

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ



An-Najah National University
Faculty of Engineering and Information Technology
Computer Engineering Department
Graduation Project I
Next Step



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June 24, 2023

Acknowledgements

First, last and always, thanks and gratitude to God, had it not been for his blessing that accompanied us in every step we took, I would not have completed this project successfully.

My dear parents and my beautiful family, thank you for all the support that always raised our spirits, and for the beautiful words that have always been a wall on which to lean and strengthen me. My great supervisor, Dr. Haya Samanneh, thanks for the advice that was always in the right place, and thanks for the enrichment, comments, and constructive criticism that contributed to increasing the project's features. All thanks to the Computer Engineering Department at An-Najah National University, and to the friends who accompanied us on this journey. Last but not least, thanks to everyone who had a hand in providing any kind of help, it means the world to me.

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Abstract

A home's construction and finishing can be a challenging process that involves coordinating a wide range of activities and service providers. Our project offers a software solution that streamlines this procedure and increases accessibility for users. The software is made to give users a thorough and streamlined experience, from selecting the best vendors and suppliers to controlling budgets and monitoring progress to getting access to tools and tutorials. The ability to match customers with the appropriate suppliers and providers based on their unique requirements and preferences is one of the main advantages of using this program. Finding the greatest service providers is made quicker and easier by doing this, and it also guarantees that customers get the highest-quality goods and services. The software also offers customers a collection of materials and lessons that walk them step-by-step through the process of creating and outfitting, making it easier to handle and more pleasant. The software's capacity to facilitate collaboration and communication between customers, suppliers, and providers is another advantage. All parties are kept up to date with the most recent progress thanks to the software's infrastructure for updates and file sharing. The budget tracking system helps clients stay on track with their expenses and keep their project within budget, while the recommendation engine provides clients with product and service suggestions based on their specific needs and preferences.

In conclusion, this software solution makes the home building and finishing process more accessible, efficient, and enjoyable for clients. By simplifying the process and providing a comprehensive and streamlined experience, our graduation project aims to help clients build and furnish their homes with confidence and ease.

1 Introduction

1.1 Problem

The construction and finishing of a home can be a complex and challenging process. Coordinating various activities and service providers can be time-consuming and overwhelming for users. Additionally, finding the right vendors and suppliers that meet specific requirements and preferences can be difficult. Furthermore, budget management and monitoring progress can be a daunting task. Lack of access to comprehensive tools and tutorials also makes the process more difficult. The absence of effective collaboration and communication channels between customers, suppliers, and providers further adds to the challenges faced in home construction and finishing projects. Therefore, there is a need for a software solution that streamlines the entire process, increases accessibility, matches customers with suitable providers, provides comprehensive resources, and facilitates effective collaboration and communication.

1.2 Objectives

The objective of our project is to develop a software solution that simplifies the process of home construction and finishing, while enhancing accessibility and providing a comprehensive experience for users. The main objectives of our project include:

- **Vendor and Supplier Selection:** Our software will assist users in selecting the best vendors and suppliers for their construction and finishing needs. By considering users' unique requirements and preferences, the software will match them with appropriate service providers, ensuring access to high-quality goods and services.
- **Budget Control and Progress Monitoring:** We aim to provide users with tools to effectively control their budgets and monitor the progress of their home construction and finishing projects. Our software will enable users to track expenses, stay on budget, and receive updates on the latest progress.
- **Collaboration and Communication:** Our software will facilitate collaboration and communication among customers, suppliers, and service providers involved in the home construction and finishing projects. By providing an infrastructure for updates and file sharing, all parties will stay informed and engaged throughout the process.

By achieving these objectives, our graduation project aims to transform the home building and finishing process into a more accessible, efficient, and enjoyable experience for clients.

1.3 Importance

The importance of our home construction and finishing project stems from its ability to streamline and enhance the entire process for homeowners. Here are the key aspects that highlight its significance:

- **Simplified Procedure:** Our software solution simplifies the complex tasks involved in home construction and finishing. By offering a comprehensive and streamlined experience, it reduces the challenges and coordination required, making it easier for homeowners to navigate through the various activities and service providers involved.
- **Access to Quality Suppliers and Providers:** Our program allows users to connect with the best vendors and suppliers based on their unique requirements and preferences. This ensures that homeowners have access to high-quality goods and services, making their home construction and finishing experience more efficient and satisfactory.
- **Budget Control:** The budget tracking system provided by our software helps clients stay on track with their expenses and manage their project within the allocated budget. This financial management feature empowers homeowners to make informed decisions and avoid overspending, providing peace of mind throughout the construction process.

Enhanced Collaboration and Communication: Our software facilitates effective collaboration and communication between homeowners, suppliers, and service providers. With features such as progress monitoring, updates, and file sharing, all parties involved can stay informed and aligned, fostering a more efficient and transparent workflow.

1.4 Report Organization

The next chapter will discuss the constraints and the extreme difficulties faced in making the system. Also, it will highlight the courses needed to help implement and create this system. Chapter 3 (Literature Review) will talk about some precedent projects in this field, and how it differs from this application. Chapter 4 (Methodology) will talk about how the work was done, and what were the tools, hardware techniques and technologies used in building the project. The next chapter (Results and Discussion) will discuss this project's results and outcome. The last chapter (Conclusion and Recommendation) will discuss the recommendations and some future work.

2 Constraints and earlier work

2.1 Constraints

During the implementation of our project, we encountered several constraints that served as motivating challenges. These constraints included:

- **Team Coordination** : We faced difficulties in coordinating tasks and arranging meetings among team members due to conflicting schedules and different commitments. Specifically, merging the frontend and backend work proved to be a significant challenge, as it required seamless integration and synchronization between the two components developed by different team members.
- **Supervisory Guidance** : Obtaining the best guidance and expertise from our supervisors proved challenging at times, as their availability was limited and required significant effort to schedule meetings.
- **Time Constraints** : The project had to be completed within a specific timeframe, which posed a constraint on the overall development process. Time limitations required us to carefully prioritize tasks and manage our resources efficiently.
- **Learning New Technologies** : Working with new technologies such as Flutter, Dart language, and Android Studio IDE presented a learning curve for our team. We faced challenges in finding reliable and comprehensive resources to acquire the best practices for these technologies.
- **Self-Learning** : Significant time and effort were dedicated to self-learning various aspects related to our project, including integrating frontend with backend, widget development in Flutter, implementing live streaming functionality, and creating text-to-speech robots.

Despite these constraints, we viewed them as opportunities for growth and motivation to overcome challenges. By adapting and finding effective solutions, we were able to address these constraints and make progress in the successful implementation of our project.

2.2 Earlier Work

We implement the backend and the frontend of the project using technologies that we learned from the university like database, software engineering, etc.

However, we used most new technologies which we never learned in university.

- Frontend :
 - We used a flutter framework with dart language to implement the GUI and frontend behavior.
 - Android Studio IDE as an environment to build the app.
 - VS Code as an IDE for implementing flutter project .
- Backend :
 - We used Spring boot framework with Spring Data JPA.
 - IntelliJ IDE as an environment to build the Backend.
 - We implemented Web socket using STOMP (Simple Text-Oriented Messaging Protocol) to send real time push notifications and Messages.
 - We used Ngrok to share the API with my partner.
- Database :
 - We used the Oracle database as a DBMS.
 - We used Sql Navigator as an environment to use Oracle .

We had to take online courses and read many documents to learn all mentioned technologies and how to do best practices with them. Each technology will be described more in chapter 4.

3 Literature Review

3.1 Home Construction and Finishing Challenges

The home construction and finishing process often pose challenges such as difficulty in finding reliable vendors, managing budgets effectively, and coordinating activities among various stakeholders. These challenges can lead to delays, budget overruns, and customer dissatisfaction.

3.2 Existing Solutions and Limitations

Several existing software solutions focus on specific aspects of the home construction and finishing process, but they often lack comprehensive features and integration. Some tools assist with budget tracking, while others offer vendor directories or progress monitoring. However, a holistic solution that combines these features and prioritizes user experience is lacking in the market.

3.3 Importance of Streamlining the Process

Streamlining the home construction and finishing process is crucial to improve efficiency, reduce costs, and enhance customer satisfaction. By providing a software solution that simplifies and centralizes various activities, clients can save time, make informed decisions, and have a smoother overall experience.

4 Methodology

In this chapter we will describe our system, using technologies, user experience, each screen job, and all used services.

4.1 Frontend Side

4.1.1 flutter

Flutter is a mobile UI framework developed by Google, offering a free and open-source platform for creating cross-platform applications that can run seamlessly on both Android and iOS devices. One of the key advantages of Flutter is its ability to build apps with a single codebase, eliminating the need for separate development efforts for each platform.

To leverage Flutter's capabilities, developers learn a new programming language called Dart. Dart is a high-level language known for its simplicity and ease of use, making it accessible even to those new to mobile app development. With Flutter, developers can create apps that deliver high performance comparable to native applications.

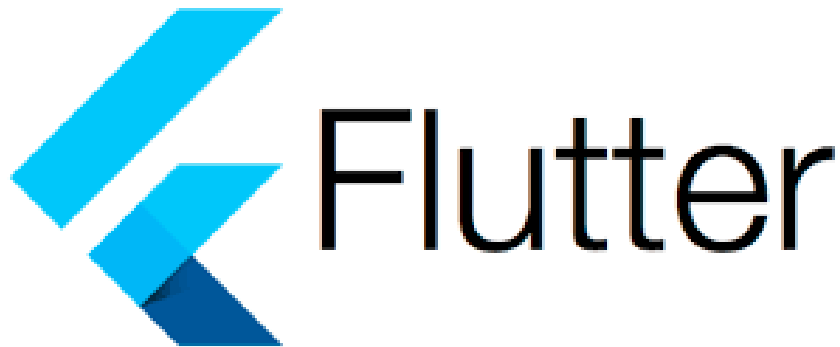


Figure 1: Flutter

4.1.2 Android Studio IDE

Android Studio is an integrated development environment (IDE) specifically designed for Android app development. It provides developers with a comprehensive set of tools and features to streamline the app creation process, from coding to testing and deployment. With its user-friendly interface and powerful capabilities, Android Studio has become the go-to IDE for Android developers worldwide.



Figure 2: Android Studio

4.2 Backend Side

4.2.1 Spring Boot

Spring Boot is a powerful and popular Java framework that simplifies the development of robust and scalable web applications. It provides a comprehensive set of tools, libraries, and conventions that streamline the application development process. With Spring Boot, developers can quickly create stand-alone, production-ready applications with minimal configuration and boilerplate code. It offers a wide range of features, including automatic configuration, embedded server support, dependency management, and seamless integration with other Spring projects. Spring Boot promotes the use of best practices and enables developers to focus on writing business logic rather than dealing with infrastructure concerns. Its ease of use, extensive community support, and extensive ecosystem make Spring Boot a top choice for building enterprise-grade applications.



Figure 3: Spring Boot

4.2.2 Ngrok

Ngrok is a powerful tool that facilitates secure and instant access to local servers over the internet. It creates a secure tunnel between your local machine and a public URL, allowing external connections to access your locally hosted services or web applications. Ngrok eliminates the need for complex network configurations or deploying applications to a remote server for testing and demonstration purposes. With its simplicity and ease of use, Ngrok is widely used by developers for tasks such as webhooks testing, API development, and remote collaboration. It offers a convenient way to share and showcase local development work with others, making it an invaluable tool in the development workflow.



Figure 4: Ngrok

4.3 Database Side

4.3.1 Oracle

Oracle Database, is widely regarded as one of the most powerful and reliable database systems in the industry. It provides advanced features such as high availability, scalability, and security, We used Oracle to build our database because we have a good knowledge about how it works and how to operate it. Our system database structure is described in the image below.



Figure 5: Oracle DB

4.4 Methods and technologies

In this chapter, each screen on the app will be described, how to use it, and how it's behaved with the backend.

4.4.1 Database Schema

The backend database schema of our application plays a crucial role in organizing and storing data effectively. It provides the foundation for data management and ensures seamless interaction between various components. A well-designed database schema promotes efficient data retrieval, manipulation, and storage.

Below is an image showcasing the backend database schema of our application:

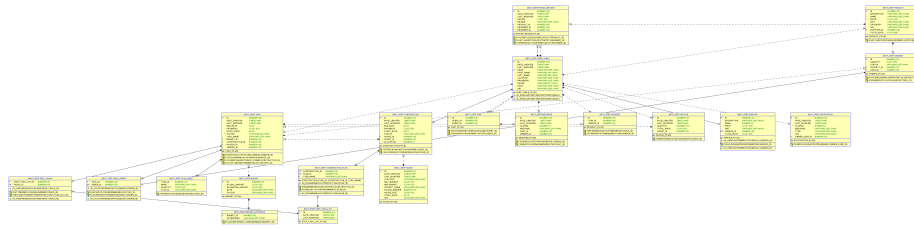


Figure 6: Database Schema

4.4.2 Client Interface

- Main Entry Screen Description:

The main entry screen serves as the initial point of access when launching the application. This screen acts as a gateway for users to sign in to their respective user accounts based on their roles. It presents three distinct buttons that allow users to choose their desired login option.



Figure 7: Main Page

- Registration Screens Description:

– Sing In:

the Sign In page serves as a pivotal gateway, ensuring secure access to the application and providing users with a seamless transition to

their personalized Home Page experience. it's the same design for all users.

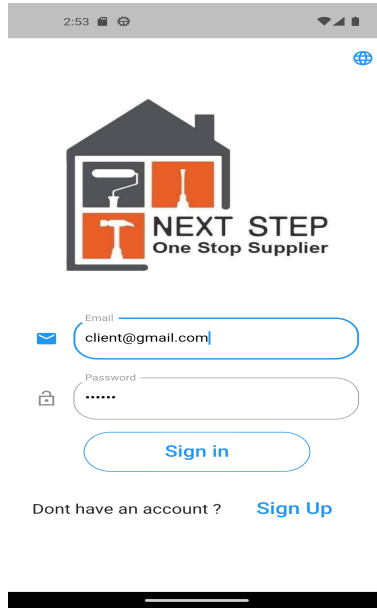


Figure 8: Sign In Page

– Sign Up:

The Sign Up page serves as a common registration platform for all users, with a slight variation for vendors who need to provide additional service information. This page allows new users to create an account and gain access to the application's features and functionalities.

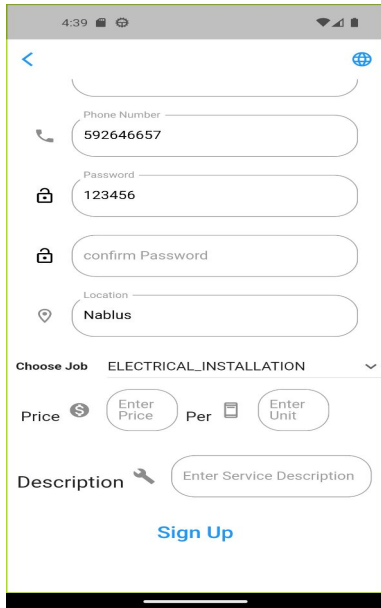


Figure 9: Sign Up 1

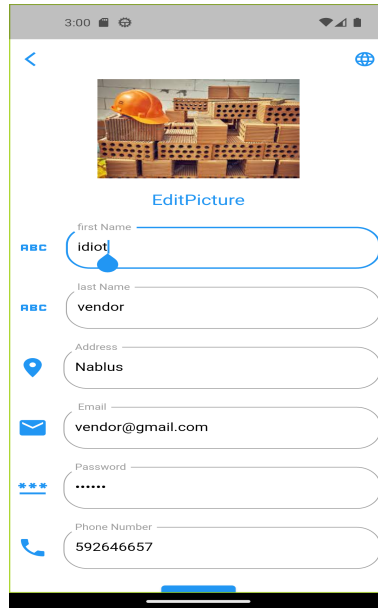


Figure 10: Sign Up 2

Figure 11: Vendor Sign Up

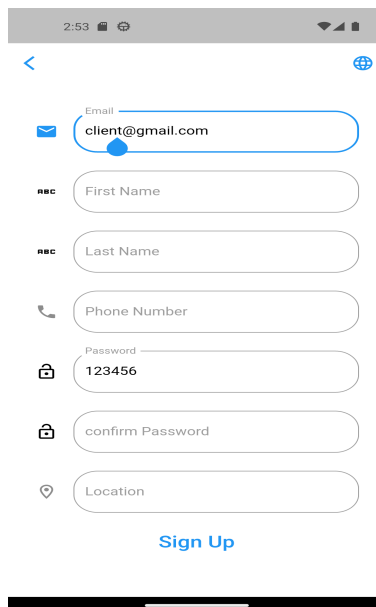


Figure 12: Common Sign Up Page

- Client Screens:

Once the client successfully signs in, they are directed to the Main Page, which serves as their central hub within the application. The Main Page provides the client with an overview of their construction projects and offers the functionality to create new projects. Additionally, a navigation bar is available at the bottom, offering quick access to different screens within the application. The navigation bar typically includes icons or labels representing various sections or features, allowing the client to effortlessly switch between screens with a single tap or click. This user-friendly design ensures that the client can explore different aspects of the application and easily access the desired functionality.

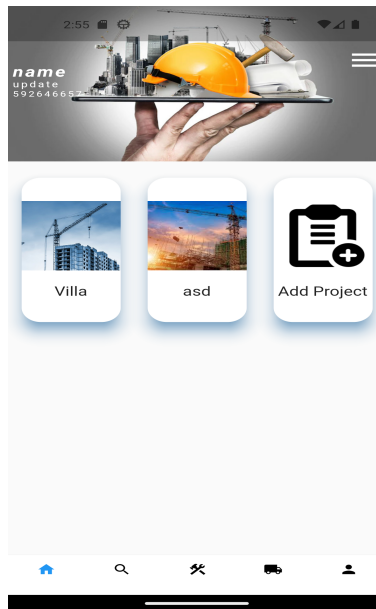


Figure 13: Client Home Page

- Create Project Page Upon clicking the "Add Project" button on the Main Page, the client is redirected to a new page that presents two options for creating a construction project: "Create Full Project" and "Create Custom Project" This page serves as a pivotal point for the client to define the scope and nature of their upcoming project.

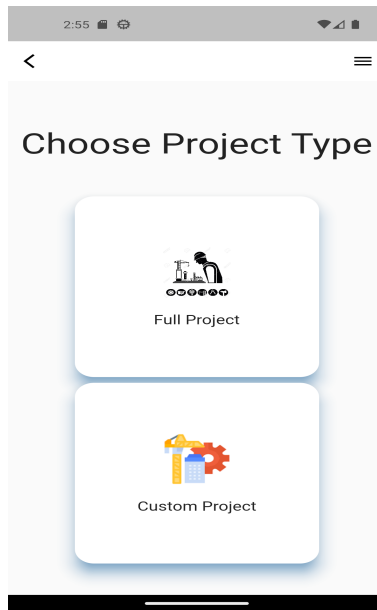


Figure 14: Client Add Project Page

- Create Full Project: If the client chooses the "Create Full Project" option, they are directed to a page where they can enter the required Home Information. After entering the Home Information, the system proceeds to construct a full project plan based on the provided details. This comprehensive plan encompasses various aspects of the construction process, including plumbing, electrical systems, and other relevant components. The full project plan is then displayed to the client.

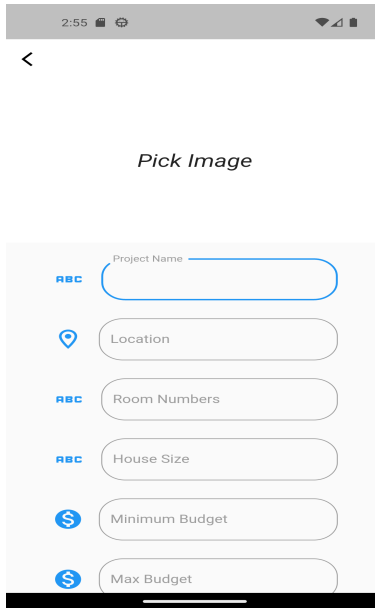


Figure 15: Client Add Home Info Page

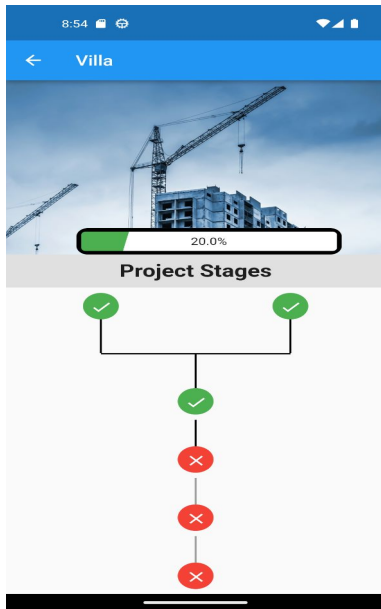


Figure 16: Chart Plan

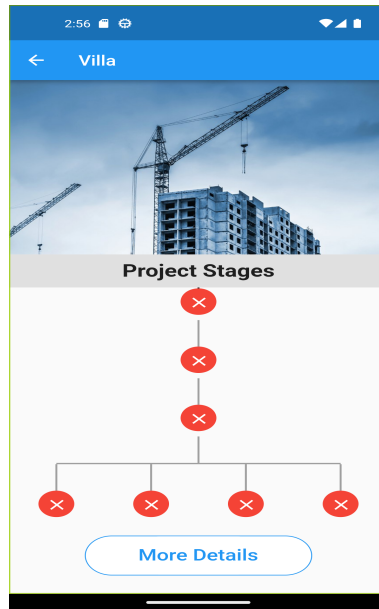


Figure 17: Chart Plan

Figure 18: Project Plan As Chart

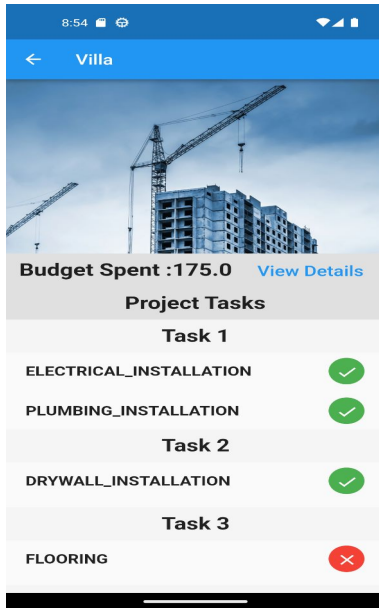


Figure 19: Tasks Plan

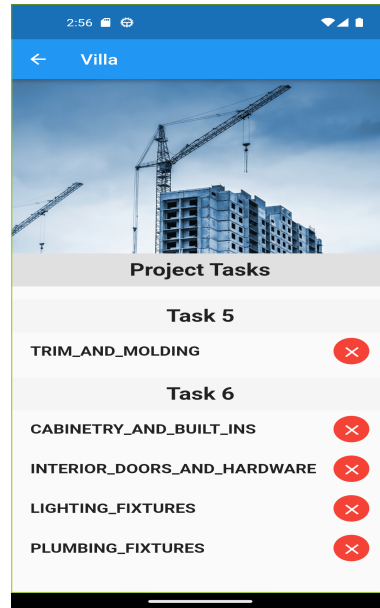


Figure 20: Tasks Plan

Figure 21: Project Plan As Steps

– Create Custom Project:

Alternatively, if the client selects the "Create Custom Project" option, they are directed to a page where they can enter the required Home Information, similar to Option 1. Once the Home Information is provided, the client is presented with a list of construction steps or phases typically involved in a project. In this step customization process, the client can selectively choose which steps they do not require or wish to exclude from their project. After the client has made their selections, a custom project plan is generated, tailored to their specific requirements. This plan incorporates the chosen steps while omitting the excluded ones. The customized project plan is then displayed As Steps NOT As Chart.

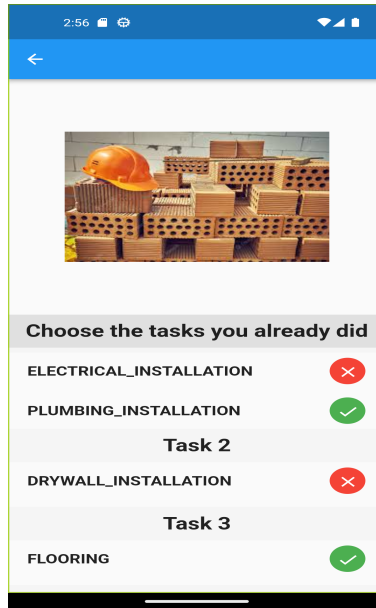


Figure 22: Client Choose Steps Info Page

– Task Management and Supply Procurement:

Once the client has created a construction project using either the "Create Full Project" or "Create Custom Project" options, they can access the project plan. The project plan consists of various tasks or milestones that need to be completed throughout the construction process. By clicking on a particular task in the plan, the client can access detailed information about that task, including the individual steps involved in its completion. Within the task details, the client is given the ability to assign a vendor responsible for that particular task. Once the Vendor has been assigned, the client can proceed with the procurement of the necessary supplies. The client can utilize the vendor's expertise to obtain a tailored list of materials needed for the task. The vendor assists the client in identifying the specific supplies, quantities.

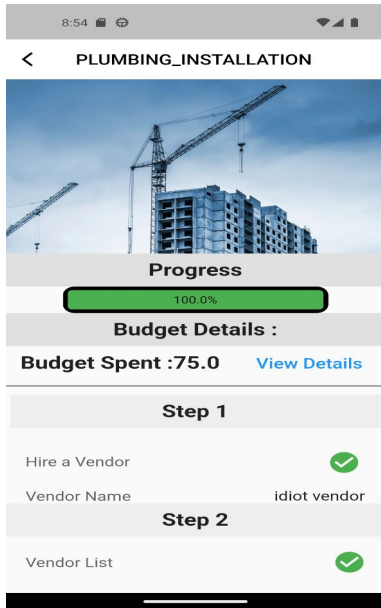


Figure 23: Tasks Steps 1

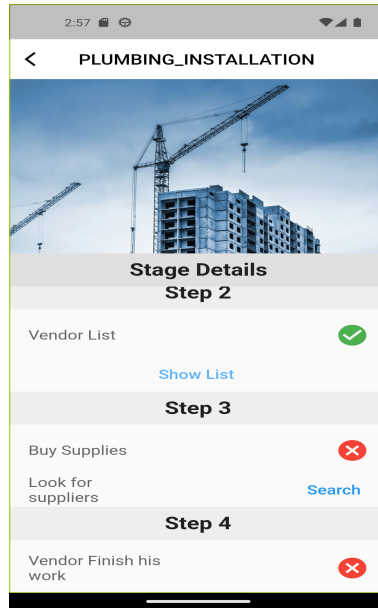


Figure 24: Tasks Steps 2

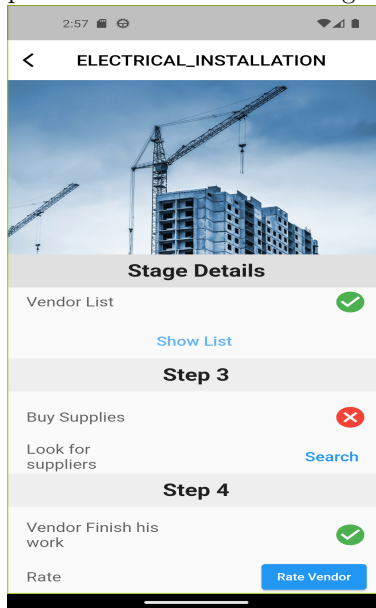


Figure 25: Tasks Steps 3

Figure 26: Project Task Steps

– Rating Vendor:

Upon the completion of the vendor’s work for a specific task in the construction project, the client is provided with a button to rate and review the vendor’s performance. This feature allows the client to provide valuable feedback on the vendor’s workmanship, professionalism, and overall satisfaction with the services rendered.

When the client clicks on the rating and review button, they are presented with an interface that enables them to assign a rating and provide a written review for the vendor. The rating system typically includes a scale, such as a star rating, allowing the client to indicate their level of satisfaction or disappointment with the vendor’s work.

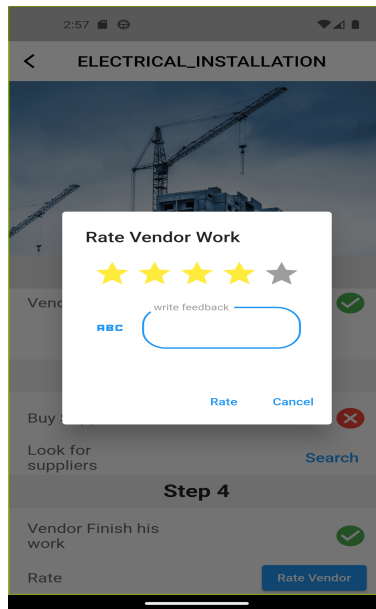


Figure 27: Rating Review Page

– Task Need List and Product Selection

After the vendor accepts the requested task and is assigned to it, they provide the client with a Task Need List. This list outlines the specific products or materials required by the vendor to commence the work. The Task Need List serves as a comprehensive guide for the client to acquire the necessary items and ensure a smooth workflow. Upon receiving the Task Need List, the client can proceed with purchasing the required products. To facilitate this process, the application offers an intuitive interface. When the client clicks on each item in the list, they are presented with a list of available products to choose from.

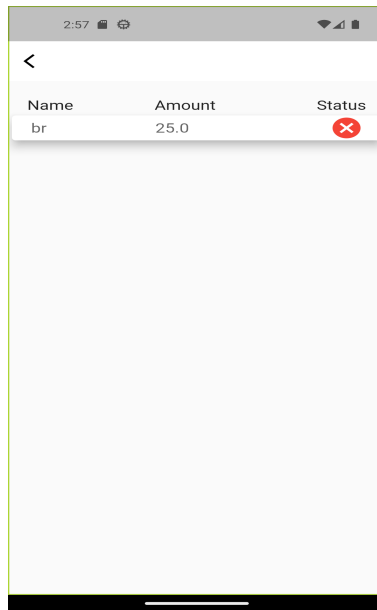


Figure 28: Tasks Need List

– Monitoring Construction Costs

The budget tracking screen in the client's application provides a comprehensive overview of the construction project's expenses. It offers a centralized platform for monitoring the costs associated with each task throughout the project life cycle. This feature allows clients to maintain control over their construction budget and make informed financial decisions.

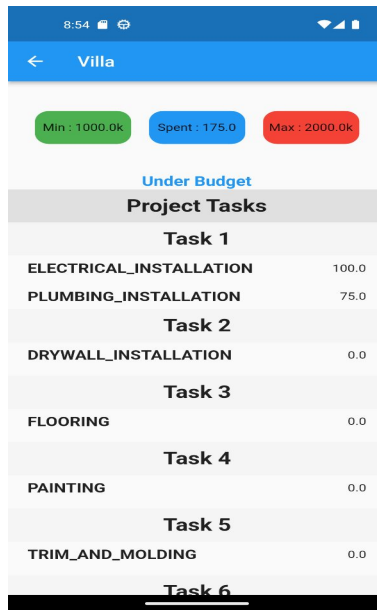


Figure 29: Tasks Budget Tracking

- Analyzing Task Expenses
The task budget details screen provides clients with in-depth insights into the financial aspects of each specific task within their construction project. This screen offers a comprehensive overview of the task's budget, allowing clients to analyze and track the expenses associated with that particular task.

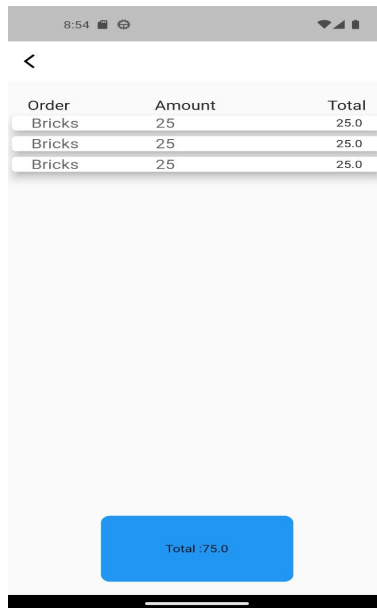


Figure 30: Tasks Budget Details

– Bottom Bar:

The bottom bar of the application provides quick and easy access to essential features and functionalities. It includes several buttons that enable clients to navigate through various sections of the application efficiently. These buttons include:

1. Home:

The home button directs clients to the main page of the application, where they can access their construction projects, create new projects, and view project-related information. see description above.

2. Search:

The search button allows clients to search for workers or products/materials based on their specific needs, providing a convenient way to find suitable workers or acquire necessary items.

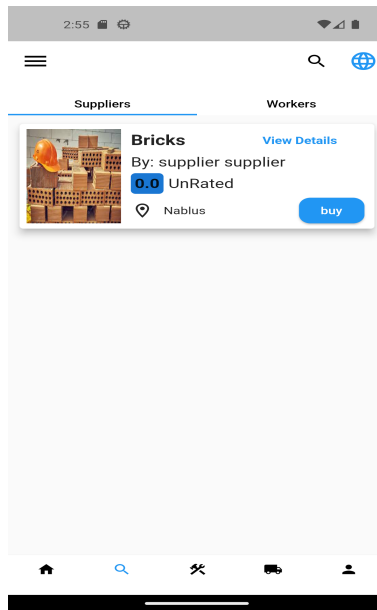


Figure 31: Search Page

3. Vendors:

The vendors button leads clients to a dedicated page displaying all available vendors within the application's network. Clients can browse through vendor profiles, ratings, reviews, and contact information to make informed decisions when selecting vendors for their construction projects.

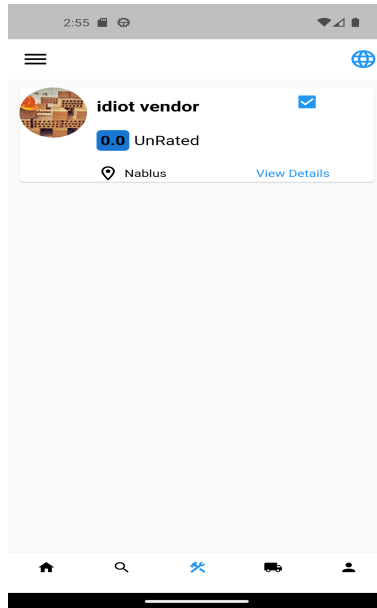


Figure 32: Vendors Page

4. Suppliers:

The suppliers button directs clients to a dedicated page showcasing a wide range of available suppliers within the application's network. Clients can explore supplier profiles, product catalogs, pricing information, and contact details to find reliable suppliers for their construction-related product and material needs.

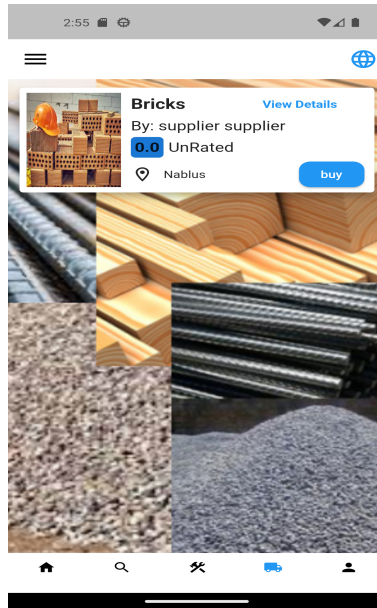


Figure 33: Supplies Page

5. Settings:

The settings button opens a settings page where clients can customize their profile, manage their supplies, engage in chats with relevant stakeholders, and adjust language preferences to personalize their experience within the application.

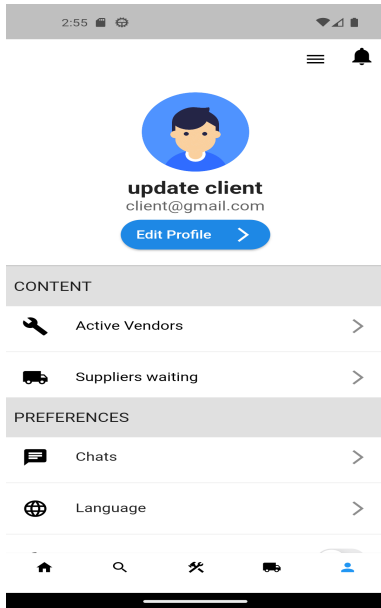


Figure 34: Setting Page

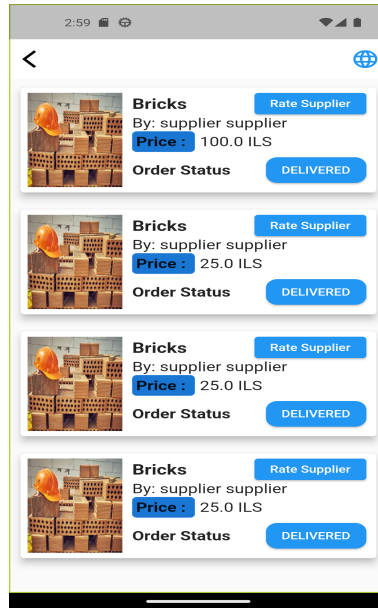


Figure 35: requested/purchased Supplies Page

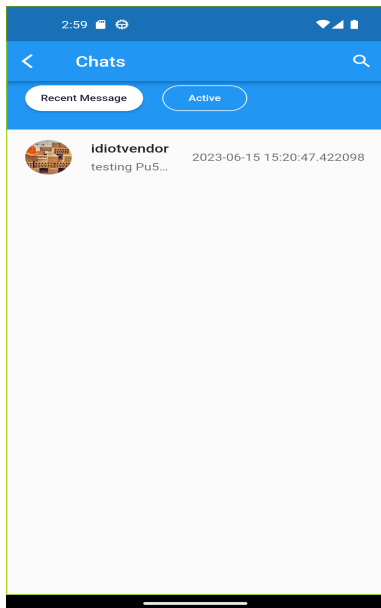


Figure 36: Chats Page

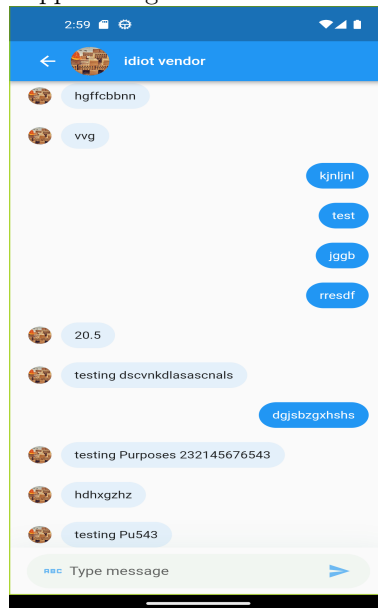


Figure 37: Chat Message Page

Figure 38: Client Settings Screens

- Vendor Screens:

When the vendor signs in, they are presented with a bottom navigation bar containing three icon buttons for easy navigation within the application. These buttons provide access to different sections specific to the vendor's role and tasks. The buttons are as follows:

1. Home:

The home button leads the vendor to a dedicated page that displays the tasks they are currently assigned to and the tasks they have successfully completed. This page allows the vendor to track their ongoing work and review their past accomplishments. By clicking on a recently accepted task, the vendor can add the necessary items or materials required to complete the assigned task.



Figure 39: Vendor Home Page

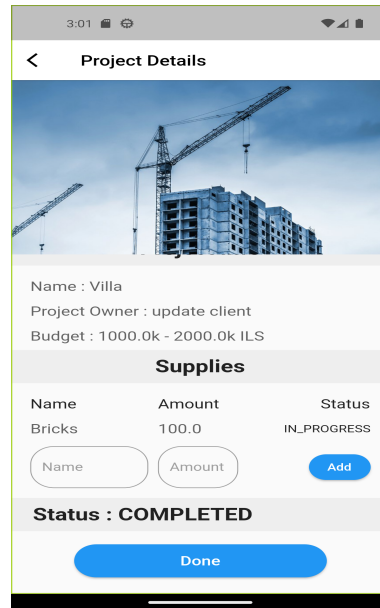


Figure 40: task info add Need List Page

Figure 41: Main Page

2. Task Requests:

The task requests button directs the vendor to a page where they can view tasks that clients have requested them to work on. This page provides details about each task, such as project specifications, and client information. The vendor has the option to accept or reject the task requests based on their availability and expertise. This feature

streamlines the process of task assignment, allowing the vendor to efficiently manage their workload.

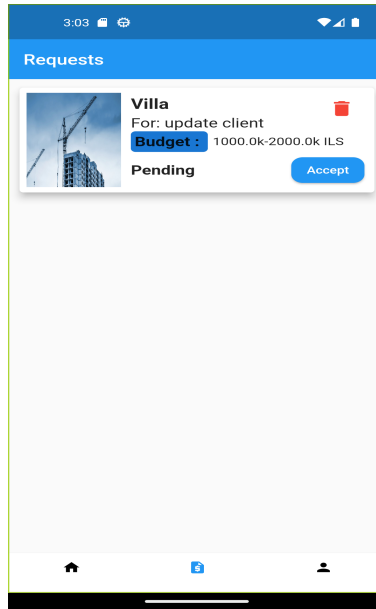


Figure 42: Task Assigned-Vendor Page

3. Settings:

The settings button leads the vendor to a settings page where they can access essential features related to their profile and account. Within the settings page.

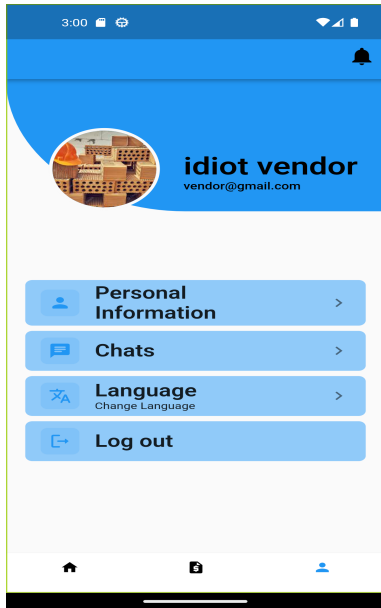


Figure 43: Vendor Setting Page

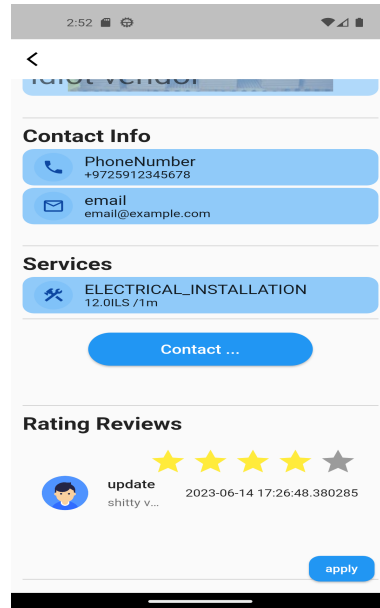


Figure 44: Vendor Profile

Figure 45: Settings Pages

- Supplier Screens:

When the supplier signs in, they are presented with a bottom navigation bar that contains three icon buttons for easy navigation within the application. These buttons provide access to different sections. The buttons are as follows:

1. Home:

The home button leads the supplier to a dedicated page that displays their products. This page allows the supplier to showcase their available products, including details such as product names, descriptions, prices, and images. Additionally, there is a button available for the supplier to add new products to their inventory. This feature allows the supplier to effectively manage and update their product offerings.

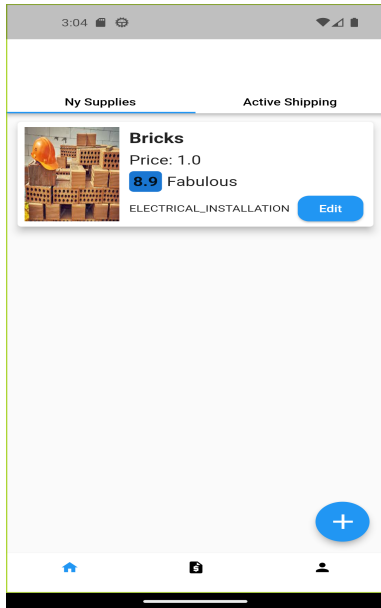


Figure 46: Supplier Home Page

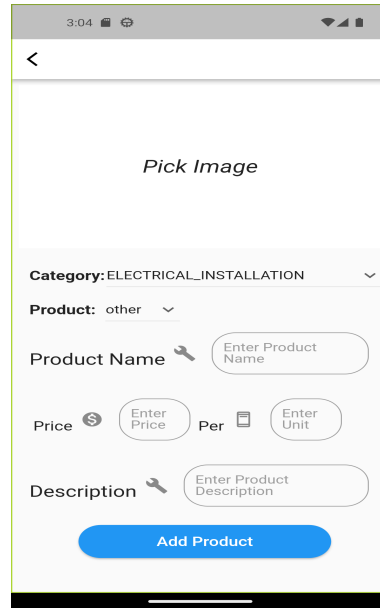


Figure 47: Add Product Page

Figure 48: Main Page

2. Product Requests:

The product requests button directs the supplier to a page where they can manage product requests from clients. This page is divided into two sections: "Pending Requests" and "Shipping Requests." In the "Pending Requests" section, the supplier can view and handle requests that are awaiting processing. They can update the status of each request, such as marking them as "In Progress" or "Pending." In the "Shipping Requests" section, the supplier can track and manage requests that are ready for shipping. They can update the status of each request to reflect whether it has been delivered or is still in transit.

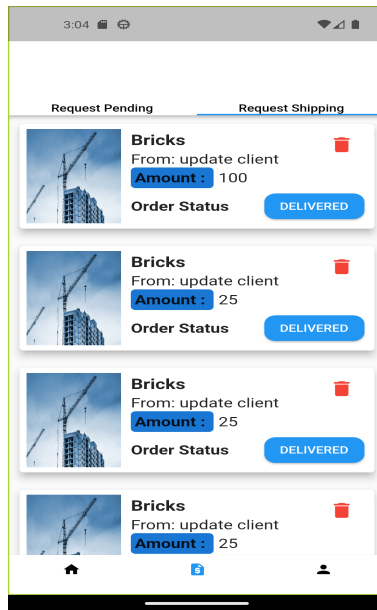


Figure 49: Product Requests Page

3. Settings:

The settings button leads the Supplier to a settings page where they can access essential features related to their profile and account. Within the settings page.

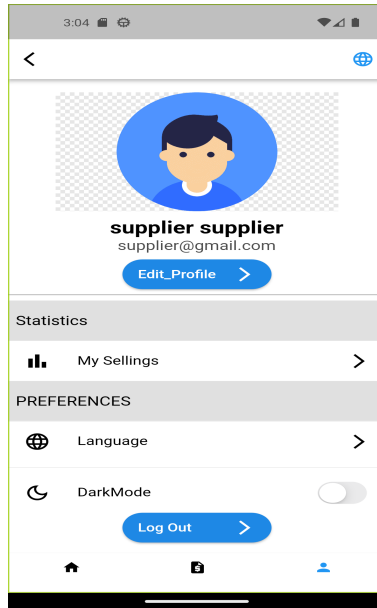


Figure 50: Supplier Setting Page

- Dark Mode and Arabic Language Support:

To enhance user experience, the entire application can be designed to support both dark mode and Arabic language. These features provide flexibility and customization options, catering to user preferences and ensuring a seamless experience for a diverse range of users.

SAME UI IN DARK ARABIC



Figure 51: Arabic welcome Page



Figure 52: Arabic Sign In Page

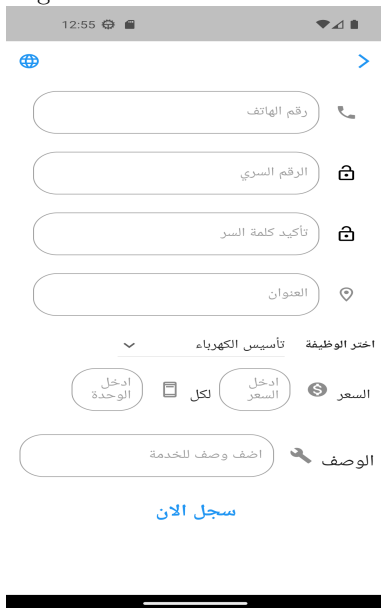


Figure 53: Arabic Sign Up Page

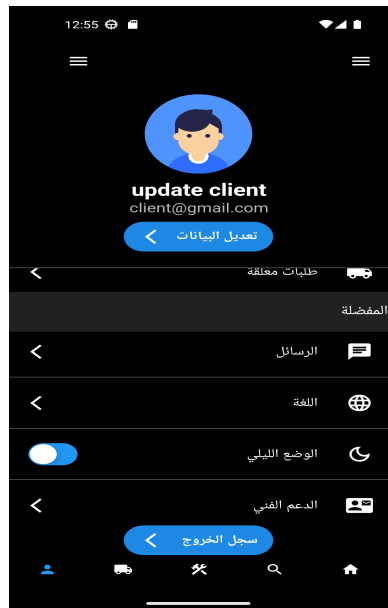


Figure 54: Dark/Arabic Page

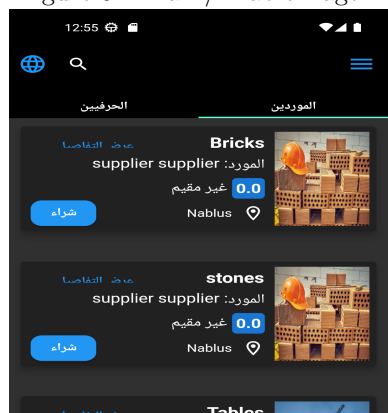
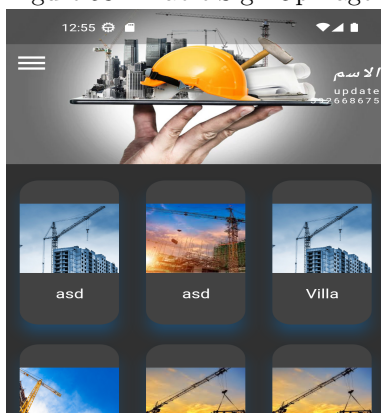




Figure 57: Dark/Arabic Page

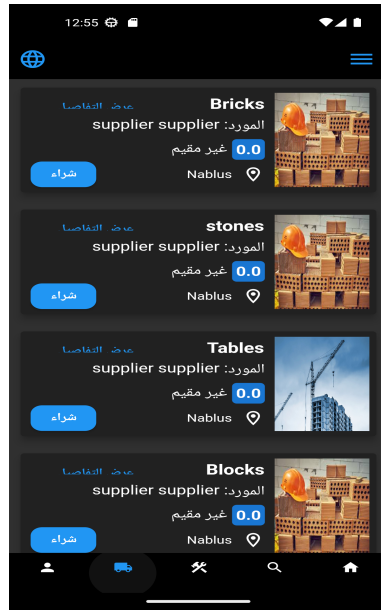


Figure 58: Dark/Arabic Page

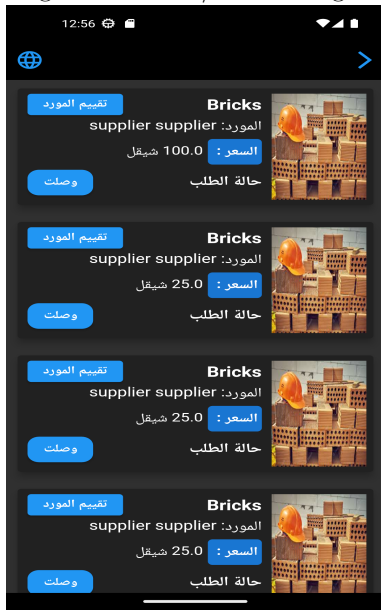


Figure 59: Dark/Arabic Page

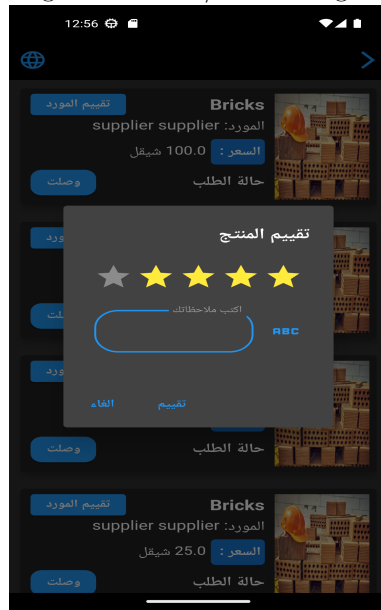
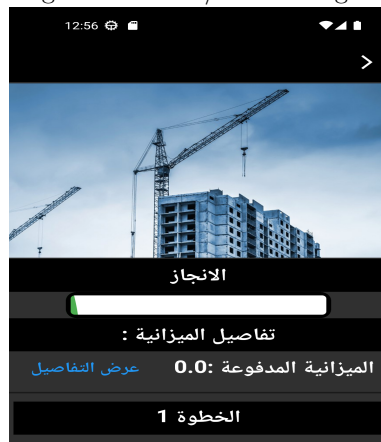
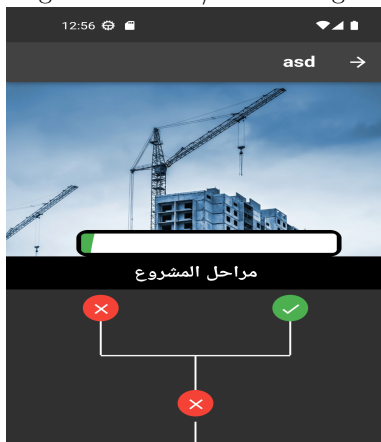


Figure 60: Dark/Arabic Page



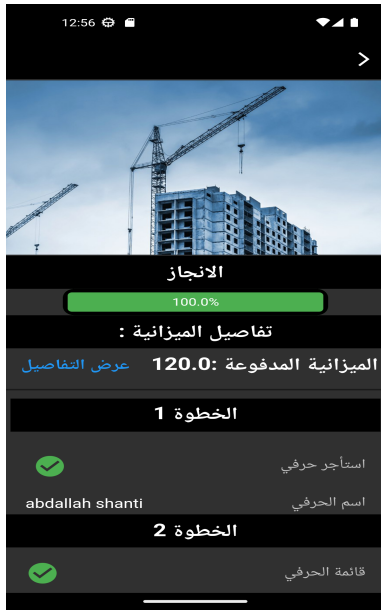


Figure 63: Dark/Arabic Page

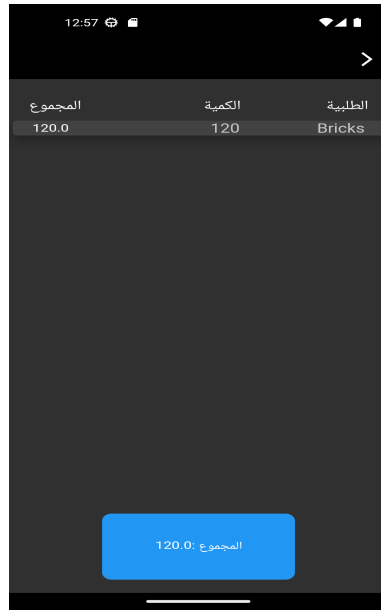


Figure 64: Dark/Arabic Page

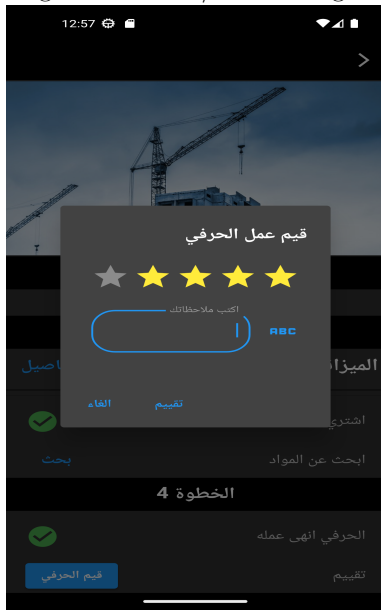


Figure 65: Dark/Arabic Page

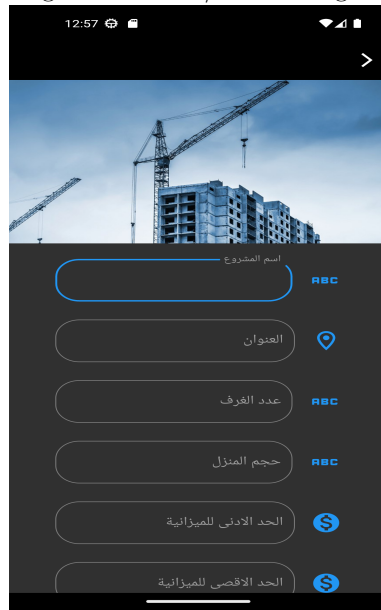
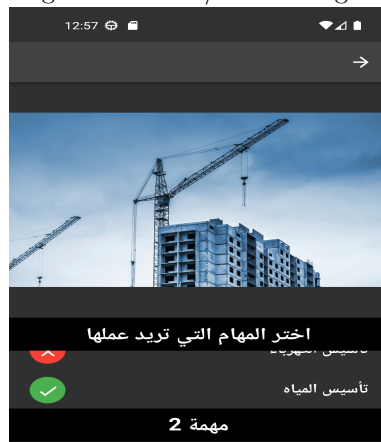
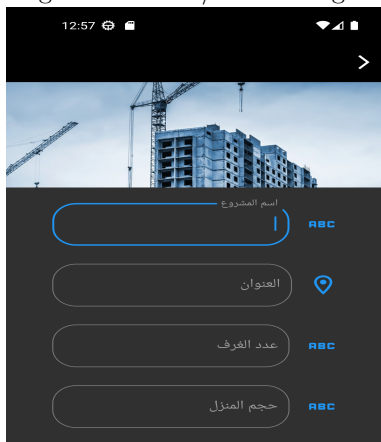


Figure 66: Dark/Arabic Page



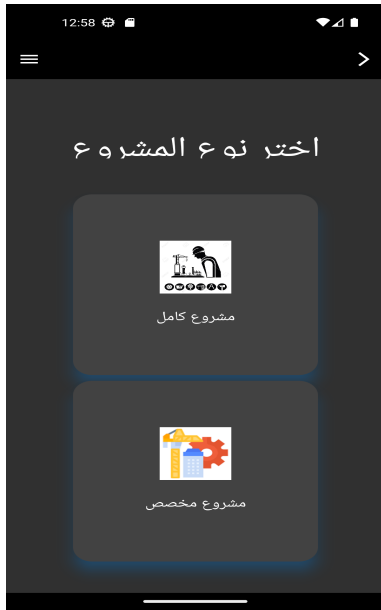


Figure 69: Dark/Arabic Page

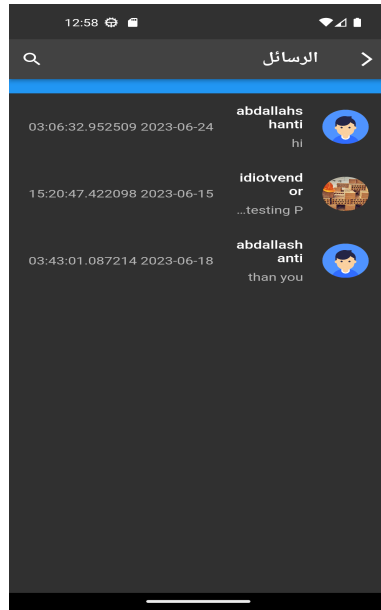


Figure 70: Dark/Arabic Page

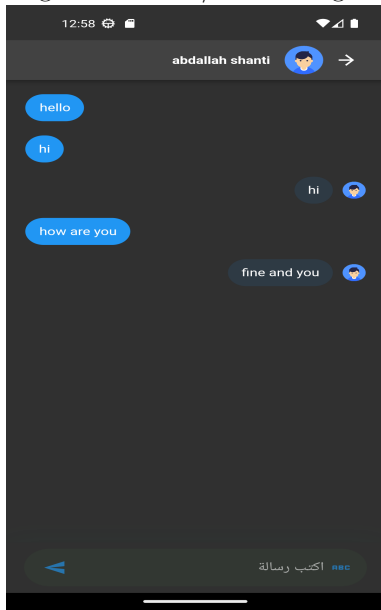


Figure 71: Dark/Arabic Page



Figure 72: Dark/Arabic Page

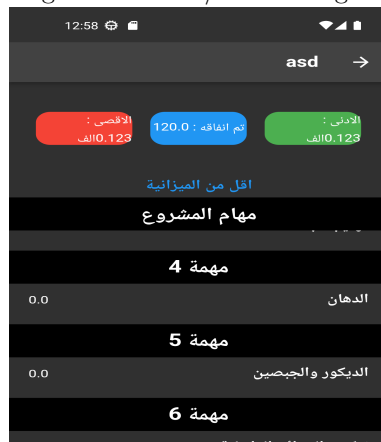
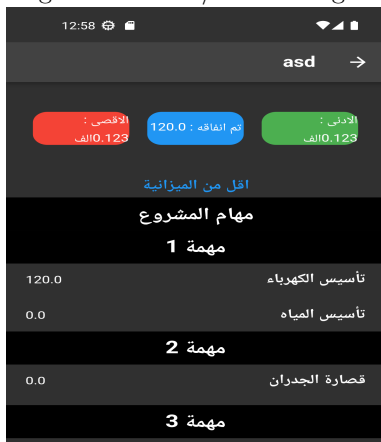




Figure 75: Dark/Arabic Page

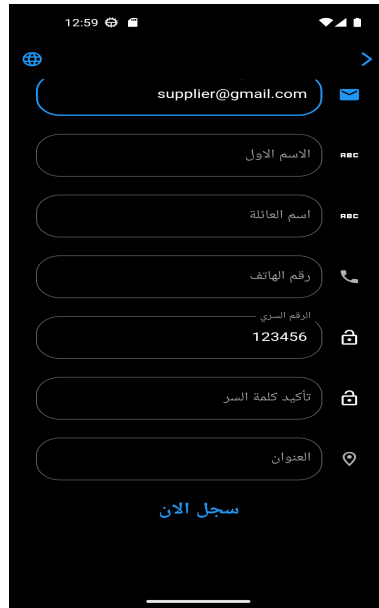


Figure 76: Dark/Arabic Page

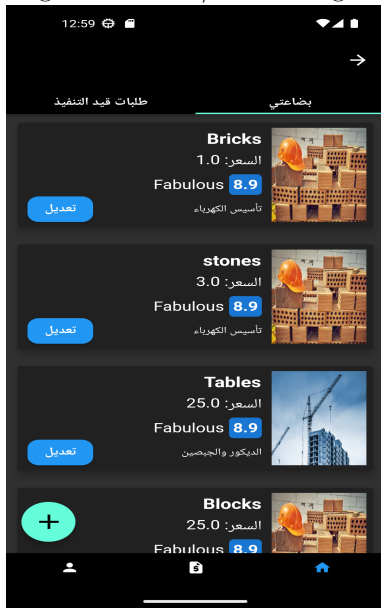


Figure 77: Dark/Arabic Page

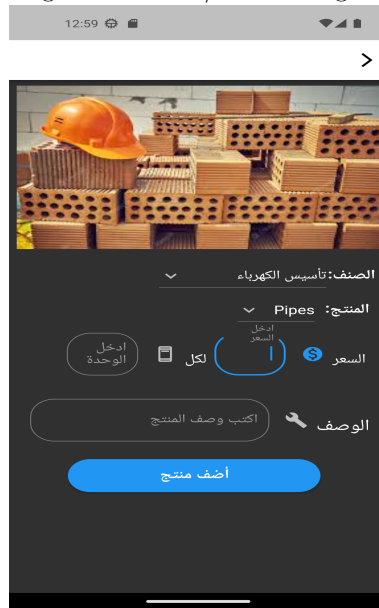
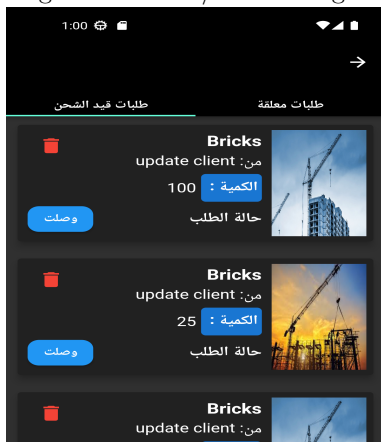


Figure 78: Dark/Arabic Page



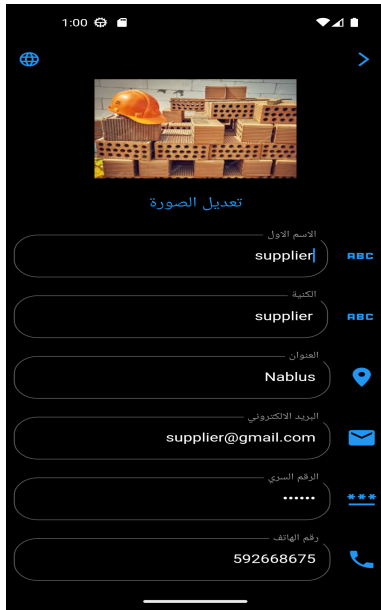


Figure 81: Dark/Arabic Page

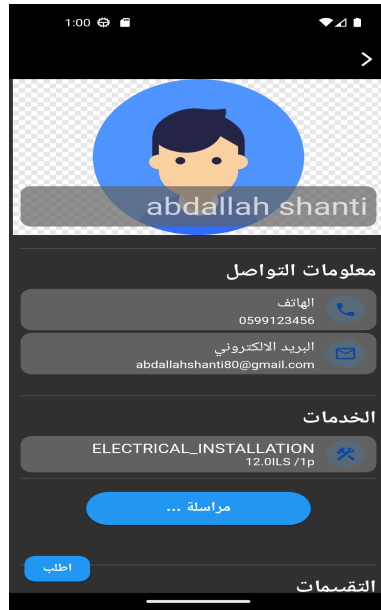


Figure 82: Dark/Arabic Page



Figure 83: Dark/Arabic Page

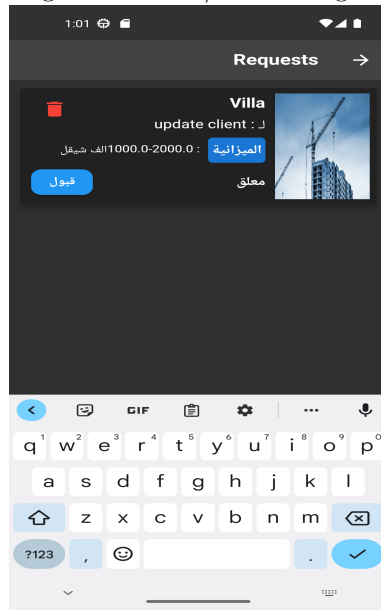
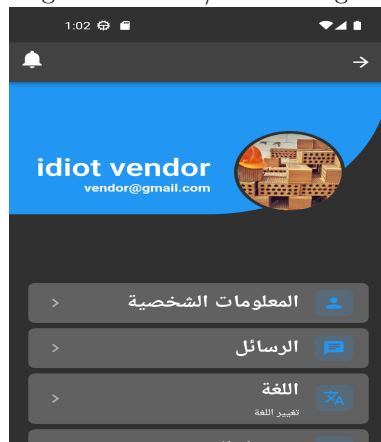
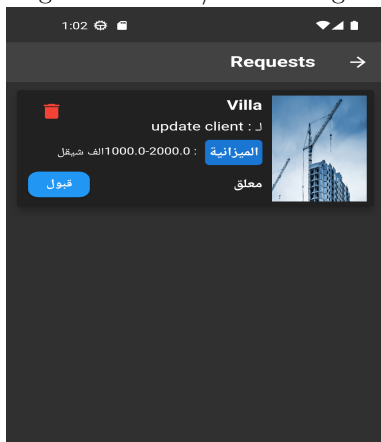


Figure 84: Dark/Arabic Page



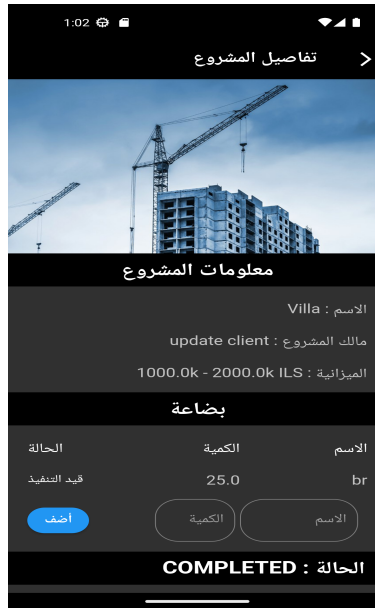


Figure 87: Dark/Arabic Page

Figure 88: Dark/Arabic UI

- Admin Screens:

The admin screens provide functionalities for efficiently monitoring and managing the application through a web interface. Designed exclusively for web access, the admin screens empower administrators to oversee the system's operations, handle user management, and gain valuable insights through comprehensive statistics. Upon signing in, the admin is greeted with the dashboard screen, which serves as a centralized hub of information. The dashboard provides a quick overview of key metrics, such as the total number of vendors and users registered within the system. Each metric is displayed as a card, allowing the admin to click on it and access detailed information in tabular format. This detailed view enables the admin to analyze user data, track trends, and perform administrative actions as needed.

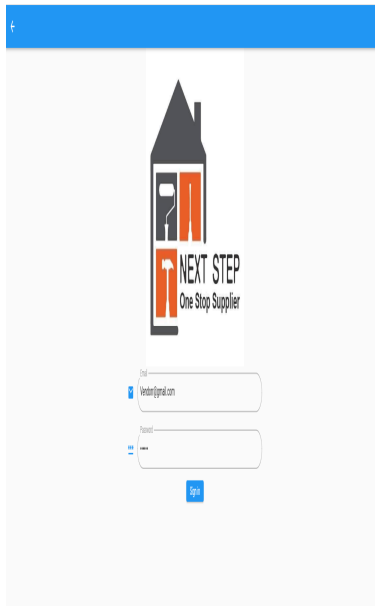


Figure 89: Sign In Page

The admin screens feature a convenient sidebar that offers quick access to essential functionalities. The sidebar includes the following buttons:

1. Dashboard:

This button leads to the main dashboard screen, where the admin can access key metrics, user details

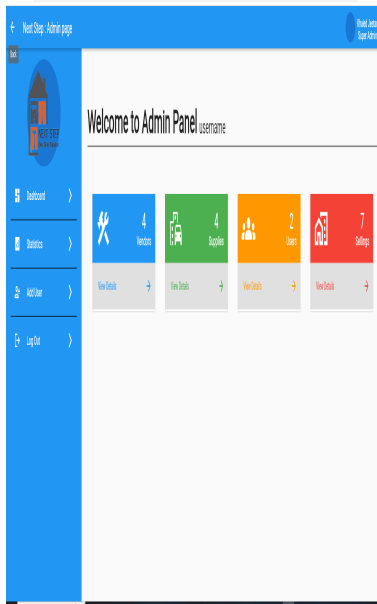


Figure 90: Dashboard Page

VENDORS TABLE

Search:

name	email	phone	Tasks	Rating	Actions	Remove
Vendor02	Vendor@gmail.com	12345	0	★	Show Tasks	Delete
idiot	vendor@gmail.com	91234567	3	★★	Show Tasks	Delete
adablah	adablah@gmail.com	059123456	1	★★★	Show Tasks	Delete
adabla	adabla@gmail.com	91234567	1	★★	Show Tasks	Delete

Figure 91: Vendor Table Page

PRODUCTS TABLE

Search:

Name	Supplier	Price	Unit	Category	Total	Rate
Bricks	supplier supplier	1	1	ELECTRICAL_INSTALLATION	0	
stones	supplier supplier	3	1 piece	ELECTRICAL_INSTALLATION	0	
Tables	supplier supplier	53	1	TRAM_AND_MIDLAND	0	
Blocks	supplier supplier	53	1 piece	TRAM_AND_MIDLAND	0	

Figure 92: Products Table Page

USERS TABLE

Search:

name	email	phone	Constructions	role	Actions	Remove
update	client@gmail.com	059123456	10	mantri	Update	Delete
Khaled	Waleed@gmail.com	059123456	0	Super Admin	Update	Delete

Figure 93: User Table Page

SELLINGS TABLE

Total: 390

Search:

name	Supplier	Bought By	For task	Vendor	Amount	price	total	Status	Update
Bricks	supplier supplier	update client	PLUMBING_INSTALLATION	Unit/Target	25	1	25	DEIVERED	update
Bricks	supplier supplier	update client	PLUMBING_INSTALLATION	idiot vendor	40	1	40	DEIVERED	update
Bricks	supplier supplier	update client	ELECTRICAL_INSTALLATION	Unit/Target	25	1	25	DEIVERED	update
Bricks	supplier supplier	update client	PLUMBING_INSTALLATION	idiot vendor	30	1	30	DEIVERED	update
Bricks	supplier supplier	update client	PLUMBING_INSTALLATION	idiot vendor	50	1	50	DEIVERED	update
Bricks	supplier supplier	update client	ELECTRICAL_INSTALLATION	idiot vendor	100	1	100	DEIVERED	update
Bricks	supplier supplier	update client	ELECTRICAL_INSTALLATION	adablah client	120	1	120	DEIVERED	update

Figure 94: Selling Table Page

Figure 95: Dashboard cards Pages

2. Statistics:

Clicking on this button opens a dedicated screen that presents chart showcasing the selling amount of products over a specified time frame, allowing the admin to track sales trends and identify periods of high or low activity. These statistics provide valuable information for making data-driven decisions and optimizing business strategies.

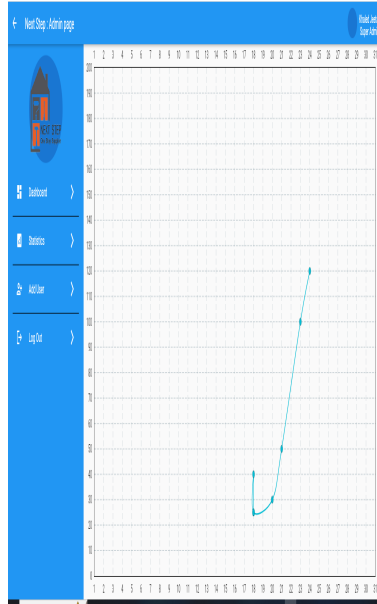


Figure 96: Statistic Page

3. Add User:

This button provides the admin with a user-friendly form to add new users to the system.

Next Step Admin page Print Add User

User Information

First Name: Last Name:

Email: Password: Role:

Phone Number: Location:

Status: Type: Priority:

Service Center:

Figure 97: Add User Page

5 Results and Discussion

The completion of our construction project provided valuable insights and outcomes. The software solution proved effective in streamlining the home building and finishing process. Users benefited from the ability to select suitable vendors and suppliers based on their specific requirements. The budget tracking system aided in managing expenses and keeping projects on track. The availability of pipe lined steps for construction work facilitated a smoother experience in handling construction tasks. The collaboration and communication features fostered efficient interaction among customers, suppliers, and providers. Moving forward, further improvements and feature enhancements can be explored to optimize the software's performance and address potential challenges in the construction industry.

6 Conclusion and Recommendation

6.1 conclusion

Completing this project has equipped us with valuable knowledge and experience in utilizing essential frameworks for software development. Through the implementation of our construction project, we have gained a deep understanding of Flutter, Spring Boot, and other technologies involved. The use of Flutter enabled us to create a feature-rich, cross-platform mobile application with ease and efficiency. Similarly, employing Spring Boot empowered us to develop a robust and scalable backend solution for our project. Overall, this project has not only enhanced our technical skills but also reinforced the importance of selecting appropriate frameworks to achieve project goals effectively. We are confident that the insights gained from this project will be valuable in our future endeavors in the field of software development.

6.2 Recommendations

Before starting the implementation of our application, we invested considerable time researching the best frameworks, languages, and services. We found that Flutter, a cross-platform mobile application framework developed by Google, met our requirements perfectly. It offers ease of use, high performance, a high-level programming language (Dart), and a large community for support. We highly recommend Flutter for creating scalable and time-sensitive applications, as it enables rapid development and provides excellent results.

Additionally, based on our experience, we recommend utilizing Spring Boot for developing robust and scalable applications. Spring Boot, a Java-based framework, simplifies the development process with features like dependency management and auto-configuration. It allows developers to focus on the core

functionalities of the application and improves productivity. With a large and active community, Spring Boot provides extensive documentation and support. By leveraging the capabilities of Spring Boot, developers can create efficient and maintainable applications for the construction industry.

6.3 Future Work

Although we have successfully developed our construction project app with its current set of features, there are several areas that we plan to focus on for future improvements and enhancements. Some of the potential areas for future work include:

- **User Interface Enhancement:** We aim to further enhance the user interface of the app to provide a more intuitive and visually appealing experience for users. This may involve refining the design, optimizing the layout, and incorporating modern UI/UX principles to make the app more user-friendly.
- **Expanded Supplier and Provider Network:** Currently, our app allows users to connect with a selection of vendors and suppliers. In the future, we plan to expand the network by adding more reliable and high-quality service providers, ensuring that users have a wider range of options to choose from.
- **Integration with Smart Home Technologies:** As the concept of smart homes continues to evolve, we intend to integrate our app with smart home technologies. This would enable users to control various aspects of their home, such as lighting, temperature, security systems, and appliances, directly through our app, providing a seamless and connected living experience.
- **Enhanced Budget Tracking and Cost Estimation:** We recognize the importance of accurate budget tracking and cost estimation in construction projects. In the future, we plan to enhance our app's budget management capabilities by incorporating advanced algorithms and data analysis techniques to provide more accurate cost estimates and real-time tracking of expenses.

By focusing on these areas of future work, we aim to continually improve and evolve our construction project app, ensuring that it remains a valuable and indispensable tool for users in their home construction

References

[1] <https://flutter.dev/>

[2] <https://spring.io/guides/gs/spring-boot/>

[3] <https://developer.android.com/studio>

[4] <https://ngrok.com/>