms has left local software developers—struggling to access opportunities within the domestic market. Local freelancers face several challenges. Many have difficulty securing projects due to poor visibility and ineffective job-matching systems. Additionally, trust in financial transactions using local currency remains low, creating barriers between clients and freelancers (Nwankwo, 2024). This has forced many developers to rely on international platforms that prioritize global competition and often exclude local freelancers due to stringent requirements and high service fees.

The absence of a functional, indigenous freelancing platform that directly addresses these challenges has stifled the growth of the local gig economy. To bridge this gap, this study proposes an indigenous freelancing platform specifically designed for local developers and clients. The proposed platform would foster trust, streamline job-matching processes, and ensure secure payments using local currency, ultimately empowering freelancers and promoting economic activity in the local market. The remaining of this paper is organized as

follows: Review of related literature is presented in Section 2.0. Thereafter, Methodology is presented in Section 3.0, followed by Implementation in section 4.0, and Testing and Results in Section 5.0. The paper is concluded in Section 6.0.

Review of Related Literature

This section reviews existing literature from 2020 to 2025 on freelancing platforms, gig economy dynamics, platform design, digital payment systems, and the specific context of platform work in Nigeria and developing economies, with direct relevance to the development of an indigenous Nigerian freelancing platform.

Malik et al. (2020) investigated the application of machine learning in freelancing platforms, finding that intelligent algorithms can enhance job matching, detect fraudulent transactions, and deliver personalised recommendations. The study positions automation as a strategic advantage for emerging platforms, particularly in markets where trust between clients and freelancers remains a challenge. Building on this, Kadolkar et al. (2025), through a systematic cross-disciplinary review of algorithmic management in gig platforms, found that while automated systems improve operational efficiency and task allocation, they simultaneously intensify worker surveillance, reduce perceived autonomy, and create power asymmetries between platforms and workers, reinforcing the need for platform designs that embed transparency, due process, and meaningful channels for worker feedback.

Olorundare et al. (2022), focusing specifically on Nigeria, investigated the country-specific potentials and challenges of the gig economy among the youth population, finding that 67% of respondents were involved in freelancing, with flexibility and additional income cited as the primary motivators. The study revealed that the greatest challenges faced by Nigerian gig workers are poor electricity supply and unreliable internet access, and recommends the establishment of a regulatory framework alongside investment in digital infrastructure to support sustainable participation in the gig economy. This finding is directly significant to the present study, as it confirms the existence of an active local freelancing population underserved by existing digital platforms.

Ajonbadi et al. (2025), drawing on 37 semi-structured interviews with location-based and cloudwork platform workers in Nigeria, examined voice and representation mechanisms and their implications for decent work in the Nigerian gig economy. The study found that platform design significantly influences workers' perception of decent work and their ability to voice concerns, and highlighted that cultural values in Nigeria shape what constitutes acceptable working conditions in ways that differ markedly from Western-centric platform assumptions. The study advocates for policy reforms addressing employment classification and stronger worker protections, lending direct support to the case for designing indigenous platforms that are culturally and contextually responsive.

Cook and Rani (2025), drawing on fieldwork across South Africa, Kenya, Nigeria, Ghana, and Uganda, examined whether digital platform work can drive structural economic transformation in developing countries, finding that while gig platforms offer entry-level opportunities and digital skill acquisition for young and low-skilled workers, weak labour regulation and the concentration of platform capital in high-income countries limit the degree to which such work translates into sustained income growth or inclusive development. The study argues that local

platform development must be accompanied by deliberate policy frameworks that protect workers while enabling local digital economies to grow.

Fiers (2024) investigated the role of digital skills in determining success for online freelancers within the gig economy, identifying three key ways digital competence shapes platform outcomes: it enables freelancers to optimise the use of built-in platform tools, construct workarounds when those tools fail, and forge entirely new pathways beyond what the platform formally offers. The study concludes that digital literacy is not merely a supplementary asset but a core determinant of resilience and competitive advantage, with direct implications for how platforms should be designed to support users at varying skill levels.

Blanchflower and Oswald (2021) assessed the macroeconomic impact of the gig economy, finding that while it offers income flexibility, it also contributes to lower wages, reduced job security, and greater inequality. They recommend that platforms consider offering social protections such as insurance options and savings schemes to promote more equitable outcomes for gig workers. Makhmanazarov et al. (2025) extended this macroeconomic perspective by examining the structural transformation of global labour markets across Nigeria, Brazil, Spain, and several other economies, finding that 68% of surveyed gig workers lacked access to employer-sponsored benefits, and recommending that platform developers collaborate with policymakers to implement portable benefits systems, minimum wage guarantees, and algorithmic transparency mandates — all of which carry direct design implications for indigenous freelancing platforms in vulnerable labour markets.

Aliyu (2022) documented the design and implementation of a student-focused freelance marketplace, highlighting secure payment integration, user authentication, project listing, and feedback mechanisms as foundational features, demonstrating the feasibility of building a specialised, locally relevant freelancing platform using modern web technologies. Aljaradat and Shukla (2025) complemented this by examining how trust and cybersecurity perceptions influence the adoption of digital payment systems in high-risk environments, finding that perceived security is a primary driver of adoption and that prior exposure to cybercrime significantly weakens user trust even when a platform's technical security is objectively strong. The authors recommend that platform designers embed trust-restoration features such as transparent transaction histories, verified user badges, and accessible dispute mechanisms — a recommendation of particular relevance to Nigeria, where digital payment trust remains a documented barrier to local platform adoption.

Taken together, the reviewed studies establish a clear and evolving research trajectory: from algorithmic management and machine learning applications, through the specific structural and cultural realities of the Nigerian gig economy, to payment security, worker welfare, and the macro-level implications of platform work in developing countries. While significant progress has been made in understanding global freelancing platforms, a gap remains in the literature regarding the design and deployment of indigenous platforms tailored to local market conditions, local currency systems, and regulatory contexts in Nigeria. This study addresses this gap directly by proposing and implementing a locally contextualised freelancing platform informed by the insights and recommendations identified across this body of literature.

Methodology

This section presents the methodology adopted for the research work.

Research Workflow

The research adopted a structured and systematic workflow to guide the development of the freelancing platform from conception to evaluation. As illustrated in Figure 1, the process began with an Introduction, which established the problem context and objectives of the study. This was followed by a Literature Review, where existing works on freelancing platforms and gig economy trends were examined to inform the design decisions. The Analysis and Design phase then translated the gathered insights into system requirements, use case models, and architectural blueprints. Subsequently, the Implementation and Testing phase involved the actual development of the platform using the selected technologies, accompanied by rigorous usability testing to validate system functionality. Finally, the Evaluation and Result phase assessed the platform's performance against the defined requirements, with findings documented to draw conclusions and inform recommendations. Each phase fed directly into the next, ensuring a coherent and traceable development process throughout the study.

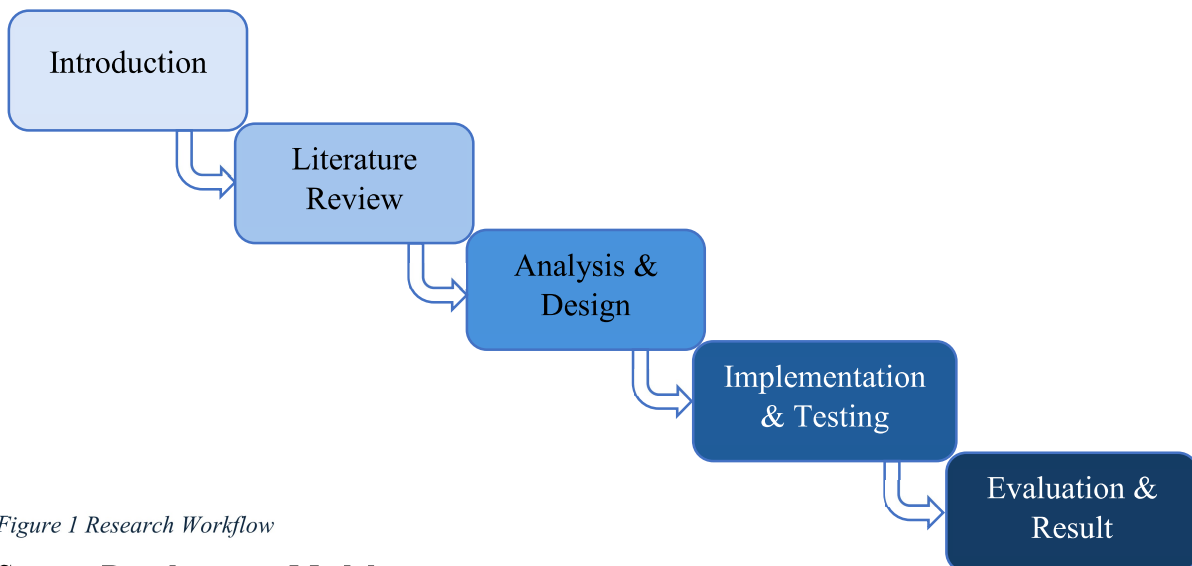


Figure 1 Research Workflow

System Development Model

For the development of the freelancing web application, the Agile Software Development Life Cycle (SDLC) model was selected. The agile SDLC was chosen for the following reasons.

Flexibility and Adaptability: The Agile model allows for flexibility and adaptability throughout the development process. Given that freelancing web applications need to cater to a diverse user base with varying needs, Agile enables continuous adjustments based on user feedback and changing requirements.

Iterative Development: Agile emphasizes iterative development, where the project is divided into small, manageable parts called sprints. Each sprint focuses on delivering a functional increment of the product. This approach allows for early and continuous delivery of valuable software, which is crucial for testing key functionalities, such as authentication, job posting, and payment integration at early stages.

User-Centric Focus: Agile development promotes a user-centric focus, where user stories and requirements drive the development process. This ensures that the final product aligns closely

with the needs and expectations of the users, particularly freelancers and clients who will use the platform. Continuous feedback from users can be incorporated into each sprint, ensuring that the most relevant features are prioritized.

Collaborative Approach: The Agile model fosters a collaborative environment where developers, designers, and stakeholders work closely together. This collaboration ensures that everyone is aligned with the project goals and can quickly address any challenges or changes in direction.

Rapid Deployment: Agile allows for rapid deployment of features, enabling the team to bring the product to market faster. This is important for freelancing platforms, which operate in a competitive environment where being first to market with new features can be a significant advantage.

Risk Management: By breaking down the development process into smaller sprints and focusing on continuous testing and integration, Agile helps in identifying and addressing risks early. This minimizes the chance of significant failures at the end of the development cycle, reducing the overall risk to the project.

Analysis of Existing and Proposed System

This subsection gives description of the existing system, requirement elicitation techniques used, and requirement definition for the new system.

i. Description of Existing System

Freelancing platforms such as *Upwork* and *Fiverr* dominate the global freelancing market by connecting freelancers and clients for short-term projects. These platforms offer services like project posting, secure payment handling, and dispute resolution. However, local freelancers in Nigeria face unique challenges that these platforms fail to address, including:

Currency Limitations: Most international platforms do not support payments in Nigerian Naira (NGN), forcing freelancers to rely on foreign currencies, which are subject to exchange rate fluctuations and fees.

High Competition: Local freelancers compete with global talent, reducing their chances of securing projects and fair compensation.

Delayed Payments: Payment delays and trust issues between freelancers and clients remain unresolved due to the lack of reliable local systems.

ii. Requirement Elicitation

To ensure the platform addresses the needs of its users effectively, two methods were employed for requirement elicitation:

Interviews (Clients): Conducted with clients who hire freelancers to understand their requirements and expectations from a freelancing platform.

Surveys (Freelancers): Distributed among local freelancers to capture their experiences, challenges, and desired features.

The results of the interview and survey are presented in the subsection below.

a. Result of interview

Interviews with potential clients highlighted the following key findings:

Need for Trust: Clients emphasized the importance of verified freelancer profiles to ensure they are hiring qualified individuals.

Escrow Payment System: Clients require an escrow payment system to protect their funds and ensure freelancers are paid only when project requirements are met.

Dispute Resolution: A structured mechanism for resolving conflicts between clients and freelancers, particularly around project scope and deadlines, is crucial.

Simplified Job Posting: Clients prefer an intuitive interface that simplifies the process of posting projects and managing freelancer communication.

Preference for Local Solutions: Clients expressed the need for a platform designed specifically for the Nigerian market to foster local talent and economic growth.

b. Survey Results

A total of 33 freelancers participated in the survey. Key findings are summarized as follows:

Table 1 Freelancers Survey

Survey Question	Key Findings
Primary freelancing skills	Software development, graphics design, and web development.
Freelancing experience	Majority: 1–3 years, followed by beginners and those with over 5 years.
Platforms used	Most freelancers use Upwork, Fiverr, or local platforms with limited success.
Delayed payments	Over 70% reported experiencing delayed payments from clients.
Importance of receiving payments in NGN	90% consider receiving payments in NGN as very important for trust and ease.
Factors that build trust in freelancing	Secure payment systems, verified client profiles, and reliable dispute resolution.
Frequency of unclear project requirements	Often or sometimes for most freelancers, causing challenges in project delivery.
Desired features in a local freelancing platform	Secure escrow payments, verified clients, NGN payment options, and robust communication tools.

iii. Requirements Definition

For the development of the proposed freelancing web application, the following functional and non-functional requirements have been defined to ensure that the system meets user expectations and business objectives.

Functional Requirements:

User Registration and Authentication

Users (freelancers, clients, and administrators) should be able to create an account, log in, and log out securely using email and password credentials.

Password recovery and email verification should be implemented.

User Profile Management

Freelancers and clients should have editable profiles, including personal information, skill sets, and portfolio sections.

Administrators should be able to view and manage all user profiles.

Job Posting

Clients should be able to post job listings with detailed requirements, including budget, deadlines, and job categories.

Freelancers should be able to bid for jobs with their price and project duration.

Messaging System

Users should be able to communicate through an integrated messaging system for job discussions, negotiations, and updates.

Payment Integration

Secure payment gateways should be integrated to handle transactions between freelancers and clients.

The system should support various payment methods such as credit/debit cards, bank transfers, and digital wallets.

Job Management

Freelancers and clients should be able to track progress of posted jobs through status updates (e.g., job in progress, job completed).

Administrators should be able to view and resolve disputes when necessary.

Review and Rating System

After job completion, both freelancers and clients should have the option to rate each other and leave feedback.

Admin Dashboard

Administrators should have access to a dashboard to manage users, jobs, disputes, and platform statistics (e.g., number of users, active jobs).

A use case showing major actors in the system and their corresponding roles is depicted in Figure 2 below.

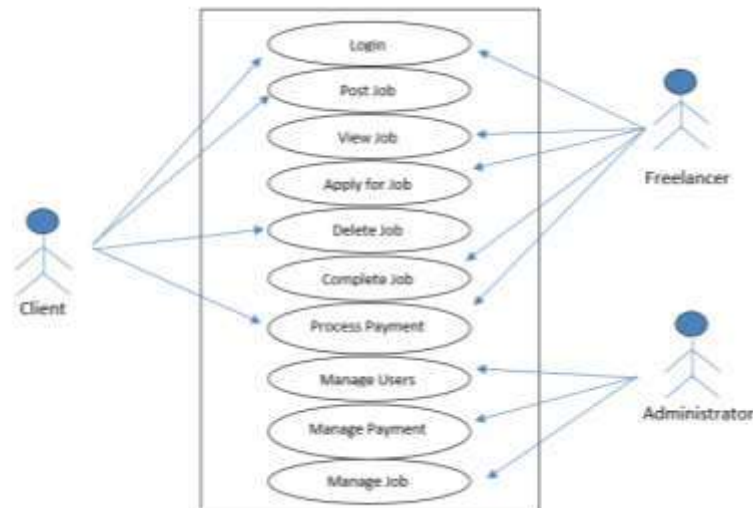


Figure 2 Use case of major actors

Non-Functional Requirements:

Security

All user data, including personal and financial should be securely encrypted.

The platform should comply with data protection regulations such as GDPR.

Performance

The system should be able to handle many concurrent users without performance degradation.

Job matching algorithms should respond in real-time to ensure efficiency.

Usability

The user interface should be intuitive and easy to navigate for all types of users (freelancers, clients, administrators).

The system should provide responsive design, ensuring usability across devices (e.g., desktop, mobile).

Scalability

The platform should be scalable to accommodate a growing user base and increasing job postings without system failure or slowdowns.

Availability

The system should ensure high availability, with minimal downtime for maintenance or updates.

These requirements ensure the platform will be user-friendly, secure, and functional, while addressing the needs of freelancers, clients, and administrators.

System Design

This section presents the detailed design of the freelancing web application, focusing on how the system will meet the identified requirements. It covers the proposed system's description,

the architecture that defines how different components interact, and the database design that supports data management and storage.

i. Description of the proposed system

The proposed freelancing web application facilitates a secure and efficient platform for clients, freelancers, and administrators to interact. As shown in figure 3, the sequence diagram outlines the flow of operations, beginning with registration and login for all users, including verification processes such as email confirmation and password recovery.

Key interactions include:

Clients: Post job listings, engage in job discussions through messaging, and initiate payments once the job is completed.

Freelancers: search for jobs and gets suggestions based on skills and performance, communicate with clients via messaging, and complete tasks, after which they receive payments and leave reviews.

Admin: Manage user profiles, oversee job postings, handle disputes, and track payments through the system.

The system also integrates a payment gateway to handle secure transactions, ensuring both clients and freelancers are notified about the status of payments.



Figure 3 Sequence Diagram

ii. Architecture Design

The system architecture is represented by a class diagram shown in figure 4, which outlines the key components and their relationships within the freelancing web application. The diagram includes classes such as User, Client, Freelancer, Admin, Job, Review, and Payment Gateway. Each class encapsulates specific functionalities required for the operation of the system.

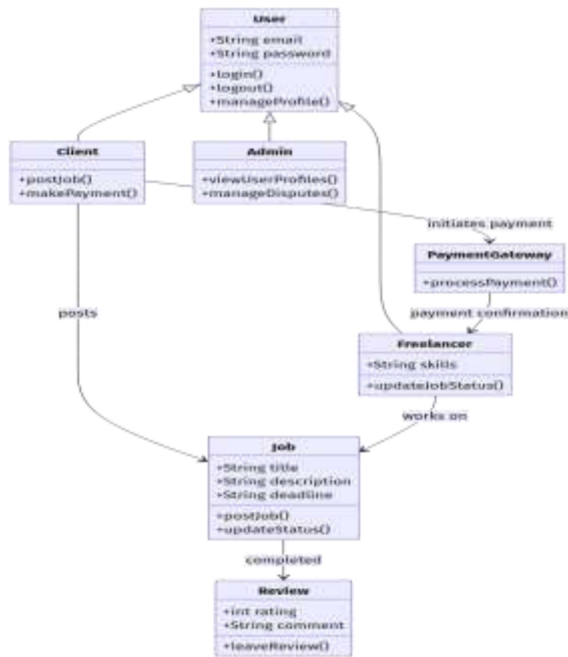


Figure 4 Class Diagram

iii. Database Design

The database design for the freelancing web application is represented by an Entity Relationship (ER) diagram as shown in figure 5. This diagram outlines the key entities and their relationships within the system. The primary entities include User, Client, Freelancer, Admin, Job, Review, and Payment. Each entity is associated with specific attributes that describe the data stored within the system.



Figure 5 Entity Relationship Diagram

Implementation

This section outlines the process of implementing the freelancing platform. The implementation involves careful selection of tools and technologies, followed by step-by-step development of the system's features. The focus was on creating a scalable, efficient, and user-friendly system that meets the requirements identified in the design phase.

Implementation Tools

The tools and technologies used during the development are listed in Table 2. The selection was guided by the project’s requirements and the need for efficient development processes.

Table 2 Implementation tools

Aspect/Category	Software/Tool	Description/Purpose
Programming Language	JavaScript	Used for developing the frontend and Firebase functions.
Frontend Framework	React.js	Enables the creation of a dynamic and responsive user interface.
Backend Service	Firebase Firestore	Provides NoSQL database functionality for managing application data.
Authentication	Firebase Authentication	Handles user login, registration, and session management.
Development Environment	Visual Studio Code	Integrated Development Environment (IDE) used for coding and debugging.
Version Control	GitHub	Repository for collaborative code management and version control.
Testing Tool	Firebase Emulator Suite	Used for local testing of Firestore and authentication services.

Description of System Operation

The system operation includes various functionalities to support clients and freelancers. Screenshots illustrating system operations are presented below in figures 6-14:

Job Posting: Enables clients to post jobs and view posted jobs by filling out relevant details as illustrated in figures 6 and 7 respectively.

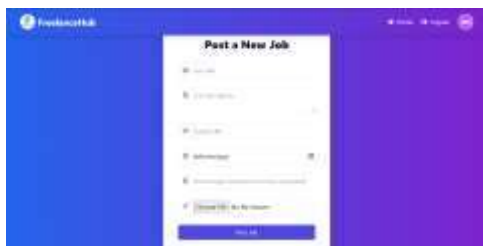


Figure 6 Client's Job posting Page



Figure 7 Client's view of posted jobs

Job Application: Displays all available jobs for freelancers to browse and apply. Figure 8 shows freelancer applying for a job, and figure 9 shows jobs freelancer has applied for.



Figure 8 Freelancer views available Jobs for freelancer to apply



Figure 9 Freelancer view the jobs he applied for

Milestone Management: Allows clients to define and manage project milestones while providing freelancers the ability to mark milestones as completed. The client verifies completion and processes payment. Figure 10 shows freelancer marking job as completed, and figure 11 shows client checking milestone and releasing payment.



Figure 10 Freelancer marks completed milestones



Figure 11 Client pays freelancer on milestone completion

Chat Functionality: Facilitates real-time communication between clients and freelancers. Users can initiate chat sessions, send messages, and view message history seamlessly.



Figure 12 User views list of chats

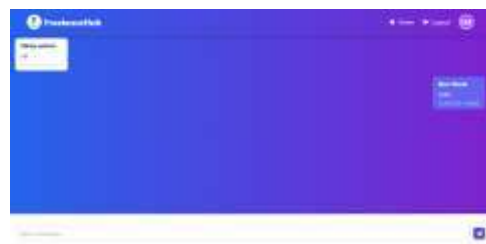


Figure 13 Freelancer Replying to a client

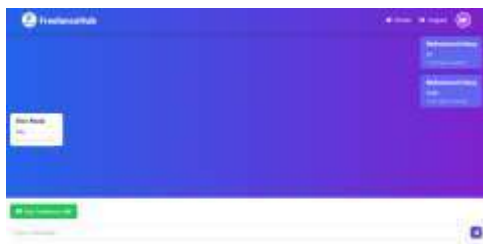


Figure 14 Client chatting a freelancer

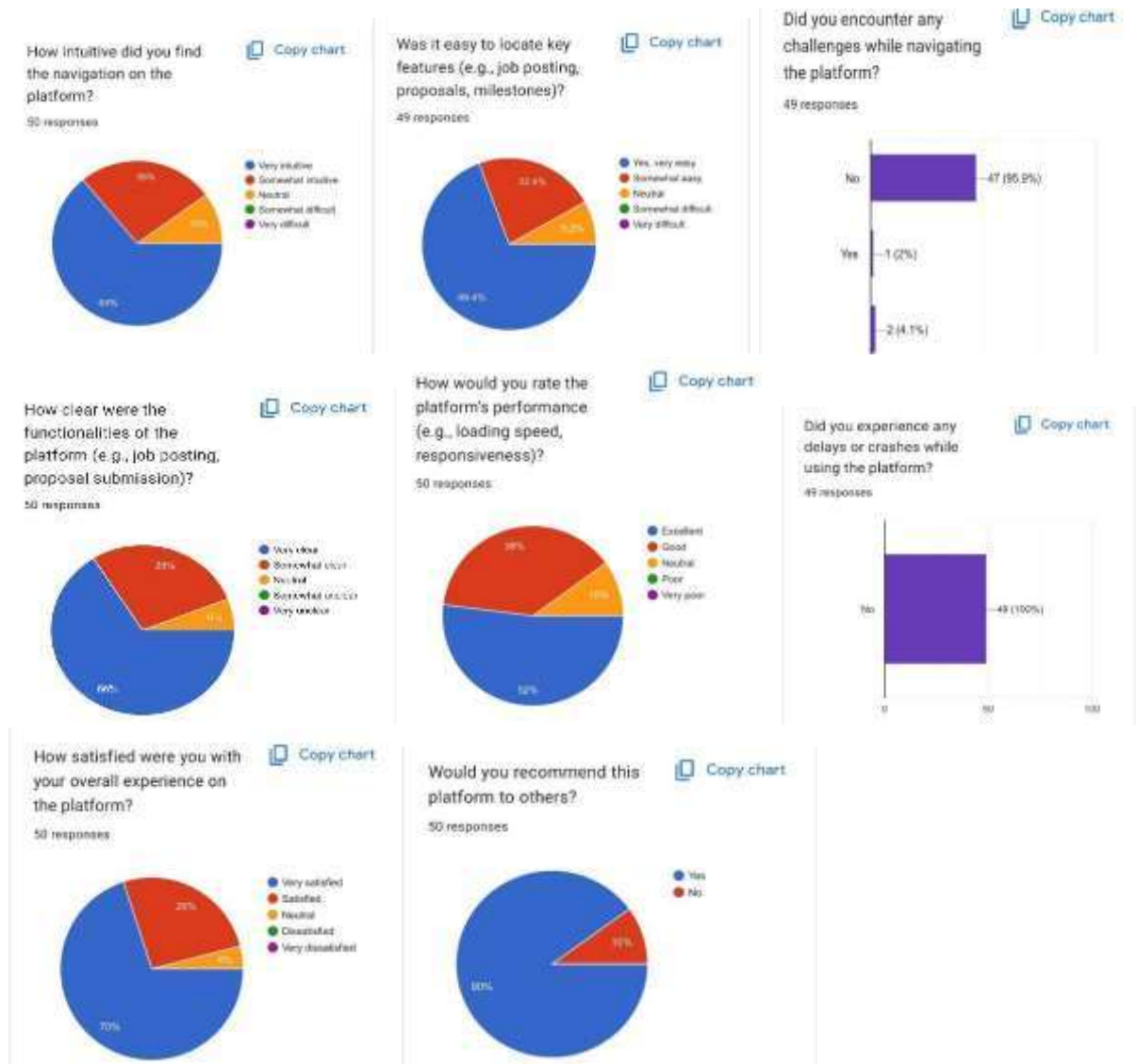
Usability Testing and Results

This section presents of usability testing, which was carried out to evaluate the platform's ease of use and effectiveness from the user's perspective. A total of 50 participants participated in the usability testing, the results obtained is presented in table 3 and visualized using pie charts shown in figures 15-22.

Table 3 Results of usability testing

S/N	Question	Response Options	Freq	%	Total Responses
1	How intuitive did you find the navigation on the platform?	Very intuitive	32	64	50
		Somewhat intuitive	13	26	
		Neutral	5	10	
		Somewhat difficult	0	0	
		Very difficult	0	0	
2	Was it easy to locate key features (e.g., job posting, proposals, milestones)?	Yes, very easy	34	69.4	49
		Somewhat easy	11	22.4	
		Neutral	4	8.2	
		Somewhat difficult	0	0	
		Very difficult	0	0	

3	Did you encounter any challenges while navigating the platform?	No	47	95.9	49
		Yes	1	2.0	
		Maybe	2	4.1	
4	How clear were the functionalities of the platform (e.g., job posting, proposal submission)?	Very clear	33	66	50
		Somewhat clear	14	28	
		Neutral	3	6	
		Somewhat unclear	0	0	
		Very unclear	0	0	
5	How would you rate the platform's performance (e.g., loading speed, responsiveness)?	Excellent	26	52	50
		Good	19	38	
		Neutral	5	10	
		Poor	0	0	
		Very poor	0	0	
6	Did you experience any delays or crashes while using the platform?	No	49	100	49
		Yes	0	0	
7	How satisfied were you with your overall experience on the platform?	Very satisfied	35	70	50
		Satisfied	13	26	
		Neutral	2	4	
		Dissatisfied	0	0	
		Very dissatisfied	0	0	
8	Would you recommend this platform to others?	Yes	45	90	50
		No	5	10	



Discussion

Usability testing was conducted with 50 anonymous participants, comprising 60% freelancers and 40% clients, who interacted with the platform and completed the usability testing questionnaire. Overall, the results demonstrate a strong positive reception of the platform across all evaluated dimensions.

Regarding navigation, 64% of participants found the platform very intuitive and 26% found it somewhat intuitive, with no participant reporting difficulty indicating that the interface design is accessible and well-structured for both user roles. Similarly, 69.4% of respondents confirmed that key features such as job posting, proposals, and milestones were very easy to locate, and 95.9% reported encountering no challenges while navigating the platform. This further validates the effectiveness of the system's layout and feature visibility.

In terms of functionality clarity, 66% of users rated the platform's features as very clear, while 28% considered them somewhat clear, leaving only 6% neutral, a result that reflects the success of the user-centred design approach adopted during development. Performance also received strong ratings, with 52% rating it as excellent and 38% as good. Crucially, all 49 respondents

who answered the delays and crashes question reported no such experiences, affirming the reliability and stability of the platform.

Overall satisfaction was notably high, with 70% of participants reporting they were very satisfied and 26% satisfied with their experience. Consequently, 90% indicated they would recommend the platform to others, underscoring its potential for wider adoption. Among the open-ended responses, the chat and direct messaging features were most frequently cited as the most useful and enjoyable aspects of the platform. Areas identified for improvement included platform loading speed, highlighted by three respondents, and the notification system, flagged by one respondent — both of which provide clear direction for future development iterations.

Conclusion

This paper focused on designing and developing a freelancing platform to address challenges faced by indigenous clients and freelancers in existing systems. The platform was built using Firebase Firestore for the backend and React.js for the frontend, ensuring scalability and responsiveness. The process began with identifying the system requirements, followed by designing and implementing a user-friendly interface. Key functionalities, such as job posting, proposal submissions, milestone management, and notifications, were implemented to create a seamless experience for users.

Various methodologies were employed during the development to ensure flexibility and efficiency, allowing the platform to evolve iteratively. Modern tools and technologies were leveraged to streamline development and provide robust features. Rigorous usability testing was conducted to validate the platform's functionality. Feedback collected during usability testing revealed high user satisfaction, particularly in terms of navigation and system responsiveness. Overall, the project successfully achieved its objectives, delivering a functional and efficient freelancing platform.

To enhance the platform's functionality and user experience, the following recommendations are proposed:

Mobile Application Development: Developing a mobile application using frameworks like React Native or Flutter will improve accessibility and user engagement.

AI-Driven Features: Introducing AI for skill-based freelancer recommendations will optimize job matching and improve user satisfaction.

Enhanced Analytics: Adding advanced analytics for job and freelancer performance tracking will provide users with valuable insights to make informed decisions.

By addressing these areas, the freelancing platform can evolve into a comprehensive solution that fully meets the needs of clients and freelancers, offering a superior experience in the freelancing ecosystem.

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