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Faculty of Engineering & Information Technology

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Software Graduation Project

ServLink

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Acknowledgment

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Finally, we thank everyone who supported us in any way during this journey. This experience taught us that through teamwork, kindness, and mutual support, even the hardest goals can be achieved.

This station will not be the end of the road, but the beginning of a long journey that begins now....

Abstract:

In today's fast-paced digital world, people seek convenience and quick access to the services they need directly from their mobile devices. Whether it involves home maintenance, education, healthcare, or technology support, users prefer solutions that save time and effort while ensuring reliability. At the same time, professionals and service providers are looking for effective ways to showcase their work, reach new customers, and manage their business operations efficiently.

The **ServLink** application was developed to connect users with a wide range of **service providers** across various sectors including home maintenance, education, technology, healthcare, and logistics through a unified and user-friendly digital platform.

The project includes a mobile application developed using React Native and a web interface built using React for the frontend and for both Node.js for the backend, serving three main user types: customer, service provider, and administrator.

Service providers can list offered services with detailed descriptions and prices and manage their profiles. They also can track incoming requests, communicate with customers, and income through feedback reports, helping them to improve their quality of service continuously. While the customer can browse different services in different categories, viewing providers profiles and check ratings and prices, write feedback and book a service. Also, there's a recommendation system that suggests related services and the most suitable service providers based on the user's preferences, location,

price, and ratings. While the administrator has full control on the system, including managing user accounts, monitoring service requests, handling reports and feedback, and ensuring the overall quality and security of the system. To improve platform performance and reliability there's a dashboard that admin can view. Also, there is real-time chat, allowing direct communication between customers and service providers to discuss details.

There are many existing applications that focus on specific sectors or individual service types, but **ServLink** is designed to support a wider range of independent service providers across different industries. Service providers can easily join the system and increase their visibility, while users can quickly book the services they need. By connecting both sides efficiently, **ServLink** simplifies the service process, saves time, and creates a seamless, organized, and reliable experience for everyone.

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Chapter I

1. Introduction

1.1 Statement of the problem

Currently, users face difficulties in reaching different service providers, such as hairdressers, electricians, or other home service providers.

Communicating with them is often challenging because there is no single platform that brings all services together, which makes users spend a lot of time searching or waiting for appointments.

On the other hand, service providers struggle to manage their work, receive requests, or coordinate with clients in an organized and fast way. Many of them rely on phone calls or traditional messages, which can lead to missed opportunities or poor scheduling.

This is where **ServLink** comes in. The app makes it easier for users to connect with service providers, while helping providers organize their work, receive requests quickly, and make better use of their time and effort.

1.2 Project Objectives

The main objective of the **ServLink** project is to make it easier for users to find and connect with various service providers, such as electricians, hairdressers, and other home service professionals. The app also aims to help service providers manage their work more efficiently by organizing requests, scheduling appointments, and communicating with clients in a smooth and timely manner. By providing a unified platform, ServLink reduces the time and effort spent searching for services, improves the overall service experience, and increases the productivity and opportunities for service providers.

1.3 Project Scope

The **ServLink** project focuses on creating a mobile application that connects users with various service providers in a fast and organized way. The app will allow users to search for services, view provider profiles, and book appointments easily. On the service provider side, the app will help them manage requests, schedule appointments, and communicate with clients efficiently. The project is limited to local service providers and users within a specific area, and it focuses mainly on home and personal services. The app does not cover large companies, industrial services, or international bookings at this stage. By providing this platform, ServLink aims to improve convenience, save time, and enhance the overall experience for both users and service providers

Chapter II

2. Constraints and Earlier Coursework

2.1 Constrains

During the development of the ServLink project, several constraints were faced. First, testing the app had to be done on both a **mobile emulator** and a **real mobile device** to ensure all features worked correctly, which sometimes slowed down the development process. Finally, to enhance the user experience, ServLink integrates advanced AI models including Llama 4 (Maverick), Llama 3.1, and GPT-OSS-20b via **Groq APIs** to automate complex tasks across the platform, like Smart Matching and Duration Estimation, also recommendation system for users, Automatic Rebooking, ...etc. However, building these features required more time and effort to write good prompts to let AI do good analysis and give good output depends on data we give also use resources from google.

2.2 Earlier Coursework

Before starting the **ServLink** project, the team completed several relevant courses that provided the knowledge and skills needed for this work. The **Web Development** and **Advanced Web Development** courses helped the team learn how to design and implement interactive websites, understand client-server communication, and use modern web technologies. The **Software Development** and **Advanced Software Development** courses gave a strong foundation in programming concepts, application design, project management, and software engineering practices. These courses were essential in preparing the team to develop a mobile application using **React Native**, integrate AI features, and manage both the user and service provider sides effectively.

Chapter III

3. Literature Review

Mobile applications that connect users with service providers have become increasingly important in today's fast-paced world. One of the most well-known examples is TaskRabbit, a platform that allows users to hire local workers for various tasks such as cleaning, repairs, or furniture assembly. It demonstrates how digital platforms can make it easier for people to find reliable help quickly, while also providing workers with income opportunities [1].

Another real example is Handy, which focuses primarily on home services like cleaning and maintenance. Handy provides a simple interface for booking services, tracking, and payment processing [2]. Both TaskRabbit and Handy highlight the challenges of request management and secure transactions.

The ServLink project builds upon these ideas by creating a unified platform using modern technologies. Specifically, it utilizes React Native for cross-platform mobile development [3] and AI APIs to provide smart solutions [4]. By analyzing these existing applications, it becomes clear that ServLink can address gaps in service availability and communication

Chapter IV

4. Methodology

4.1 System Overview:

ServLink is a mobile-first application designed to simplify the connection between customers and trusted local service providers across diverse fields. The system is built on a modern technology stack leveraging **React Native & Expo** for mobile accessibility, **React** for web administration, **Groq SDK** for AI-driven features to enhance matching and reporting, and **Node.js** and **MySQL** for server side.

The platform operates through three primary role players:

Customer (User): Individuals who search and filter for local services, book appointments through a seamless flow with secure payments and receive AI-driven personalized recommendations based on their interests and history.

- **Service Provider:** Professionals who register with certifications to offer their expertise. They manage their own availability calendars, track earnings through a dedicated dashboard, and utilize AI performance insights to optimize and grow their business.

- **Administrator:** The central controller who manages all accounts, approves provider registrations, and oversees financial operations. Admins also resolve disputes and use AI analyst tools to generate comprehensive reports on platform metrics and revenue trends

4.2 System Architecture:

The architecture of the **ServLink** system is designed to ensure smooth interaction between users, service providers, and administrators while maintaining system reliability and performance. The system is structured in layers that work together to handle user requests, data processing, and service execution efficiently.

At the user level, interactions begin through the mobile application or the admin web interface, where requests such as service booking, account management, or payment actions are initiated. These requests are then sent to the server, which acts as the central control unit of the system. The server processes each request, applies the required logic, verifies permissions, and determines the appropriate response.

Data is stored and retrieved from a centralized database that maintains consistency and integrity across all system operations. When actions such as payments or notifications are required, the system communicates with external services to complete these tasks and then updates the system state accordingly. AI-related requests are handled separately to enhance decision-making and user interaction without affecting the core system flow.

This architectural approach ensures clear separation of responsibilities, reliable data flow, and flexibility for future system enhancements while supporting multiple user roles and platforms efficiently.

And this figure shows the Architecture:

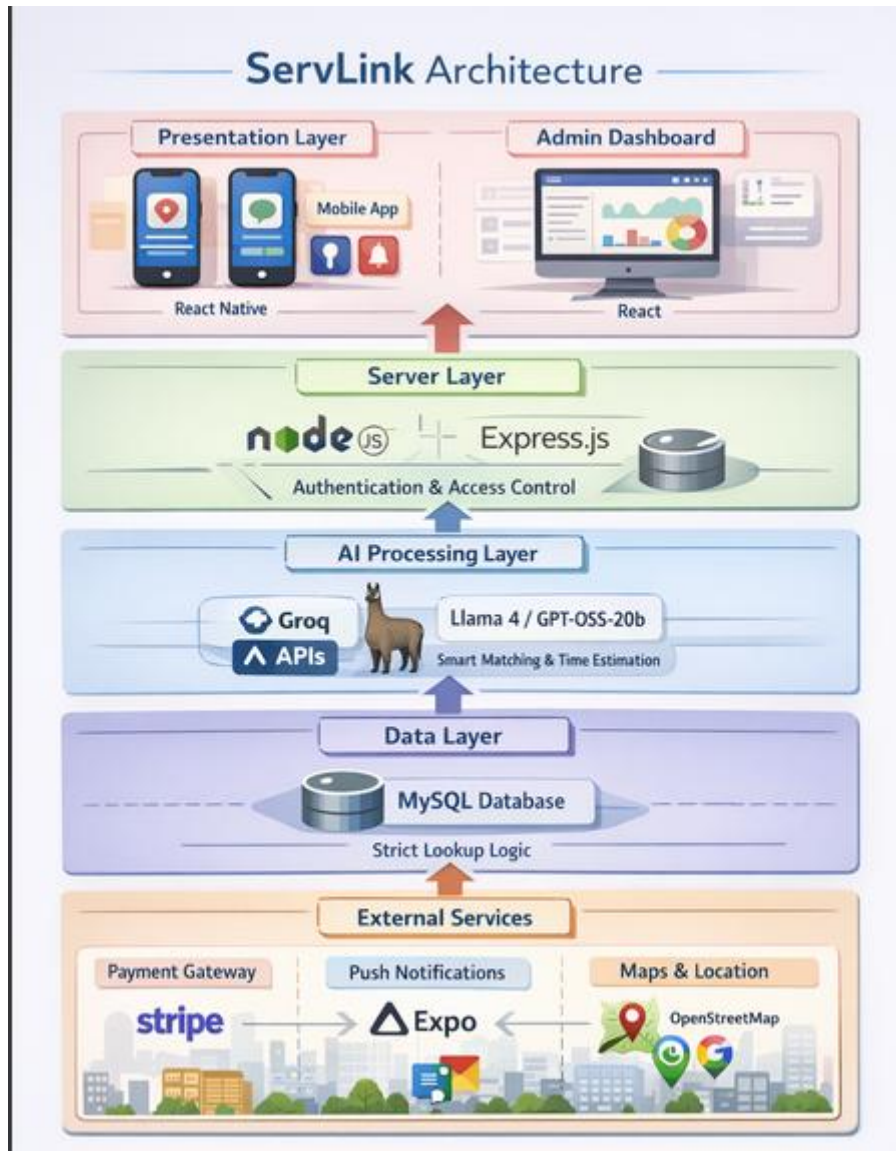


Figure 1: System Architecture

4.3 System Features:

4.3.1 Mobile Application:

The **ServLink mobile application** is designed to provide an easy and user-friendly experience for all system roles, including users, service providers, and administrators. The application allows seamless interaction with the system through a clear interface that supports service browsing, booking, communication, and management. By using a single mobile application for all roles, ServLink ensures consistency, accessibility, and efficient handling of different tasks.

4.3.1.1 Authentication (Login & Sign-Up):

The mobile application provides a secure login and sign-up system for all roles. Users register by entering basic information such as name, phone number, address, and interests, while service providers add additional details related to their work field and availability. This process ensures secure access and accurate role-based functionality within the application.

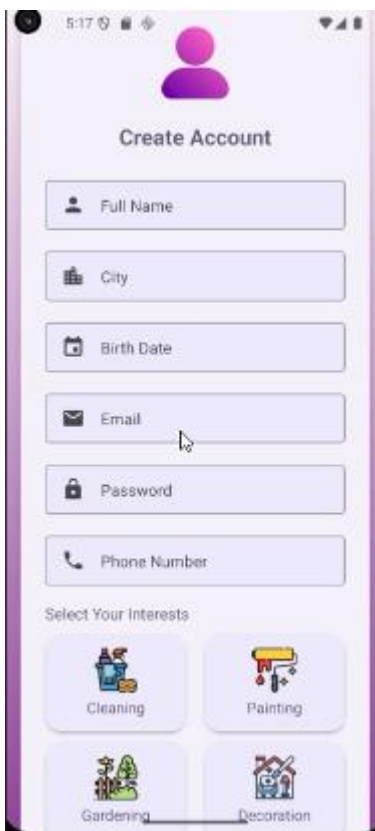


Figure 4 : Sign up Page

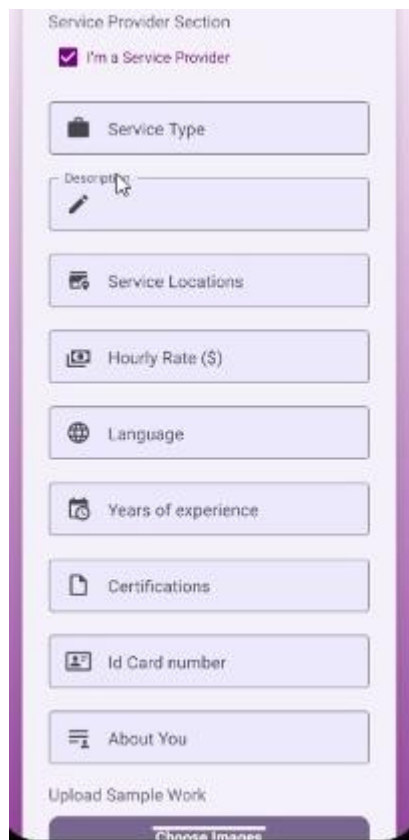


Figure 3: Sign up Page

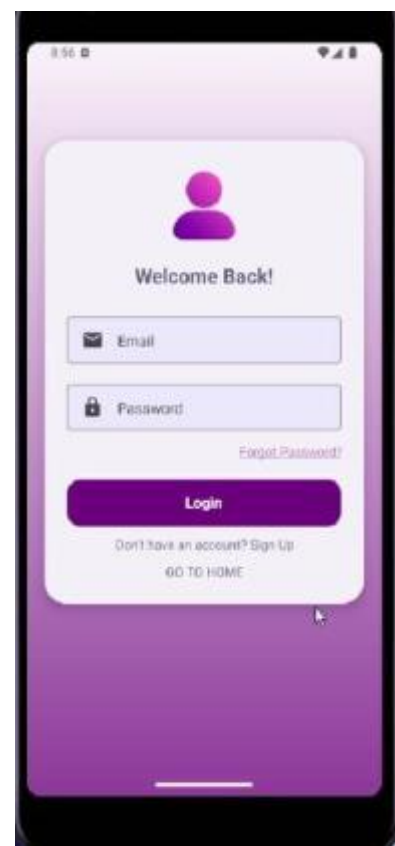


Figure 2: Login Page

4.3.1.2 User Role Features:

4.3.1.2.1 Service Discovery and Home Features:

The ServLink mobile application home interface is designed to provide users with a clear and organized overview of all available services. It displays service categories, recommended services based on user preferences, and ongoing offers or promotions. These features help users quickly explore options, discover relevant services, and benefit from special deals, ensuring a smooth and engaging experience from the moment the application is opened.

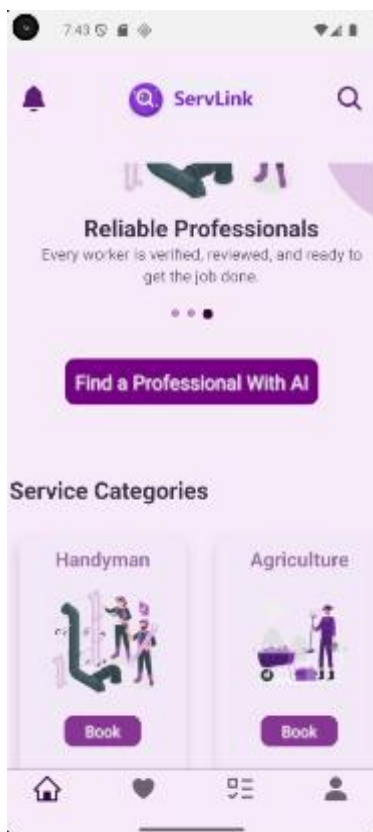


Figure 7: Home Page



Figure 5: Home Page



Figure 6: Home Page

4.3.1.2.2 Service Categorization and Provider Browsing:

The application allows users to browse services through well-structured categories. Each category contains a complete list of available services along with their associated service providers. Users can view provider profiles, ratings, and feedback from previous customers, enabling easy comparison between providers. This feature supports informed decision-making and helps users efficiently select the most suitable service provider.



Figure 9: Category Page

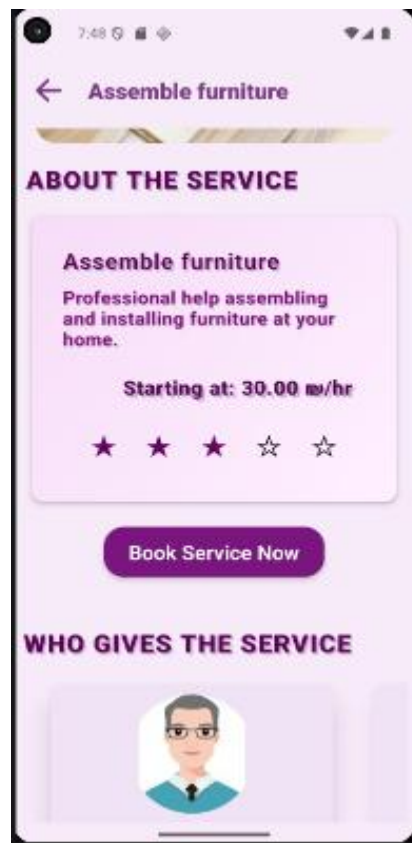


Figure 8: Service Page

4.3.1.2.3 Booking page:

The booking feature enables users to schedule services in a flexible and efficient manner. Users begin by selecting their service location using an interactive map, followed by answering service-specific questions. Based on this information, the AI system provides an estimated service duration and cost, which may vary depending on the actual service conditions.

Users can then review available service providers, including their profiles, portfolios, and hourly rates, before selecting a preferred provider. The booking process is completed by choosing a suitable date and time and selecting a payment method, either cash or credit card. Credit card payments are securely processed using Stripe [6].



Figure 10: Map Page



Figure 12: Questions Page

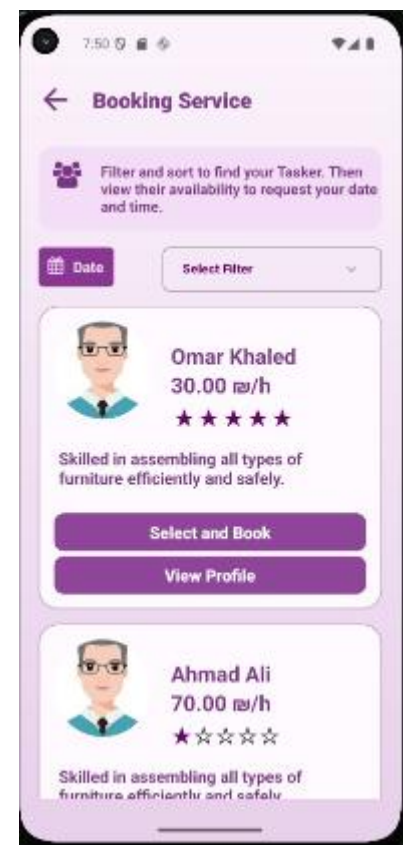


Figure 11: Providers of selected service

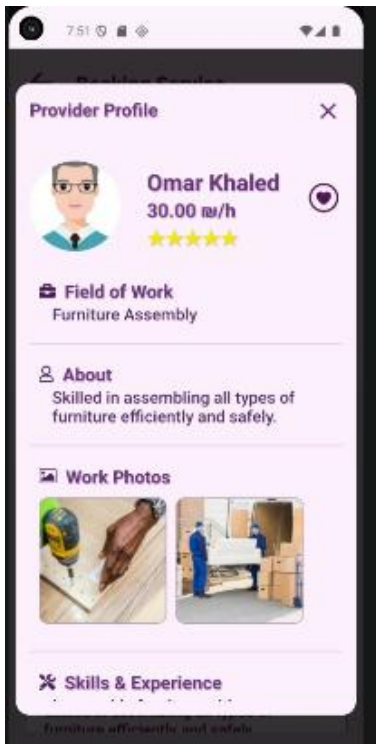


Figure 13: Provider Page

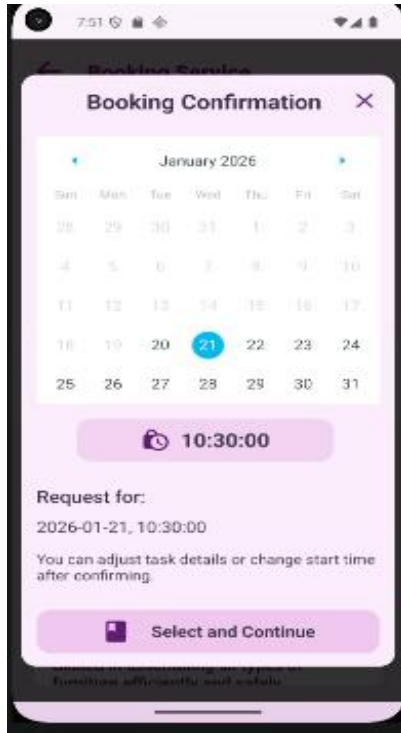


Figure 14: Date and Time for booking

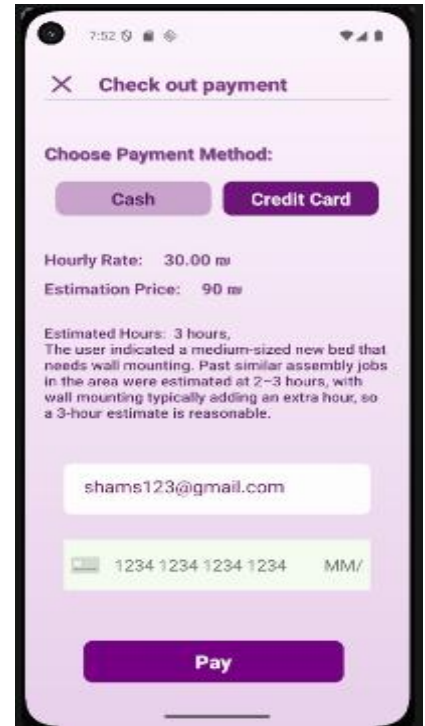


Figure 15: Payment Page

Additionally, users can request a service by submitting a detailed description, defining a price range, and specifying preferred dates and times. The AI system analyzes availability, expertise, and user feedback to recommend the most appropriate service provider, simplifying the decision process.

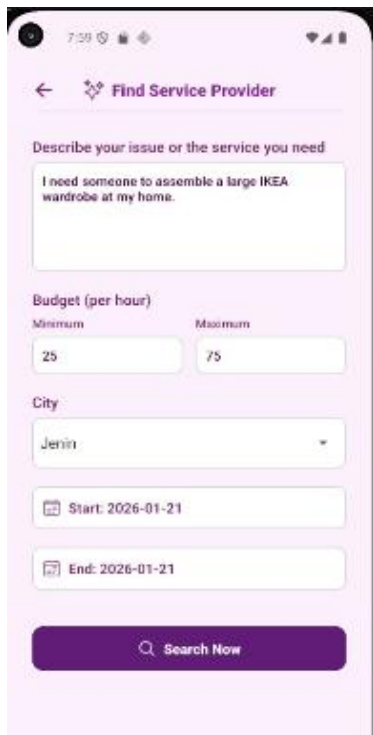


Figure 16: Auto Booking Page



Figure 18: Auto Booking Page

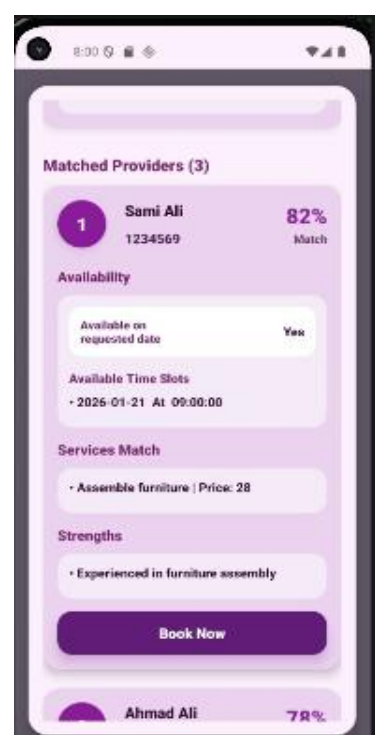


Figure 17: Auto Booking Page

4.3.1.2.4 Intelligent Search and Filtering:

The application includes an intelligent search feature accessible from the home page. It utilizes the Fuse.js library to provide flexible and accurate search functionality. Users can search using service names, categories, descriptions, or service provider names. The system is tolerant of typographical errors, ensuring relevant results are returned even with minor spelling mistakes, which significantly improves usability.

Search results are presented in a card-based layout. Selecting a service card directs the user to the service booking page, while selecting a provider's name opens the provider's profile page. Provider profiles display offered services, service locations, hourly rates, ratings, and a gallery of previous work, allowing users to explore options thoroughly before booking.

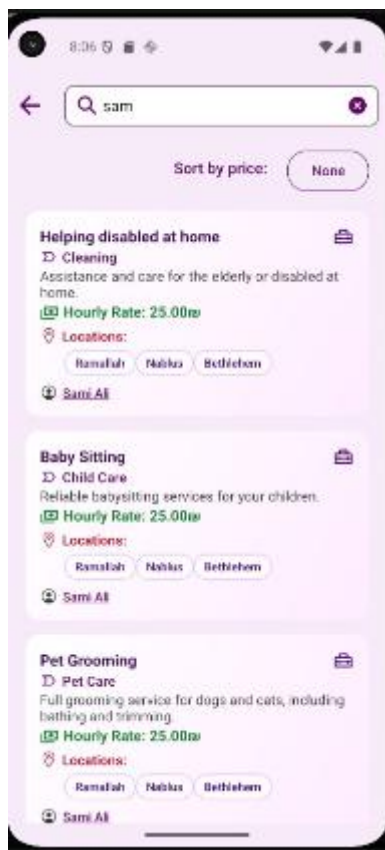


Figure 19: Search Page

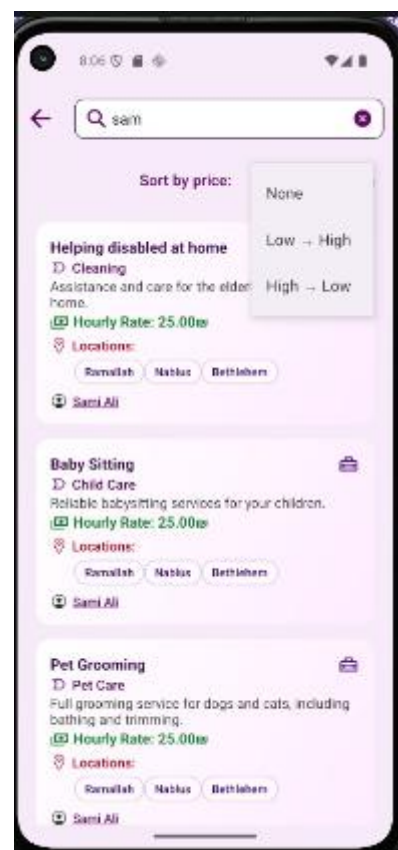


Figure 20 : Search Page

4.3.1.2.5 User Dashboard and Account Management:

Favorites Feature:

Users can add service providers to their favorites by clicking the heart icon on the provider's profile page. This feature allows users to quickly access and view their preferred providers for future bookings, making it easier to find trusted services without searching again.

Booking Management:

The dashboard provides a complete overview of user bookings, categorized into Pending, Completed, and Cancelled. Users are allowed to modify or cancel bookings up to 24 hours before the scheduled service. Once a service is completed, users can submit ratings and feedback, contributing to service quality and transparency.

Profile and Support Features:

Users can manage their personal accounts through the profile section, where they can update personal details, change passwords, and access their inbox. The application also includes a Contact Us feature for communication with administrators, as well as a Frequently Asked Questions (FAQ) page that provides answers to common inquiries, enhancing overall user support.

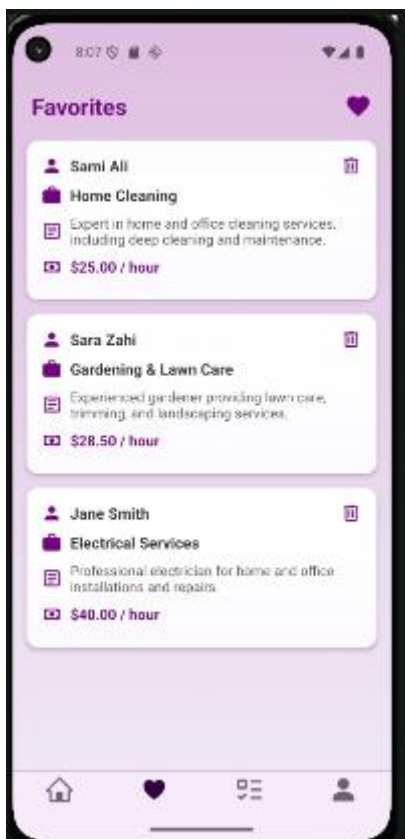


Figure 23: Favorites Page

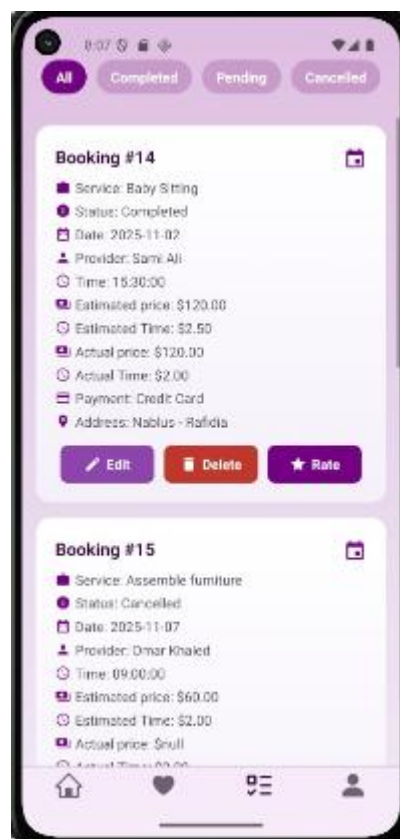


Figure 22: Bookings Page



Figure 21: Profile Page



Figure 28: Edit Profile Page



Figure 27: Change Password Page

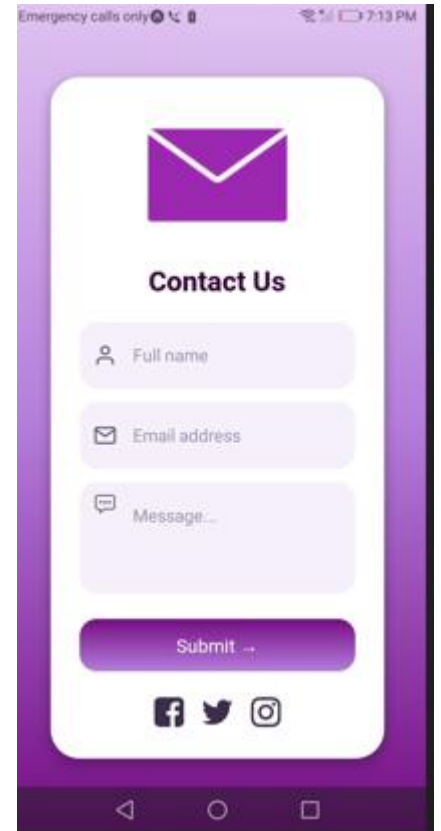


Figure 26: Contact us Page

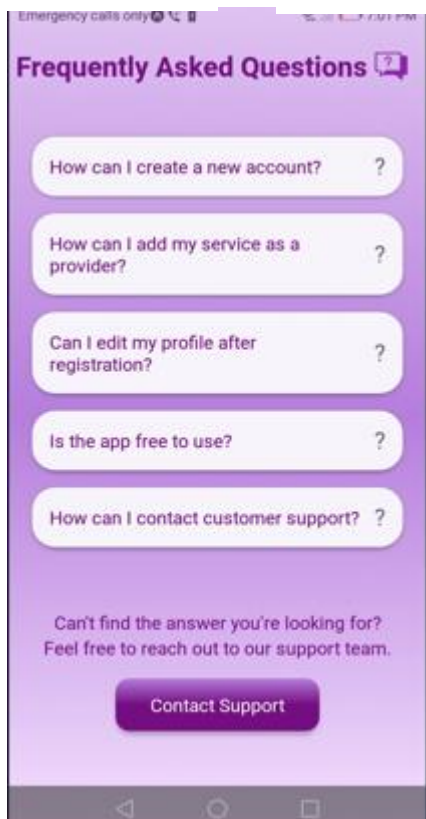


Figure 25: FAQ Page

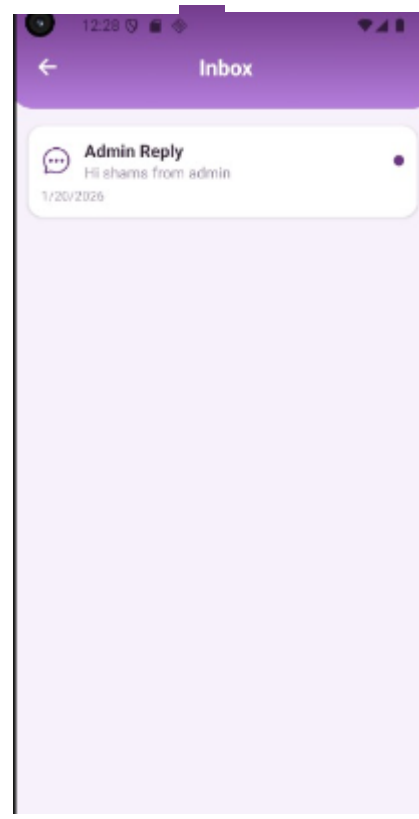


Figure 24: Inbox page

4.3.1.3 Admin Role Features:

4.3.1.3.1 System Monitoring and Administrative Dashboard:

The administrative dashboard provides a centralized overview of the system's activity and performance. It displays key statistics such as the total number of registered users, service providers, bookings, services, and categories. These indicators enable administrators to monitor system usage, track growth, analyze service demand, and identify overall trends. By presenting essential information in a single interface, the dashboard supports informed decision-making and helps improve both system performance and user experience.

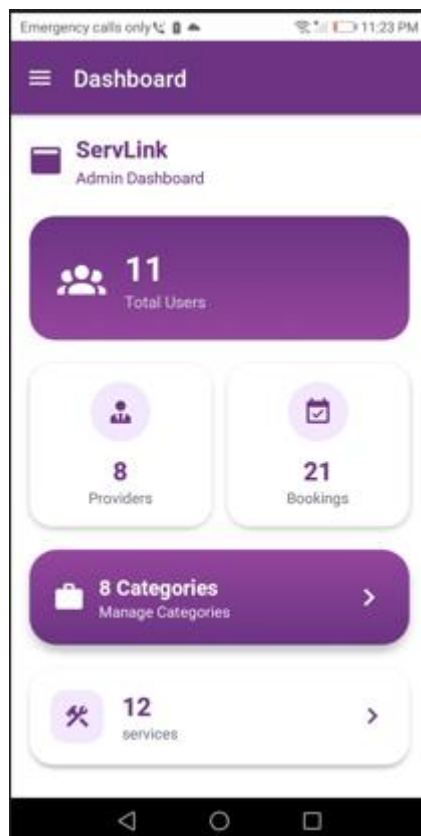


Figure 29: Admin Dashboard

4.3.1.3.2 Category Management:

The category management feature allows administrators to view, search, add, and edit service categories within the system. It provides an organized and user-friendly interface that ensures categories remain accurate and up to date. Proper category management helps maintain a clear service structure, improves service discoverability for users, and reduces confusion during browsing and booking. This feature also supports system scalability by allowing the addition of new categories as the platform expands and new service types are introduced.

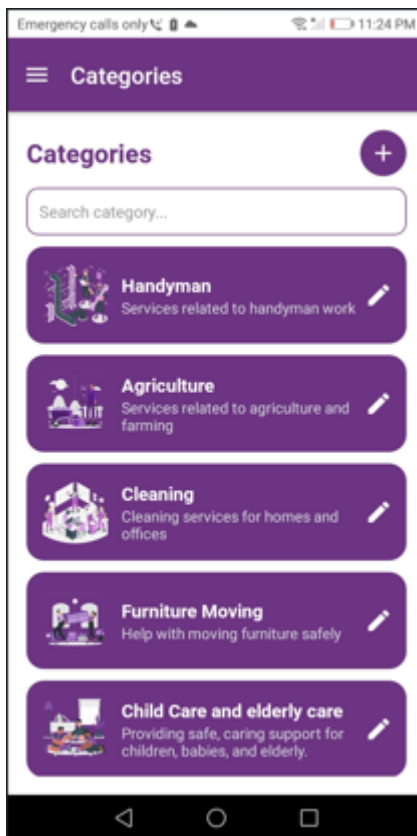


Figure 31: Categories Page

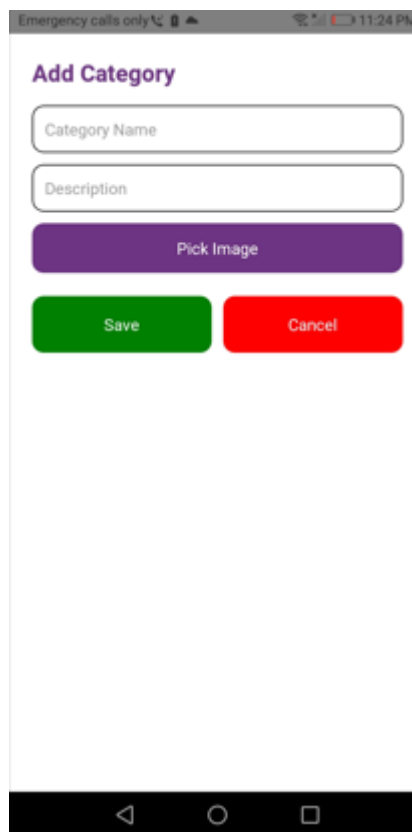


Figure 32 : Categories Page

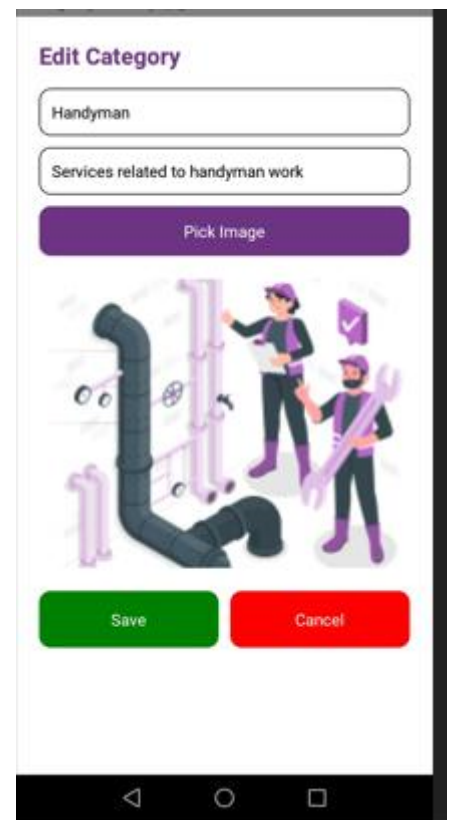


Figure 30: Categories Page

4.3.1.3.3 Service Monitoring:

The service monitoring feature allows administrators to view all services available on the platform for review and oversight purposes only. Each service is displayed with its associated category, price, and description, giving administrators a comprehensive overview of the services offered. Administrators are not permitted to add or edit services, as these actions are restricted to service providers. This role-based access control ensures data integrity and maintains accurate service information within the system.



Figure 34: Services Page

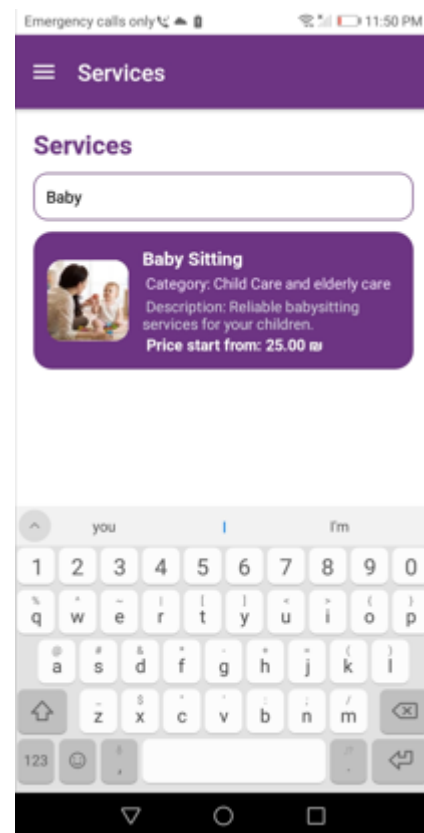


Figure 33: Services Page

4.3.1.3.4 Users and Service Providers Management:

User Management:

Administrators can manage registered users by viewing essential information such as email address, location, and booking history. In cases of misuse or violation of platform policies, administrators have the authority to block or suspend user accounts. This functionality helps ensure a safe, fair, and reliable environment for all platform users.

Service Provider Management:

The service provider management feature allows administrators to view detailed provider information, including contact details, years of experience, profile description, offered services, and total bookings. Administrators can suspend or disable provider accounts when multiple complaints or policy violations are reported. This feature plays a critical role in maintaining service quality, accountability, and trust within the platform.

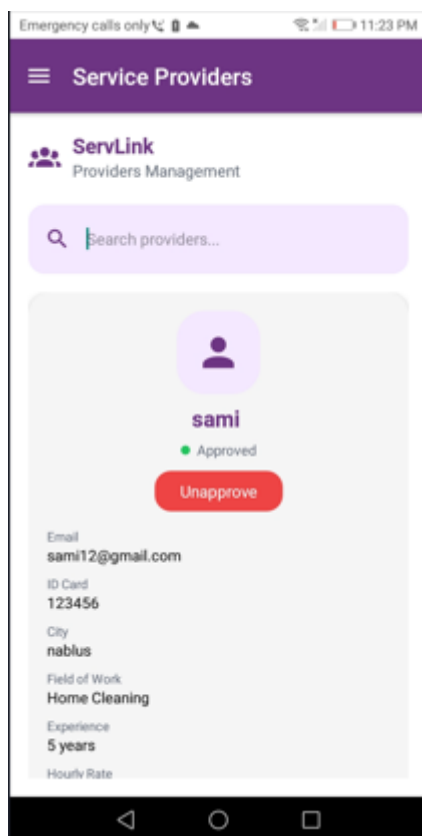


Figure 36: Providers Management Page

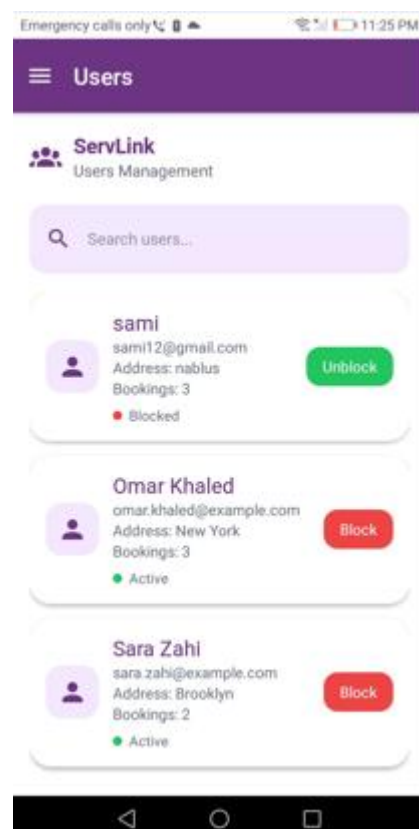


Figure 35: Users Management Page

4.3.1.2.5 Communication and Message Handling:

The messaging feature enables administrators to view and respond to all inquiries, feedback, and messages submitted through the Contact Us page. Centralizing all communication in one interface allows administrators to manage support requests efficiently, respond promptly, and improve overall user satisfaction. This feature strengthens communication between users and the platform administration.

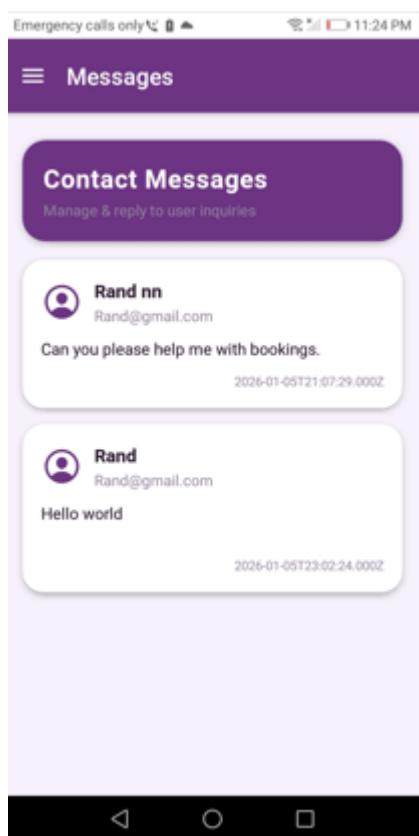


Figure 37: Messages Page

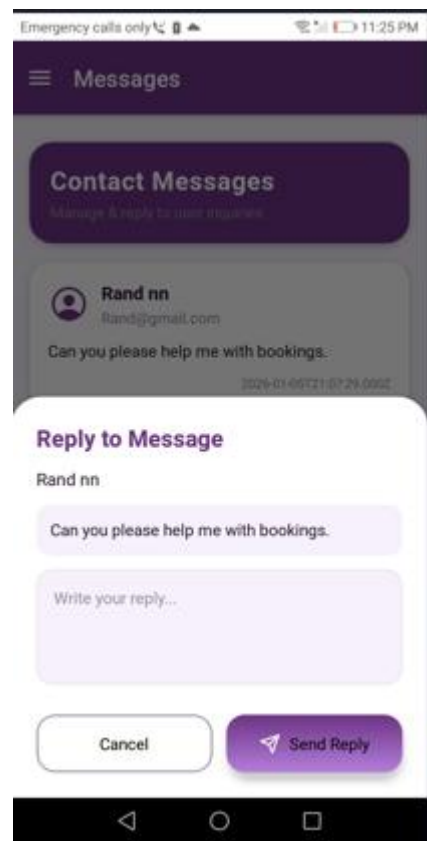


Figure 38: Messages Page

4.3.1.2.5 Admin Account Management and Permissions:

The admin management feature allows viewing all administrator accounts within the system. Regular administrators have read-only access to the admin list, while the Super Admin has extended privileges, including adding new administrators and removing existing ones. Additionally, all administrators can manage their own profiles by updating personal information and changing passwords. This ensures secure personal account management while maintaining strict control over administrative permissions.

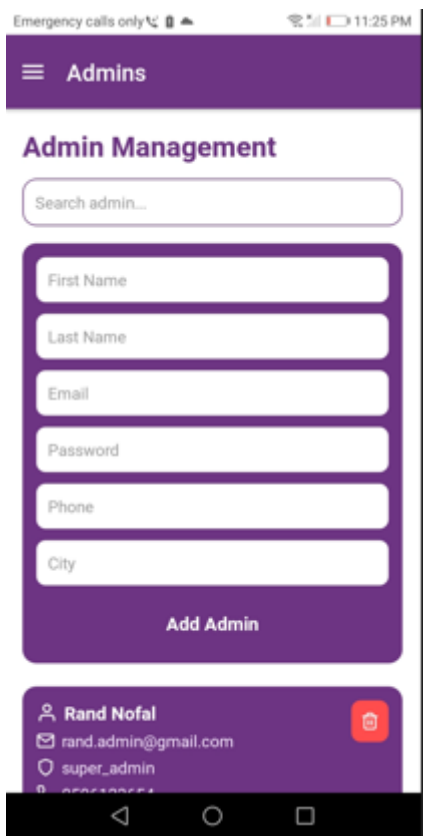


Figure 41: Admin Management Page

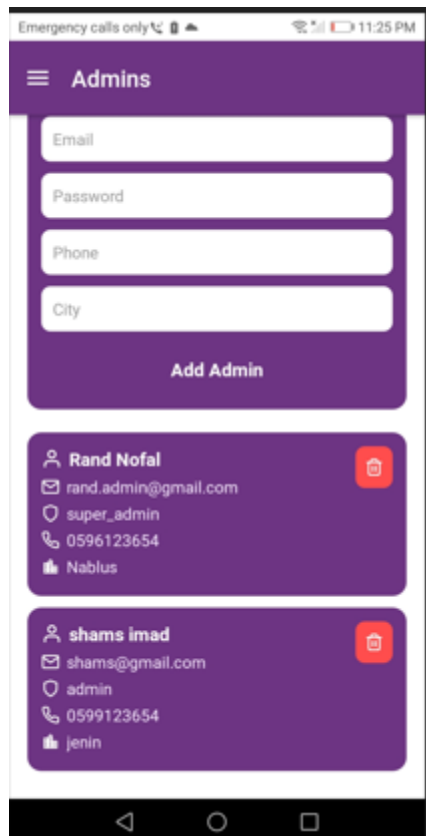


Figure 40: : Admin Management Page

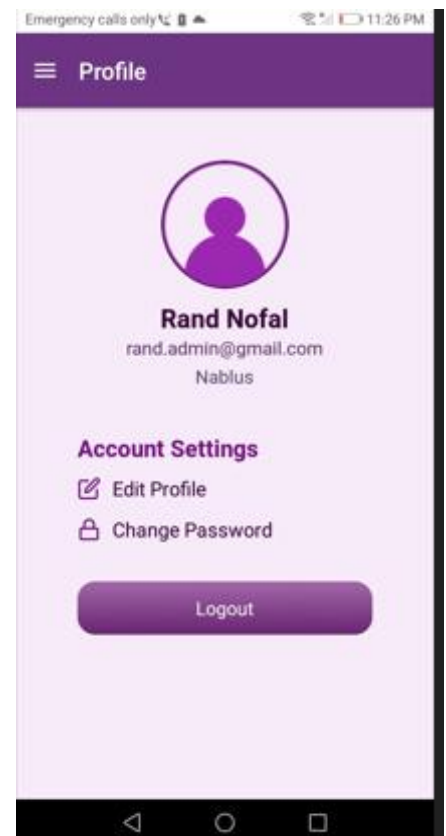


Figure 39: : Admin Management Page

4.3.1.4 Provider Role Features:

4.3.1.4.1 Performance Monitoring and AI Assistance:

The system provides service providers with a performance monitoring feature that offers a comprehensive overview of their activity on the platform. It displays key indicators such as the number of completed bookings, cancelled bookings, total earnings, and the overall rating received from users. These metrics allow providers to track their progress, evaluate their performance over time, and identify areas that require improvement.

In addition, the platform includes an “**Enhance My Work with AI**” feature. This feature analyzes the provider’s profile data, offered services, working hours, and historical performance, then generates personalized recommendations. The AI focuses on identifying strengths, weaknesses, and optimization opportunities related to service quality and scheduling, helping providers improve efficiency and overall performance on the platform.



Figure 44: Provider Dashboard

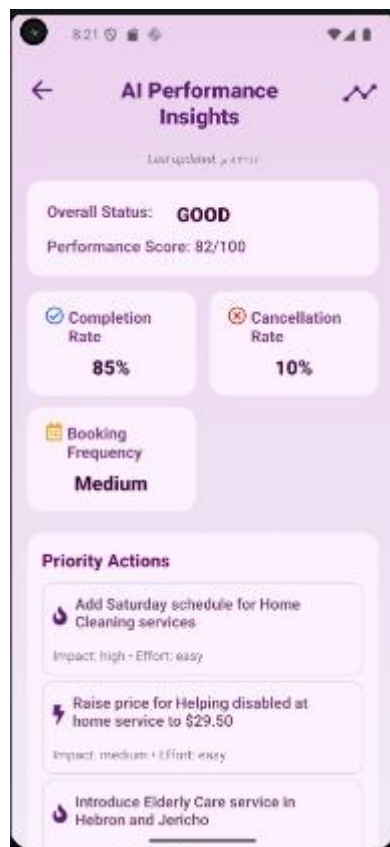


Figure 43: Provider Dashboard

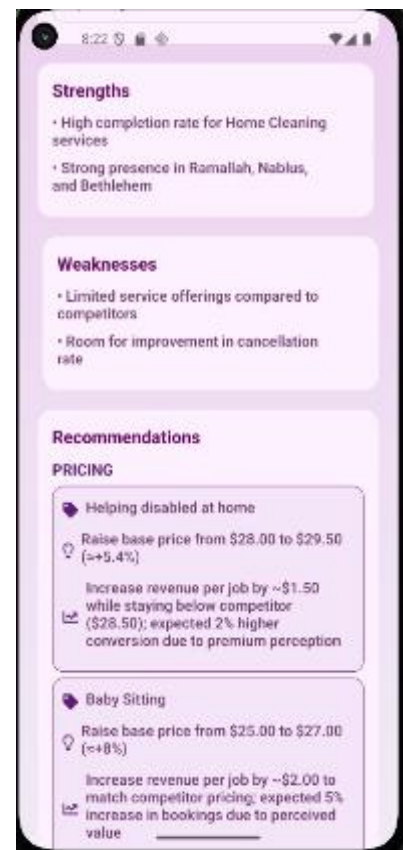


Figure 42: Provider Dashboard

4.3.1.4.2 Service Management and AI Content Support:

The service management feature allows providers to add, edit, and delete their services independently. Providers can manage essential service details such as descriptions, pricing, and related booking information. To support service quality and clarity, the system integrates AI-based suggestions that assist in generating or improving service descriptions and booking-related questions. This feature enhances communication with users, improves service presentation, and contributes to a smoother booking experience.



Figure 45: Provider Services Page



Figure 47: Provider Services Page

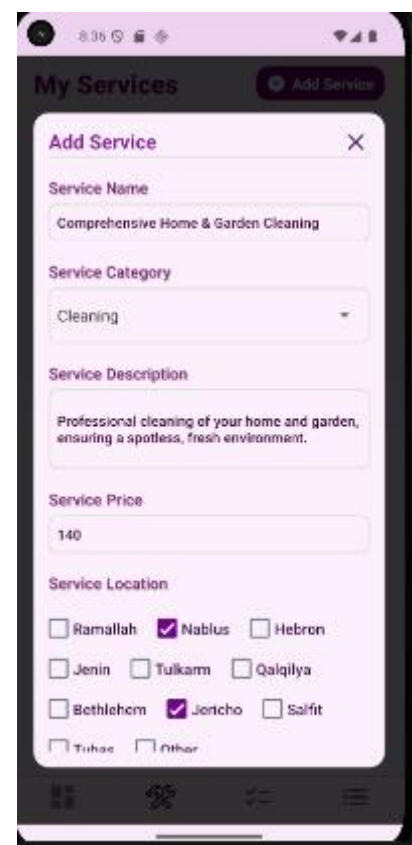


Figure 46: Provider Services Page

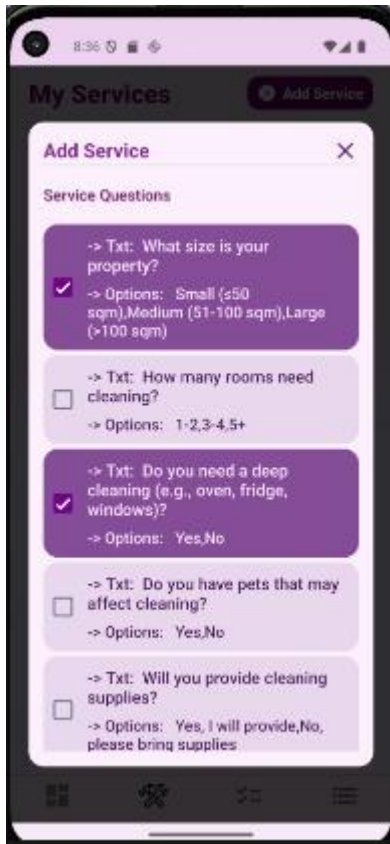


Figure 49: Provider Services Page

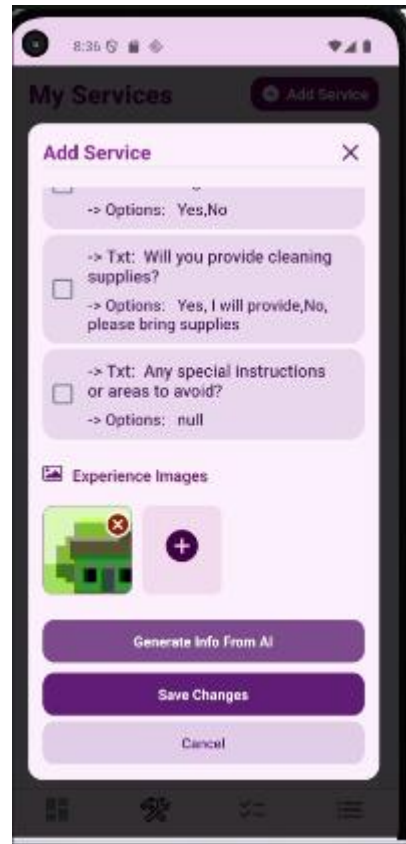


Figure 48: Provider Services Page

The screenshots above demonstrate the **Services Page** functionality, showing how service providers can add, edit, and manage their services. The images highlight the service details, booking-related questions, and the use of AI suggestions, providing a clear visual representation of how providers control and enhance their service offerings.

4.3.1.4.3 Booking Tracking and Service Execution:

The platform offers a booking tracking feature through a calendar-based interface, enabling providers to view and manage all scheduled bookings. Each booking includes detailed information such as date and time, service location, estimated duration, expected price, booking status, and payment method.

When a service begins, providers can activate a built-in timer to track the actual service duration. The timer supports start, pause, resume, and reset actions. Upon service completion, the system calculates the final duration and price. Payment handling is processed automatically: for cash payments, 20% of the total amount is recorded as a debt to the application, while for online or card payments, 80% of the total amount is transferred directly to the provider's wallet. The final service details are then sent to the user via a notification, allowing the user to review the information and submit an objection if necessary.

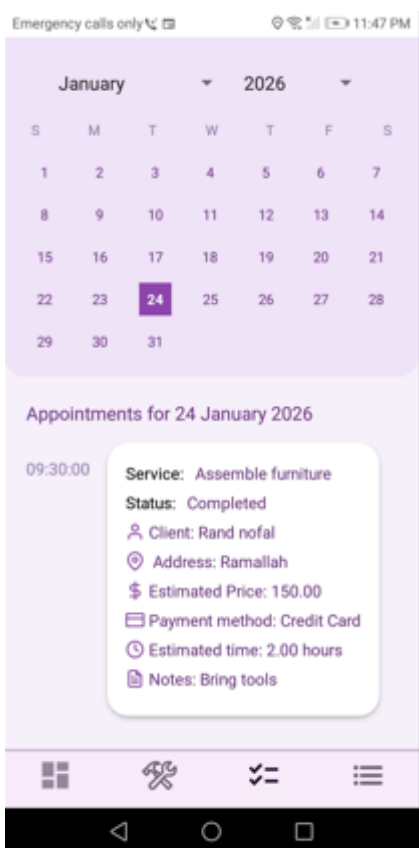


Figure 50: Calendar Page

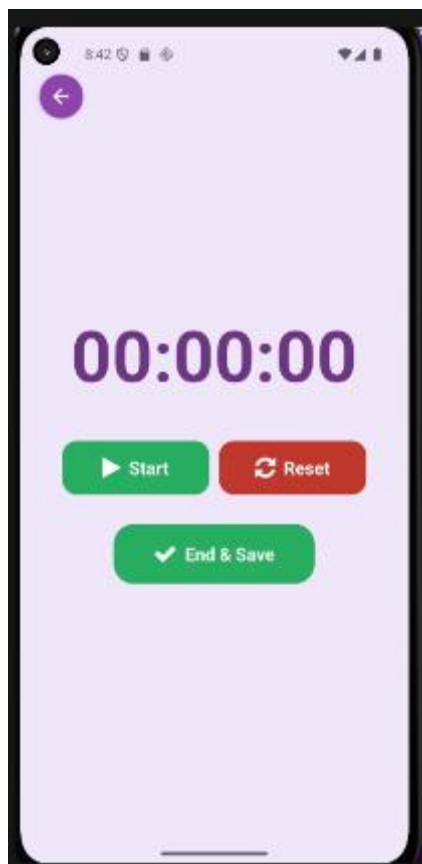


Figure 51: Timer Page

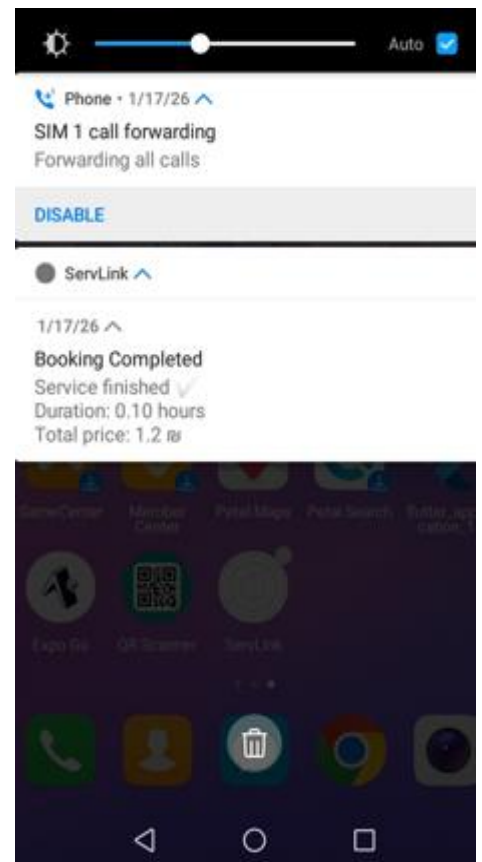


Figure 52: Notifications

4.3.1.4.4 Availability and Schedule Management:

The availability management feature allows service providers to define and control their working schedules. Providers can set daily working hours, modify availability, and mark specific dates as unavailable due to holidays or personal time off. This feature ensures that bookings are accepted only during available periods, reducing scheduling conflicts and improving service reliability.



Figure 53: Scheduling Page

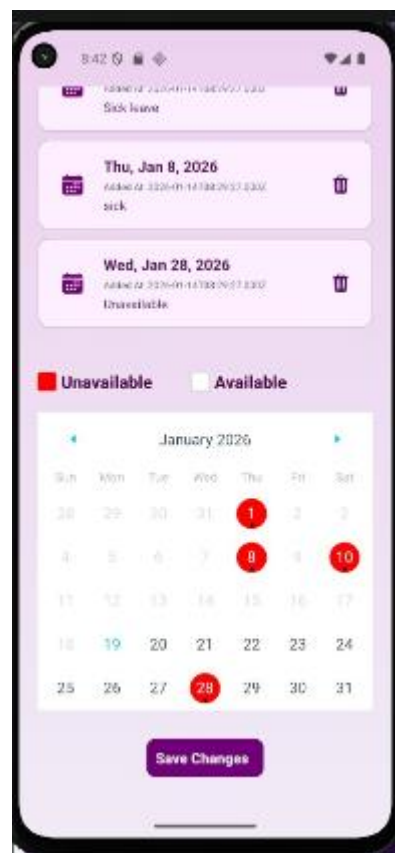


Figure 54: Scheduling Page

4.3.1.4.5 Booking Review and Approval:

The booking review feature enables providers to manage incoming booking requests before confirmation. Providers can view full booking details, including service descriptions, user responses to booking questions, service location, date and time, estimated duration, and expected price. Based on this information, providers can approve or reject bookings. This process ensures that accepted bookings align with provider availability, expertise, and working conditions, maintaining service quality and transparency.

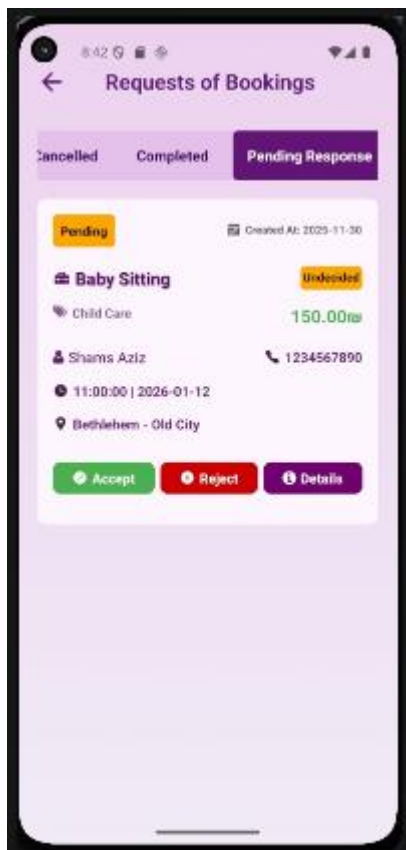


Figure 56: Booking Approval Page

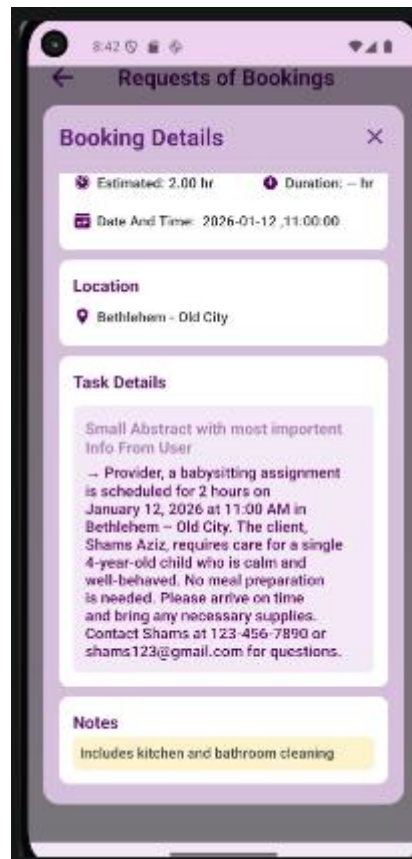


Figure 55: Booking Approval Page

4.3.1.4.6 Promotional Offers Management:

The system allows service providers to create and manage promotional offers for their services. Providers can define discounts or special prices, select the applicable service, and specify the validity period for each offer. These offers are displayed to users, helping providers increase visibility, attract more bookings, and boost engagement during targeted time periods.

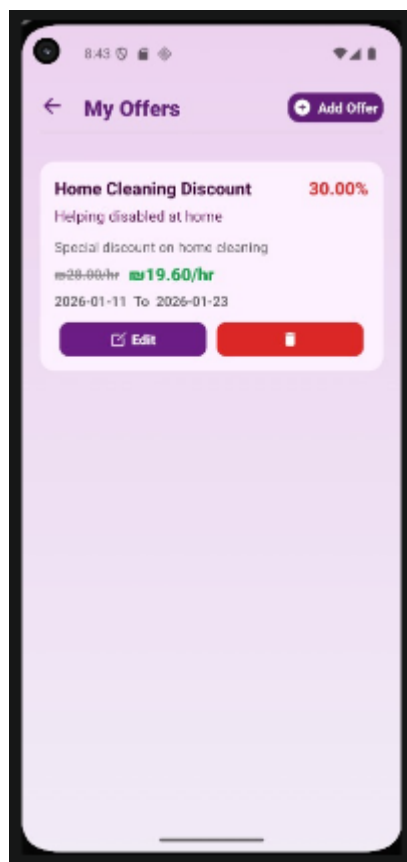


Figure 57: Offers Page

4.3.1.4.7 Booking Cancellation Control and Replacement:

Providers can cancel bookings when necessary; however, the system actively monitors cancellation behavior to maintain service reliability. If a provider exceeds a predefined cancellation threshold, their account is temporarily suspended.

When a booking is cancelled, the system automatically searches for an alternative provider based on location, availability, and a similar price range. The user is then notified with updated booking details, ensuring continuity of service and minimizing inconvenience.

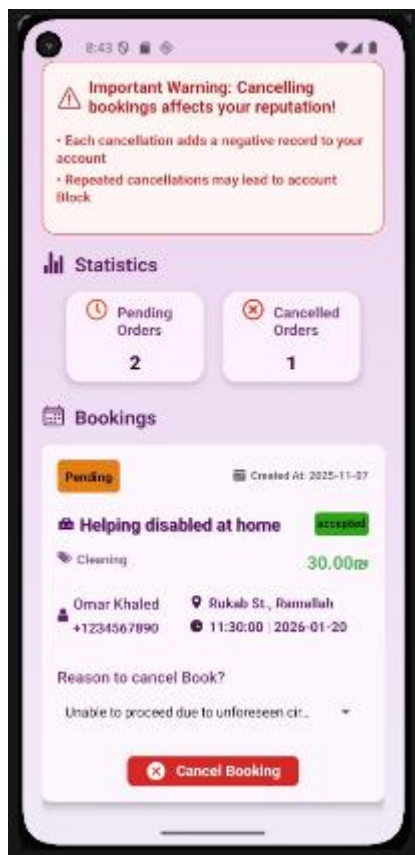


Figure 59: Cancelled Bookings Page



Figure 58: Cancelled Bookings Page

4.3.1.4.8 Financial Management and Wallet System:

The financial management feature provides providers with a detailed overview of their earnings. It displays the current wallet balance, outstanding debts owed to the application. Providers can also settle their outstanding debts directly through this feature. This transparent financial system ensures clear tracking of income and obligations, supporting organized and secure financial management.

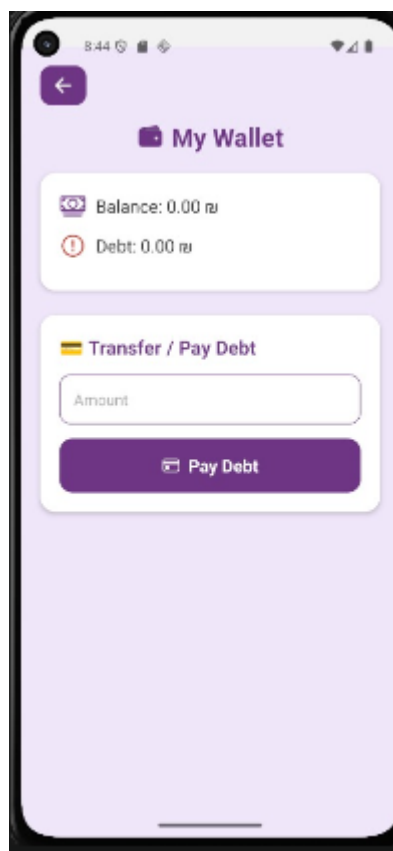


Figure 60: Wallet Page

4.3.2 Website:

The ServLink website is designed for administrators and provides all the features available in the mobile application under the admin role, with additional enhanced functionalities supported by AI. The web platform allows administrators to manage users, service providers, categories, services, bookings, and system settings through a larger and more detailed interface that improves efficiency and usability.

AI features are integrated to support smarter administration tasks. When adding a new category, the system can suggest suitable category names and descriptions using AI, and it can also assist in editing and improving existing category names and descriptions. In the dashboard, a dedicated AI analysis button allows administrators to analyze system statistics and automatically generate reports that include insights, recommendations, and improvement suggestions based on the number of users, providers, services, and bookings.

Additionally, the provider management page includes an AI-powered summary feature that generates a concise overview of a provider's profile and performance in two to three sentences instead of manually reviewing all details. In the messages section, AI is used to simplify and improve messages, correct spelling and grammar, and suggest automatic replies, helping administrators respond faster and more professionally.

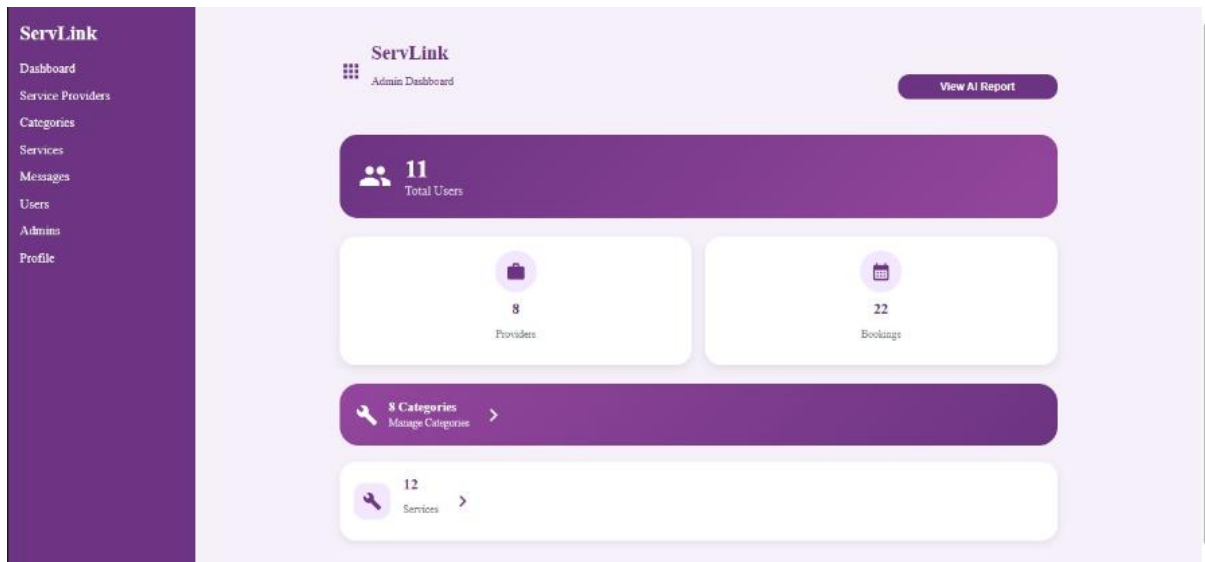


Figure 63: Website Dashboard

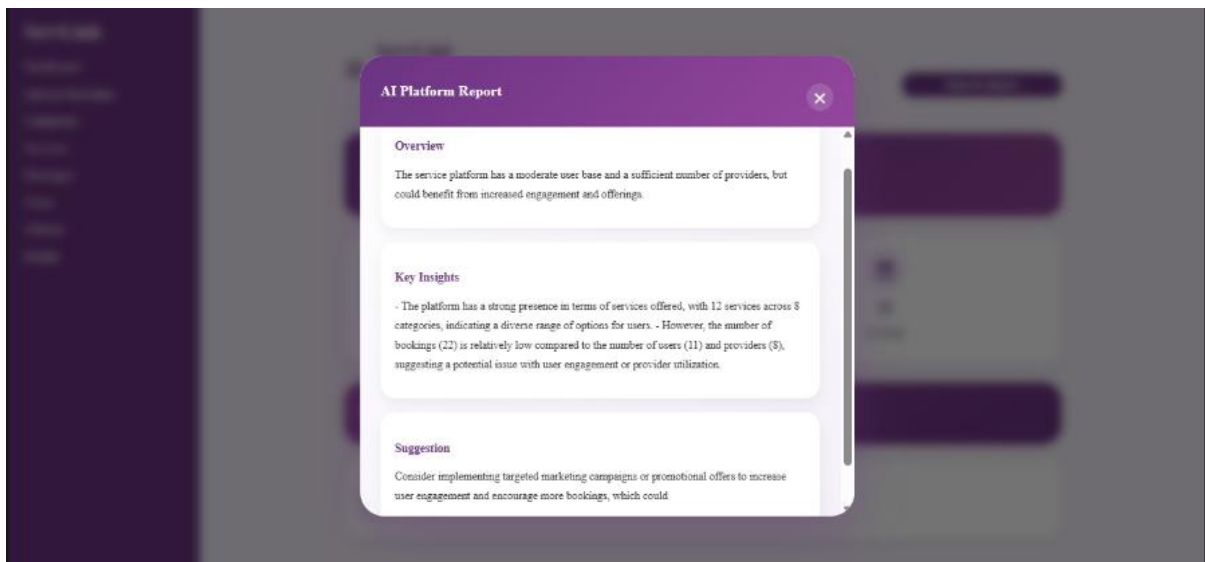


Figure 62: AI Report

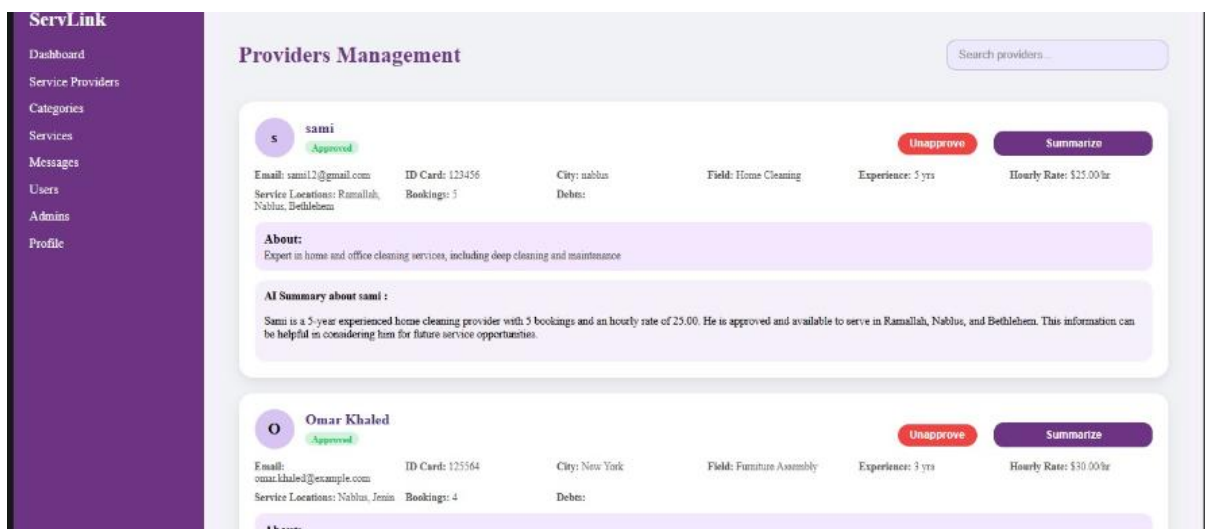


Figure 61: Providers Management page (Website)

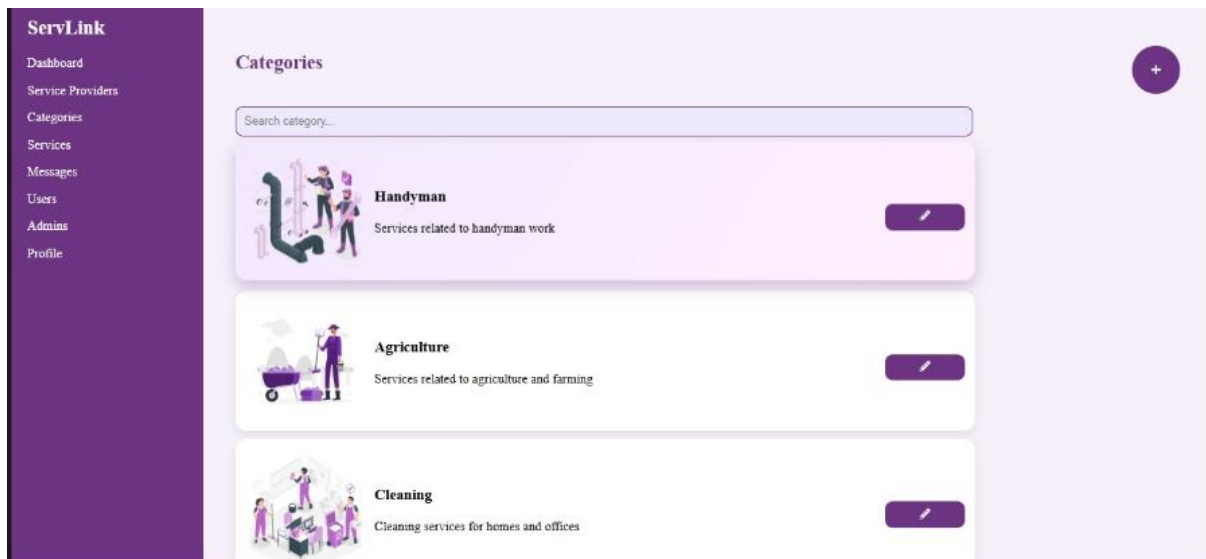


Figure 66: Categories Page (Website)

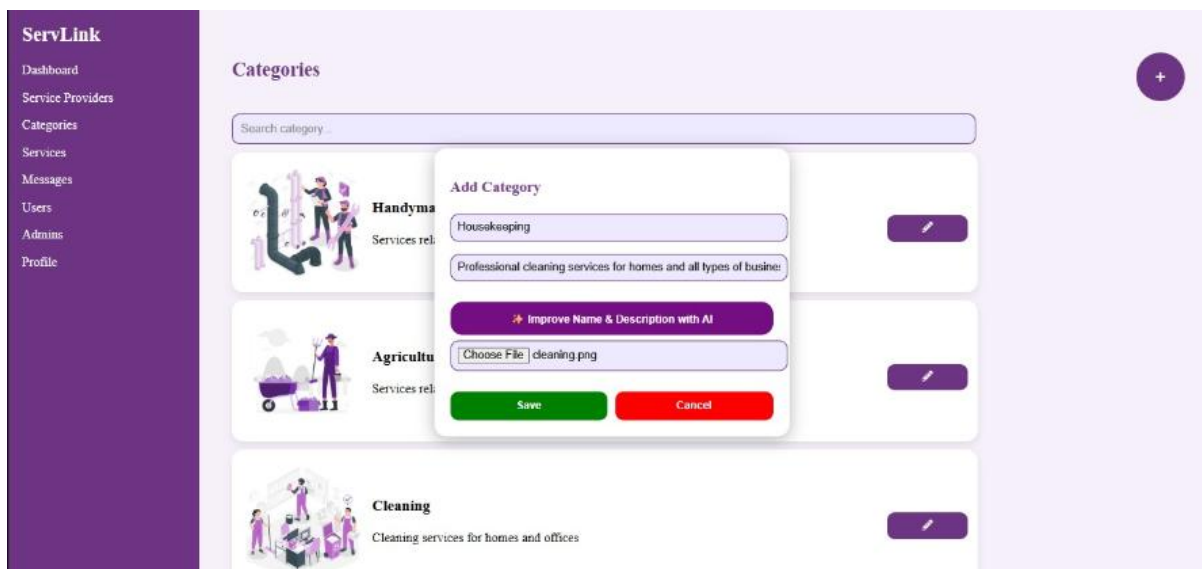


Figure 65: Categories Page (Website)

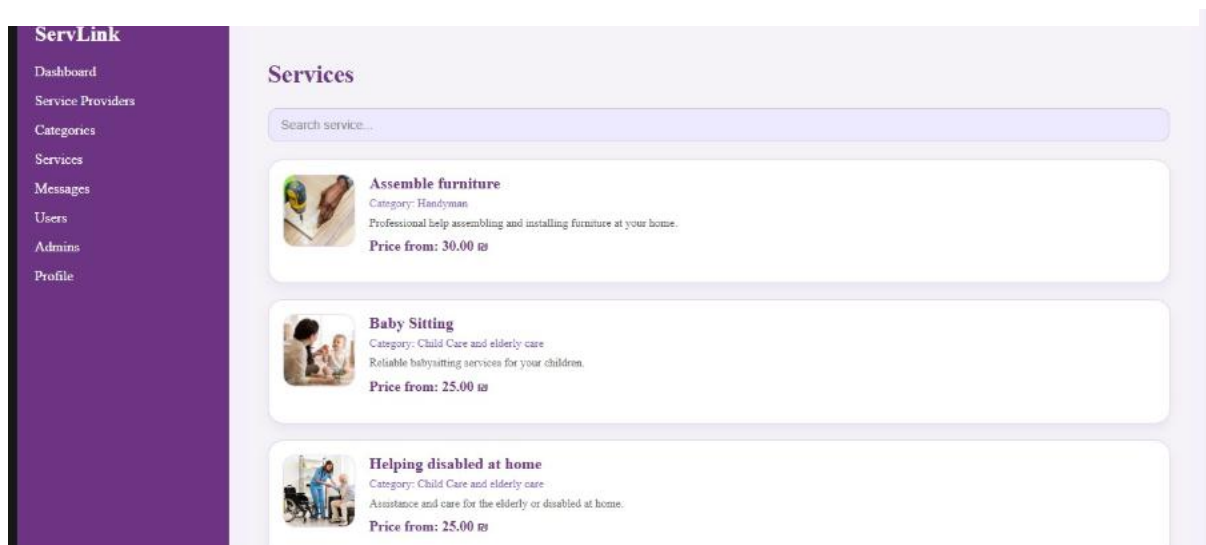


Figure 64: Services Page (Website)

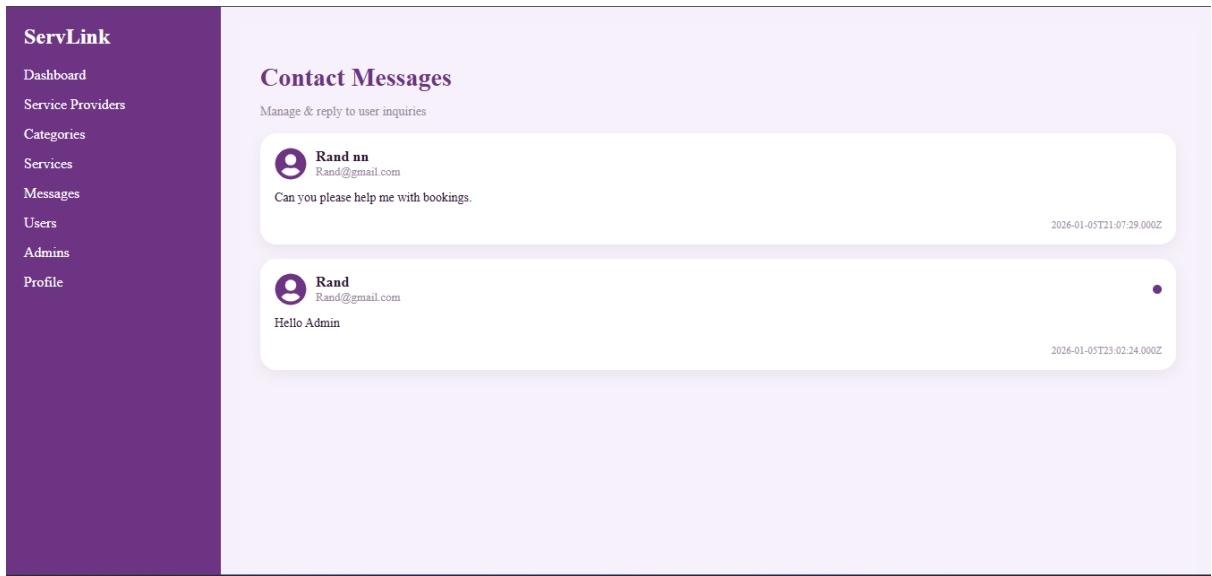


Figure 67: Messages Page (Website)

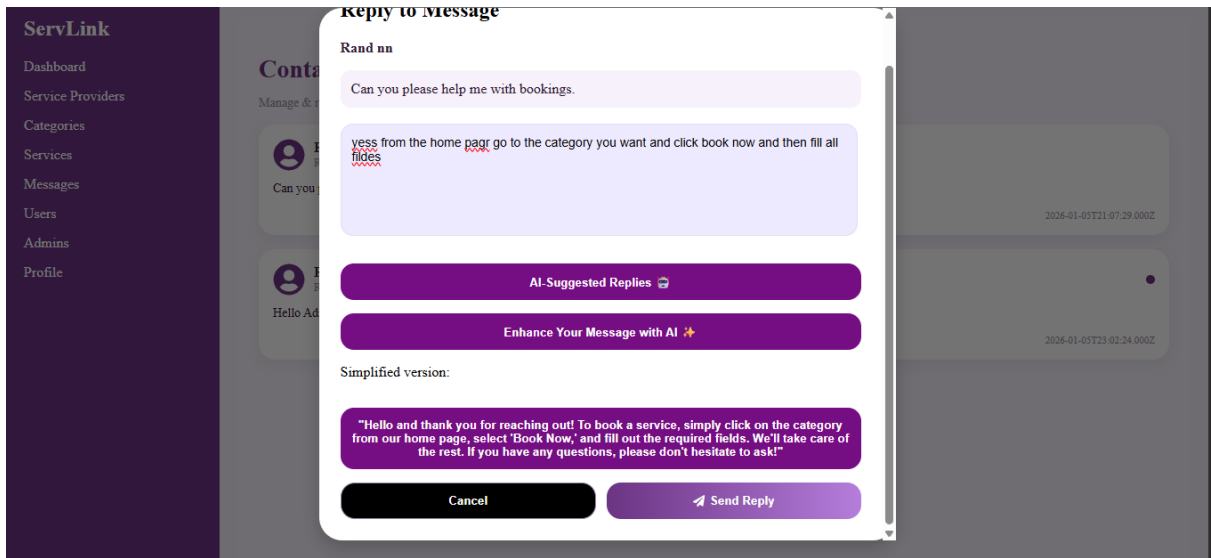


Figure 68: Enhance Message with AI

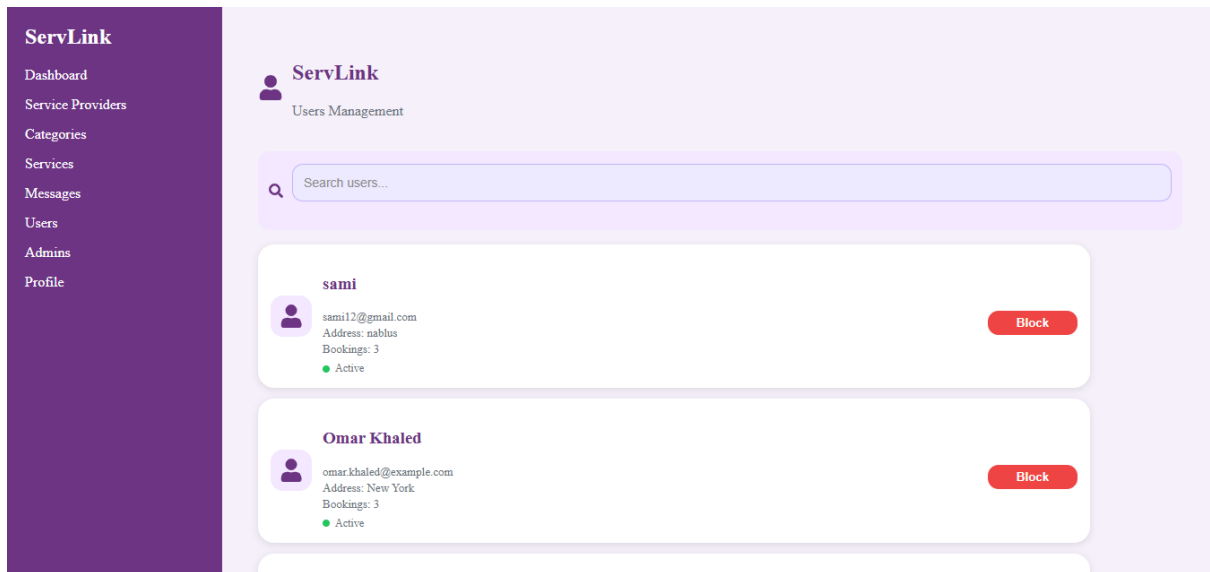


Figure 71: Users Management Page (Website)

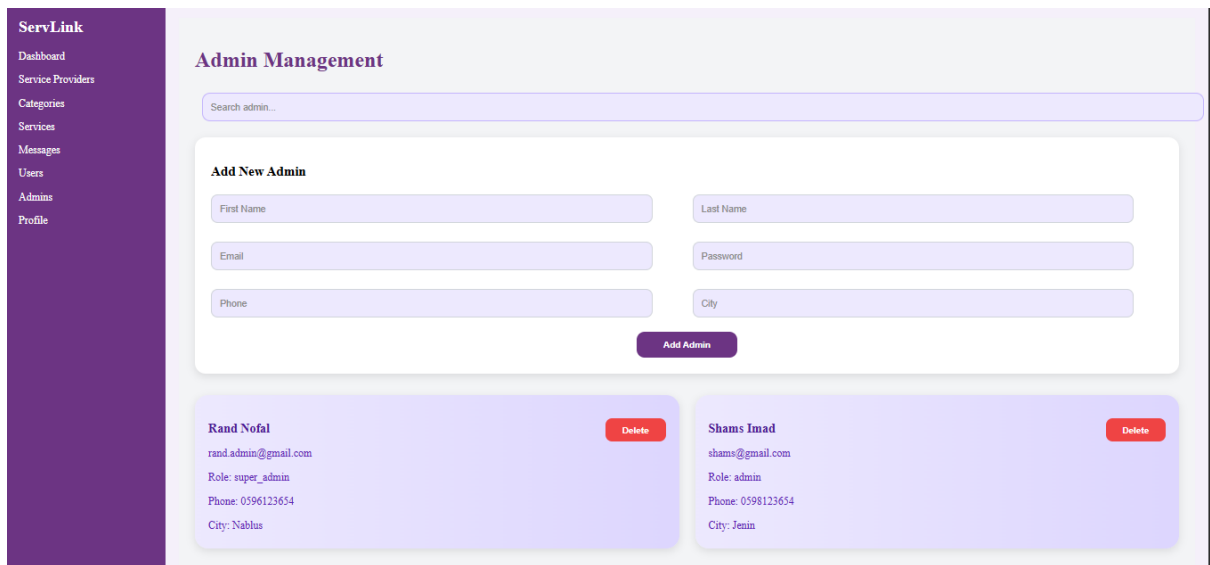


Figure 69: Admins Management Page (Website)

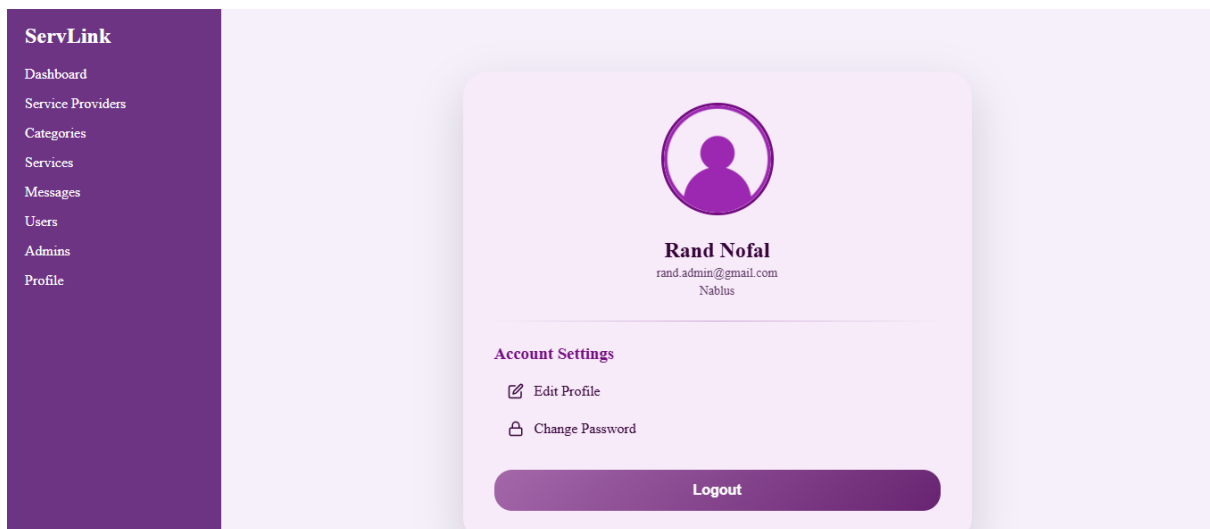


Figure 70: Admin Profile Page (Website)

4.4 Technical Preferences

4.4.1 Frontend

The frontend of the ServLink project was designed to support multiple user roles, including users, service providers, and administrators. The mobile application was developed using React Native, which allows the app to run efficiently on both Android and iOS platforms using a single codebase. To simplify development and speed up testing, Expo was used as the main framework for building the mobile application.

Testing was carried out using both a mobile emulator and a real mobile device to ensure that the application behaves correctly across different devices and screen sizes. In addition to the mobile app, React.js was used to build a dedicated admin website, providing administrators with a user-friendly interface to manage users, services, and system operations.

4.4.2 Backend

The backend of the system was implemented using Node.js with Express.js, which provided a robust and scalable server-side environment. This backend handles API requests, authentication, business logic, and communication between the frontend and the database.

A MySQL database was used to store application data, including user accounts, service provider details, bookings, and payment records. For secure online payments, Stripe was integrated into the system, enabling users to complete transactions safely and reliably within the application.

4.4.3 AI Integration

The project integrated the Groq AI API to support intelligent features such as improving system responses and enhancing user interaction, adding more smart behavior to the application.

4.4.4 Notifications

Firestore Cloud Messaging (FCM) was used to implement push notifications, allowing the system to send real-time notifications to users and service providers for bookings, updates, and important actions.

4.4.5 Development & Deployment Tools

GitHub was used for version control and deployment, allowing team collaboration and code management throughout the development process. Visual Studio Code was used as the primary development environment. The application was tested and executed using both a mobile emulator and a real mobile device to ensure stability, performance, and reliability in real-world usage.

5. Results and Discussion

The development and implementation of the ServLink system achieved its main objectives of simplifying access to service providers and improving the booking and management process for all parties involved. The system successfully integrates users, service providers, and administrators into a unified platform that supports browsing services, booking, communication, and payment in an efficient and user-friendly manner.

From a technical perspective, the use of a mobile application for all roles proved effective in ensuring consistency and ease of use, while the administrative website provided enhanced control and monitoring capabilities. The system architecture demonstrated good performance and stability during testing on both a real mobile device and an emulator, confirming the reliability of the chosen technologies. The backend handled bookings, payments, notifications, and data management efficiently, supporting real-time updates and smooth interactions between different components.

The integration of AI features added significant value to the system. AI-based service and provider suggestions improved the booking experience, while AI-powered analysis and summaries supported better decision-making for both administrators and service providers. These features reduced manual effort, enhanced content quality, and improved overall system usability. In addition, automated notifications and wallet management increased transparency and trust between users and providers.

Overall, the results indicate that ServLink is a practical and effective solution for managing service-based interactions. The system addresses the identified problem by reducing communication barriers, improving service discovery, and supporting fair and transparent transactions.

6. Conclusion and Future Work

In conclusion, the **ServLink** system successfully addresses the challenges of accessing service providers and managing bookings efficiently for users, providers, and administrators. The application provides a seamless experience through its mobile app and admin website, supporting service browsing, booking, payment, notifications, and AI-assisted features that enhance decision-making, content quality, and overall usability.

For future work, the system can be further improved by adding multi-language support, especially Arabic, to make the platform accessible to a wider audience. Another important enhancement is the integration of a real-time chat system between users and service providers, enabling better communication, faster problem-solving, and improved user satisfaction. Additionally, future development could include expanding AI capabilities to offer more personalized recommendations, advanced analytics, and predictive insights to optimize services, schedules, and user engagement. These enhancements will help ServLink become a more versatile, intelligent, and user-centered platform for service management.

References:

1. TaskRabbit, "About Us," 2023. [Online]. Available: <https://www.taskrabbit.com/about>.
2. Handy, "How Handy Works," 2023. [Online]. Available: <https://www.handy.com>.
3. Meta Open Source, "React Native: Learn once, write anywhere," 2023. [Online]. Available: <https://reactnative.directory/>.
4. Groq, Inc., "GroqCloud Documentation Overview," 2024. [Online]. Available: <https://console.groq.com/docs/overview>. [Accessed: May 20, 2024].
5. Expo (no date.) Expo documentation. Available at: <https://docs.expo.dev/> (Accessed: January 2026).
6. Stripe (no date) Stripe React Native SDK documentation. Available at: https://docs.stripe.com/sdks/react-native?utm_source=chatgpt.com (Accessed: January 2026).

Other references:

- Nominatim (no date) Overview – Nominatim API. Available at: <https://nominatim.org/release-docs/latest/api/Overview/> (Accessed: January 2026).
- npm (no date) Search results for “react-native”. Available at: <https://www.npmjs.com/search?q=react-native> (Accessed: January 2026).

Appendix:

- **Project Full Code on github:**

<https://github.com/ShamsAziz03/ServLink>

- **Demo & Presentation:**

https://drive.google.com/drive/folders/1s_GM9Vlp9CZtCL9VTXheOtBBxZ9tdx7w?usp=sharing