



Designing an Intuitive UI/UX for Laundry and Household Cleaning Services Using a User-Centered Design Thinking Approach

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Abstract—The growing demand for footwear and accessory care reflects an increasing awareness of cleanliness and personal appearance. This study focuses on a cleaning service business specializing in shoes, bags, and strollers, with shoes as the primary focus. Operational challenges, including inefficient customer communication and delays due to high demand, impact customer satisfaction. Using the Design Thinking method, this research develops a user-centered User Interface (UI) and User Experience (UX) for the business's application. The Design Thinking process—empathize, define, ideate, prototype, and test—helped identify pain points and generate tailored solutions, such as improved navigation and task flow. Usability testing involved 18 participants performing key tasks, including booking services and tracking orders, with success rates and error metrics as evaluation criteria. The testing yielded a 70.6% task completion success rate, indicating improved service efficiency. However, the 54.4% misclick rate, higher than typical benchmarks for similar applications (30–40%), highlights significant navigation challenges. Future iterations will focus on refining the interface layout and enhancing task clarity to reduce errors and improve usability. These findings emphasize the value of iterative, user-centered design in addressing operational inefficiencies and enhancing the customer experience.

Keywords: Clean Bar; UI/UX Design; Design Thinking; Footwear Care; Usability Testing

1. INTRODUCTION

The footwear care industry has experienced significant growth in recent years, driven by increasing public awareness of cleanliness and aesthetic appeal. Particularly in urban areas, where professional appearances and lifestyle trends are paramount, services such as shoe cleaning have become essential [1], [2], [3]. Clean Bar is one such business that specializes in cleaning footwear, bags, and strollers. While the service extends the usability and sustainability of these items, it also meets the growing demand for eco-friendly and well-maintained personal belongings.

Despite its success, Clean Bar faces operational challenges that threaten customer satisfaction and hinder business scalability. For instance, during peak hours, customers report delays in service, confusion about order status, and lack of real-time updates, as noted in interviews with customers and employees. A Clean Bar customer shared that “the service is good but lacks clarity on when to collect cleaned items,” reflecting the need for better communication. Employees echoed these concerns, citing “short staffing and time pressures during busy periods” as significant operational bottlenecks. Such inefficiencies not only impact customer experience but also strain the workforce, reducing overall productivity. Addressing these challenges requires an innovative solution that prioritizes both operational efficiency and user satisfaction [4], [5], [6].

Digital applications have shown significant potential in resolving service inefficiencies across industries. For instance, laundry service apps enable real-time order tracking, while food delivery platforms provide transparent status updates that improve customer engagement and trust [7], [8]. Leveraging these advancements, this study employs the Design Thinking methodology to redesign the User Interface (UI) and User Experience (UX) of the Clean Bar application. By addressing pain points such as delayed communication and unclear service timelines, the redesigned application aims to enhance service transparency and operational efficiency [9], [10].

Design Thinking offers a user-centered approach to problem-solving that is particularly suited to addressing Clean Bar’s challenges. Through its five stages—empathize, define, ideate, prototype, and test—the methodology ensures that solutions are iteratively refined based on user feedback, to ensure a comprehensive and user-focused approach. For example, the empathize stage involves gathering insights from both customers and employees to identify the root causes of dissatisfaction, such as delays and staffing issues. The define stage then translates these insights into actionable problem statements, such as “improving communication on order statuses.” By focusing on user needs, Design Thinking ensures that the proposed solutions are both practical and impactful [11], [12], [13], [14].

By leveraging insights from both users and operational stakeholders, this research aspires to deliver an innovative digital solution that not only resolves existing pain points but also sets a new benchmark for quality service delivery in the footwear care industry.

2. RESEARCH METHODOLOGY

This research adopts the Design Thinking methodology to develop a mobile application that addresses the operational challenges and enhances the customer experience for Clean Bar. Design Thinking is a user-centered, iterative framework that fosters innovation by focusing on real-world problems and user needs. The methodology comprises five stages: Empathize, Define, Ideate, Prototype, and Test. Each stage was carefully implemented, and the insights gained informed the application's design and development. Figure 1 provides a visual representation of the process.

1. **Empathize:** This foundational stage involved conducting interviews with Clean Bar users, including both customers and employees, to gain a deep understanding of their needs, pain points, and expectations. For instance, customers highlighted frustrations with unclear service timelines and insufficient updates, while employees pointed to operational bottlenecks caused by staff shortages. The Empathize stage focused on understanding the needs, frustrations, and expectations of Clean Bar's stakeholders, including customers and employees. This phase included interviews, developing user scenarios, and empathy mapping. [15].
2. **Define:** Insights from the Empathize stage were analyzed to articulate key problem statements. For example, the team identified the lack of real-time service updates and communication as critical user challenges. A focused problem statement was established: "How might we create a mobile application that provides real-time updates and enhances communication to improve customer satisfaction and operational efficiency?" This statement served as the guiding principle for subsequent design efforts. [16].
3. **Ideate:** At this stage, the focus shifts to generating creative ideas based on the analysis of user needs and identified problems. Through brainstorming sessions with stakeholders and team members, potential solutions are conceptualized, forming the foundation for the application design, and the development of wireframes [17].
4. **Prototype:** The solutions conceptualized in the Ideate stage were translated into functional prototypes using Figma. Features such as live tracking, push notifications, and a streamlined user dashboard were included. These prototypes served as the basis for testing in the next phase. [18].
5. **Test:** In this final stage, the prototypes are tested by users to gather real-world feedback. Insights gained during testing help identify areas for improvement, ensuring the product evolves to better meet user expectations. The test phase involved evaluating the prototypes through user testing on the Maze platform. A total of 18 participants (12 customers and 6 employees) were engaged to ensure diverse feedback [19].

The iterative nature of Design Thinking allows for continuous refinement by revisiting earlier stages and incorporating feedback, making it highly effective in solving complex, user-centered challenges. Early feedback indicated confusion with notification wording. This was addressed by revisiting the Define and Ideate stages, leading to clear and concise notification templates. This flexibility enables designers to engage with users collaboratively and uncover hidden insights that might be overlooked in conventional development methods.

Moreover, Design Thinking is increasingly recognized for promoting sustainable innovation. Beyond its focus on user-centered solutions, it also integrates environmental and social considerations into the design process. Studies highlight its potential to foster sustainable practices by encouraging businesses to merge user needs with ecological responsibility. This dual focus on innovation and sustainability establishes Design Thinking as a pivotal framework for modern mobile application development [20], [21].

The Five Design Thinking Steps



Figure 1. Stages of Design Thinking Method

3. RESULT AND DISCUSSION

3.1 Emphatize

The empathize stage focuses on deeply understanding the challenges and needs faced by both Clean Bar employees and customers, providing a foundation for user-centered application design. Interviews with a user persona representing employees role revealed several operational inefficiencies and resource limitations. One of the primary challenges is managing time effectively during periods of high customer demand, exacerbated by a shortage of staff. Employees often struggle to process orders quickly, leading to delays in service completion. Although the current number of employees can handle regular workloads, peak times pose significant difficulties, and no formal strategies exist to address overload situations. Communication among employees during high-

pressure periods is informal, relying heavily on individuals working faster to meet demand. This lack of a structured approach to workload management underscores the need for operational support tools that could optimize time and resource allocation.

On the customer side, interviews with a user persona highlighted key pain points that affect their experience with Clean Bar services. Customers often face long waiting times without prior knowledge of service durations, leading to frustration and dissatisfaction. For example, some customers only learn about the three-day waiting period for shoe cleaning upon arriving at the store. Additionally, there is a desire for greater transparency and convenience in the service process. Customers expressed interest in features such as booking appointments, receiving notifications when items are ready for pickup, and understanding the overall business process through a digital platform.

These findings emphasize a shared need for better communication, transparency, and efficiency in the Clean Bar service process. For employees, a system to manage and streamline workload distribution would address the lack of strategies for handling high demand. For customers, a digital solution could provide convenience, reduce waiting times, and enhance overall satisfaction. By addressing these interconnected challenges, the Clean Bar application has the potential to significantly improve both operational efficiency and user experience.

3.2 Define

The Define stage aims to analyze the insights gathered during the Empathize phase to clearly identify and articulate the primary challenges and needs faced by Clean Bar’s users—both employees and customers. This stage transforms scattered observations and user feedback into a cohesive problem statement that becomes the foundation for the design and development process of the application.

For employees, the interviews revealed operational inefficiencies, such as a lack of structured strategies for managing high demand and limited resources, which often lead to delays and reduced productivity. Employees struggle to maintain a consistent workflow during peak times, and the absence of clear communication strategies exacerbates these issues. These challenges were mapped out using a journey map to highlight critical pain points within their workflow. The map revealed bottlenecks in task distribution, ineffective time management, and the stress caused by unbalanced workloads, as shown in figure 2 and 3 bellow.

Similarly, the journey map for customers captured their frustrations with long waiting times, lack of updates on the status of their orders, and the inconvenience of having to visit the store physically to check service progress. These issues disrupt the overall user experience and diminish customer satisfaction. Customers expressed a strong desire for greater transparency and more convenient service options, such as the ability to schedule appointments, receive notifications when their items are ready, and access information about service processes. By synthesizing this data, the research identified the following problem statements:

1. Employee-focused problem: The lack of operational support tools to manage workload distribution and enhance communication among employees leads to inefficiencies and delays, particularly during peak periods.
2. Customer-focused problem: The absence of real-time updates and transparent service processes results in unnecessary waiting times and customer dissatisfaction.

These problem statements serve as the focal points for the subsequent stages of the design process, guiding the development of a user-centered application that addresses both operational inefficiencies and customer service gaps. The Define stage not only helps prioritize the most pressing challenges but also ensures that the solutions are grounded in the real-world experiences and expectations of users. By leveraging these insights, the Clean Bar application aims to bridge the gap between operational needs and customer expectations, ultimately enhancing the overall service experience while supporting business growth.



Figure 2. Worker’s Journey Map

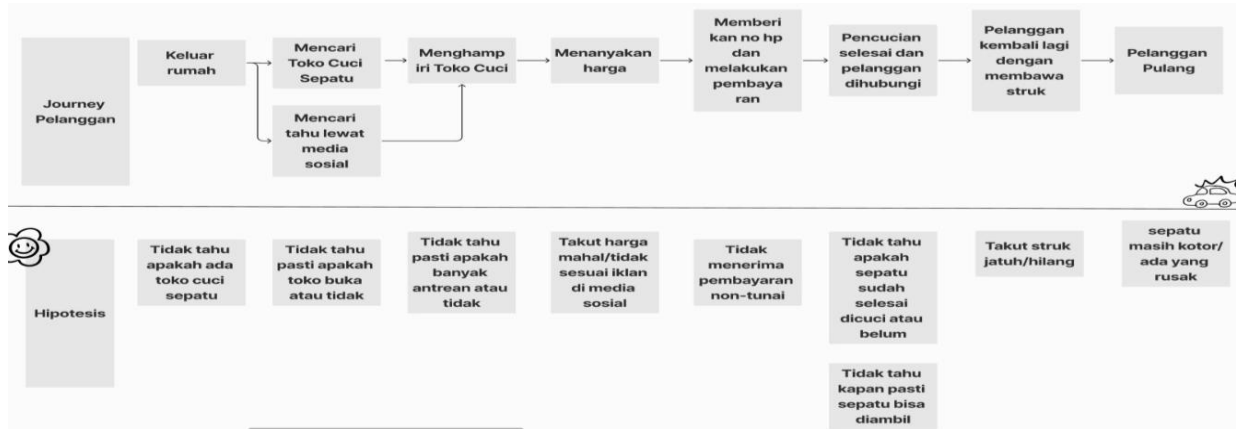


Figure 3. Customer's Journey Map

3.3 Ideate

The Ideate stage is crucial in the Design Thinking methodology, as it shifts from understanding problems to developing innovative solutions. At this point, the research team utilized the "How Might We" (HMW) technique, which reframes challenges into opportunities for creative problem-solving. This method fosters collaboration and ensures that all generated ideas are closely aligned with user needs, ultimately facilitating the development of viable solutions for both employees and customers of Clean Bar.

The ideation process was structured around eight key "How Might We" questions, each designed to address the specific challenges identified during the Define stage. These questions are grouped into two main categories: employee-related issues and customer-related issues, as detailed in Table 1 below.

Table 1. Results of Empathize Stage: Employee Interviews

No	HMW Questions
1.	How might we manage overwhelming workloads more efficiently to avoid delays?
2.	How might we improve time management to ensure timely task completion?
3.	How might we communicate with customers about high workloads to manage their expectations?
4.	How might we enhance non-cash payment options for customer convenience?
5.	How might we reduce waiting times to provide faster and more efficient service?
6.	How might we clearly explain service fees and offer diverse payment options for customer ease?
7.	How might we assure customers that their shoes will be handled carefully and safely during service?
8.	How might we effectively inform customers about store operating hours?

1. Employee-focused Questions: The first three questions focus on operational challenges faced by employees. "How might we manage overwhelming workloads more efficiently to avoid delays?" and "How might we improve time management to ensure timely task completion?" are aimed at developing solutions to optimize resource management during peak periods, thereby reducing delays and stress among employees. "How might we communicate with customers about high workloads to manage their expectations?" focuses on bridging the gap between operational challenges and customer expectations, ensuring that customers are informed about delays in a proactive and professional manner.
2. Customer-focused Questions: The remaining five questions address customer experience issues. "How might we reduce waiting times to provide faster and more efficient service?" and "How might we clearly explain service fees and offer diverse payment options for customer ease?" are aimed at increasing customer satisfaction by improving service transparency and streamlining the payment process. These questions reflect a strong desire to offer a more intuitive and efficient experience. The questions "How might we assure customers that their shoes will be handled carefully and safely during service?" and "How might we effectively inform customers about store operating hours?" focus on building trust and ensuring customers have easy access to important service information, thereby enhancing the overall user experience.

These questions served as the foundation for brainstorming sessions, which were conducted with team members and relevant stakeholders, including Clean Bar employees and customers. The sessions generated a wide range of ideas, some of which included implementing a real-time task management system to balance employee workloads, integrating a customer-facing feature to provide status updates and notifications about order progress, and adding flexible payment options to improve customer convenience. By addressing each "How Might We" question, the team ensured that all ideas were directly connected to the specific issues identified in the Define stage.

Through this structured ideation process, the team was able to generate diverse, user-centered solutions. The outcome was a set of actionable ideas that aligned with both operational needs and customer expectations.

These ideas laid the groundwork for the Prototype stage, where they would be translated into tangible designs and tested with users.

3.4 Prototype

The Prototype stage is focused on transforming the ideas generated during the Ideate phase into tangible representations that can be tested by users. It involves turning concepts into visual models that allow for real-time evaluation and refinement. At this stage, the design team began developing wireframes and prototypes using tools like Figma to create an interactive version of the Clean Bar application. These prototypes serve as early representations of the final product, enabling users to experience the design and provide valuable feedback that will inform the next stages of development.

3.4.1 Typography and Color

Typography and color are essential elements of user interface design, as they significantly impact both functionality and aesthetics. Typography refers to the style, size, and arrangement of text, which affects readability and the overall user experience. The choice of color influences the visual appeal of the application and helps guide users' attention to important elements. For Clean Bar, the typography and color scheme were selected to ensure clarity and ease of use, with contrasting text and background to improve legibility. The color palette was chosen to reflect the Clean Bar brand, using calming tones that conveyed cleanliness and professionalism while also ensuring accessibility for all users.

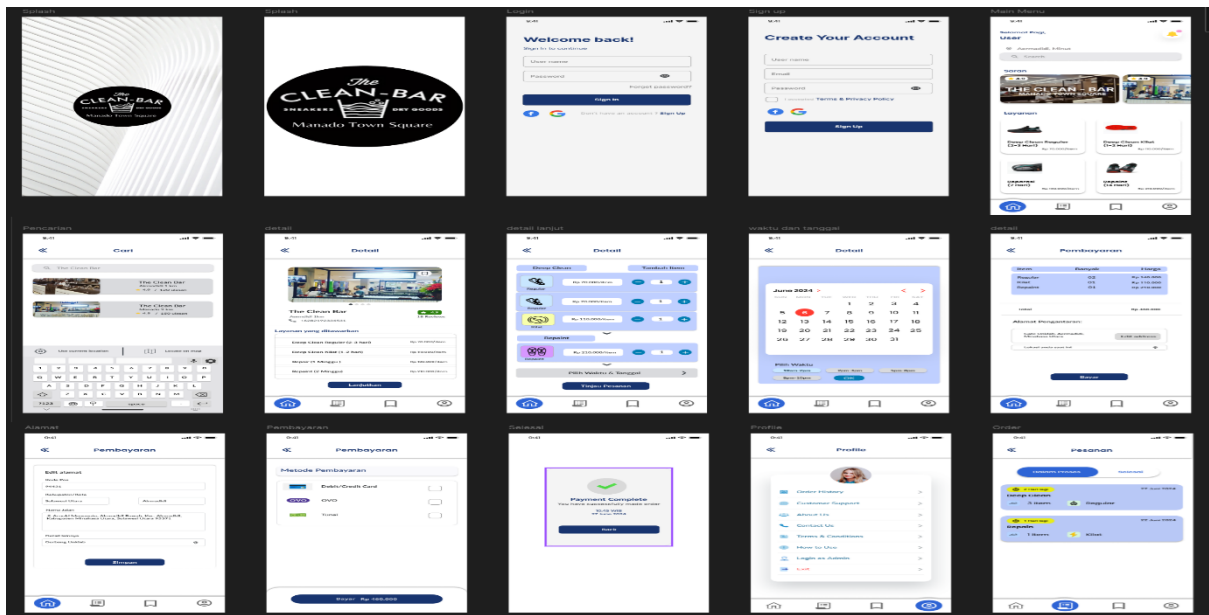


Figure 4. Typography and Color Scheme for the Clean Bar Application

This figure showcases the selected typography and color scheme, which emphasizes readability and user-friendly navigation. The design team chose modern fonts and a minimalistic color palette to create a clean and appealing visual experience. The color choices were intended to promote trust and clarity while ensuring that important elements, such as call-to-action buttons, stood out.

3.4.2 High Fidelity Wireframe

High fidelity wireframes are more refined than low fidelity versions and closely resemble the final product in terms of visual details, such as color, images, and precise layouts. These wireframes offer a more accurate preview of the user interface (UI) and user experience (UX), allowing stakeholders to get a clearer idea of what the final application will look like and how it will function. In the high-fidelity wireframe for Clean Bar, the design team incorporated elements like real images, actual color schemes, and well-defined UI components. This version included detailed screens, precise button placements, and interaction flow, reflecting a more polished representation of the application. The high-fidelity wireframe was critical for gathering more specific user feedback on visual design, usability, and overall user satisfaction.



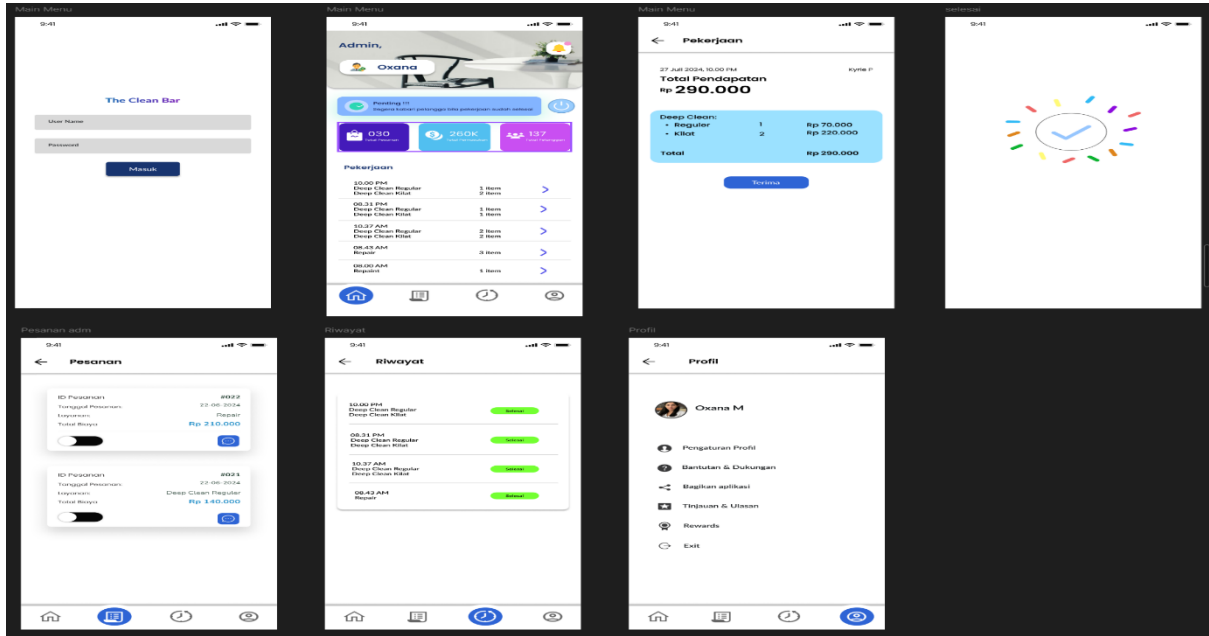


Figure 5. High Fidelity Wireframe of the Clean Bar Application

This figure displays a more developed version of the Clean Bar application, featuring polished visuals, clearly defined buttons, and color implementation. The detailed layout helps stakeholders better understand how the application would look and feel during real use. This version also allowed for more in-depth usability testing to ensure that users could easily navigate and interact with the app.

3.4.3 Task Scenario

Task scenarios are detailed use cases designed to evaluate the functionality and usability of the application. These scenarios represent real-life situations that users might encounter while interacting with the app. By simulating these tasks, designers can assess how well the application supports user goals and identify areas for improvement. For Clean Bar, three task scenarios were created to evaluate the app’s functionality across different user tasks:

1. Scenario 1: Finding a nearby Clean Bar location for shoe cleaning.
2. Scenario 2: Booking a cleaning service, choosing a pickup time, and completing the payment.
3. Scenario 3: Admin confirmation of customer orders for processing.

These tasks were designed to cover key user interactions within the app, from locating the nearest service point to completing a service request and processing an order as an admin. The scenarios were used during usability testing to gather feedback on the app’s usability and functionality.

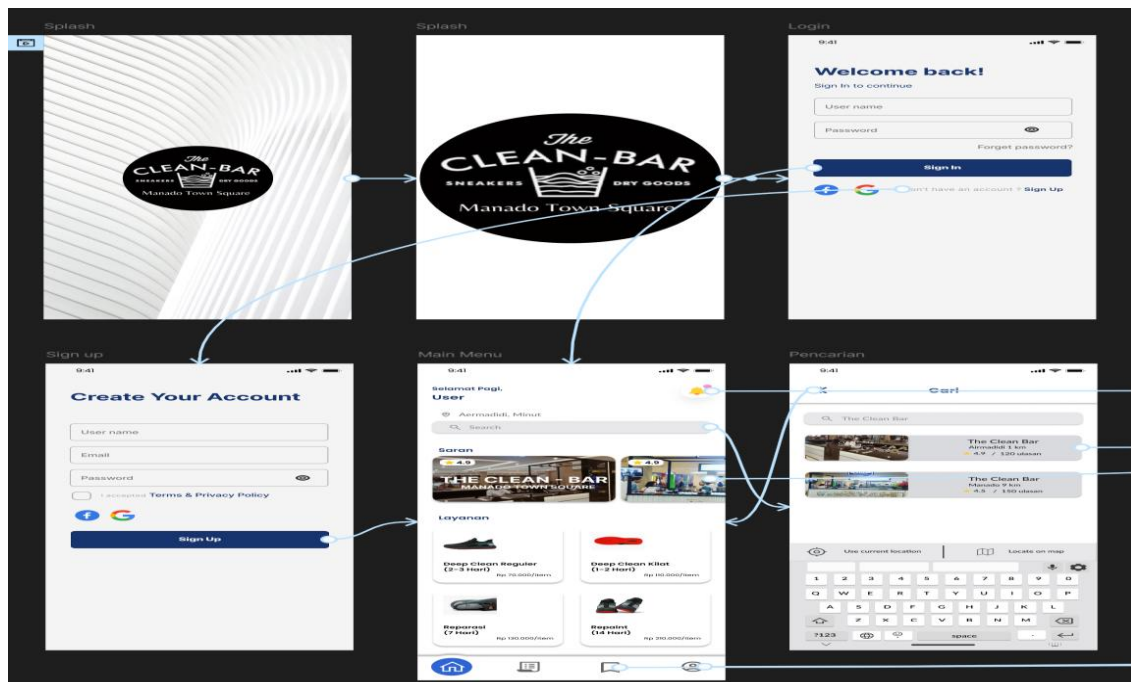


Figure 6. Scenario 1: User Goal – Finding a Nearby Clean Bar Location

In this figure, users are guided through the process of locating the nearest Clean Bar location using the app's search and map features. The interface ensures that users can easily find a suitable location based on proximity and availability.

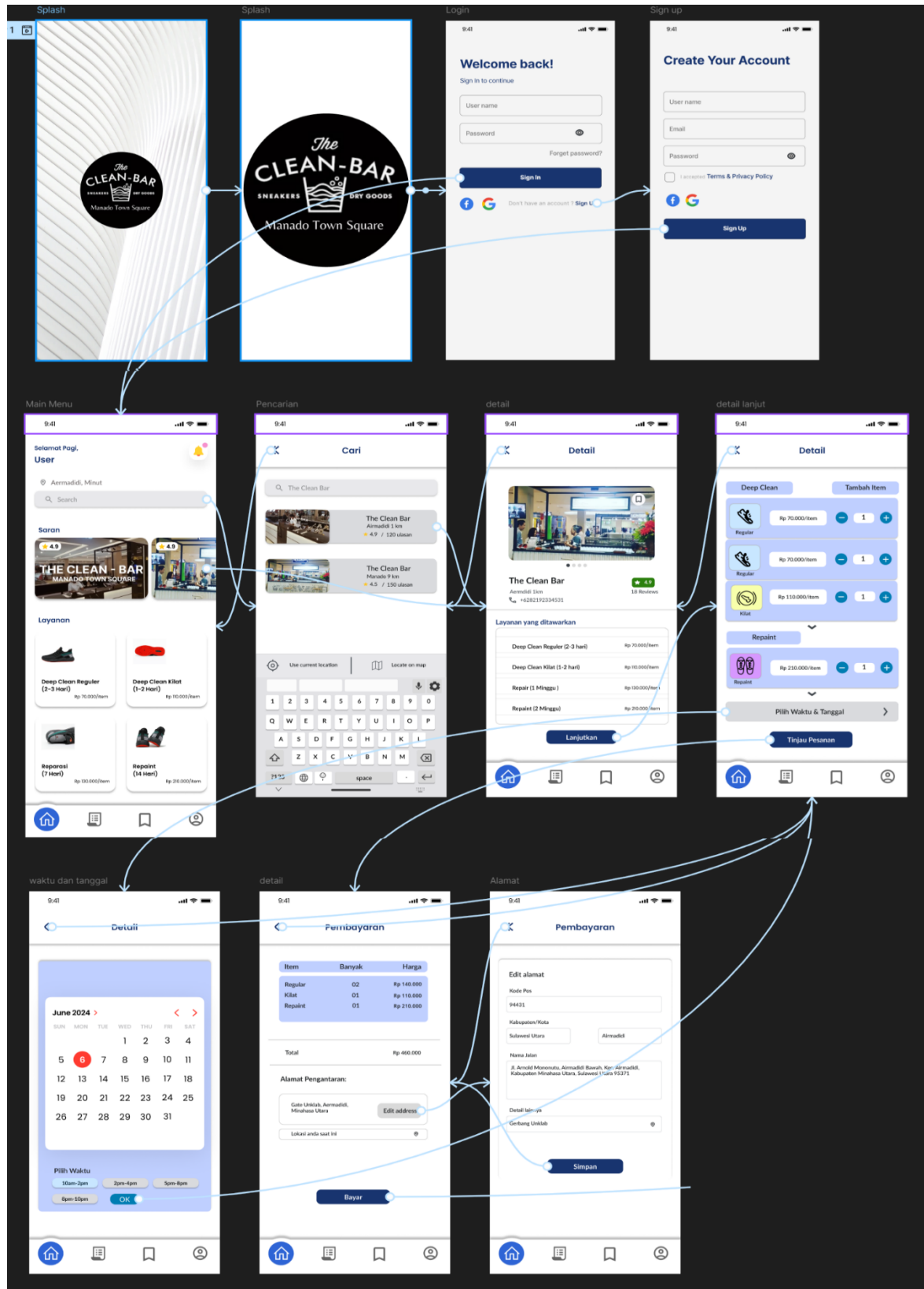


Figure 7. Scenario 2: User Goal – Booking a Service

Here, users navigate the service booking screen, where they can select cleaning services, choose a pickup time, and complete payment. The user-friendly design allows users to quickly understand the booking flow and make their selections with minimal effort.

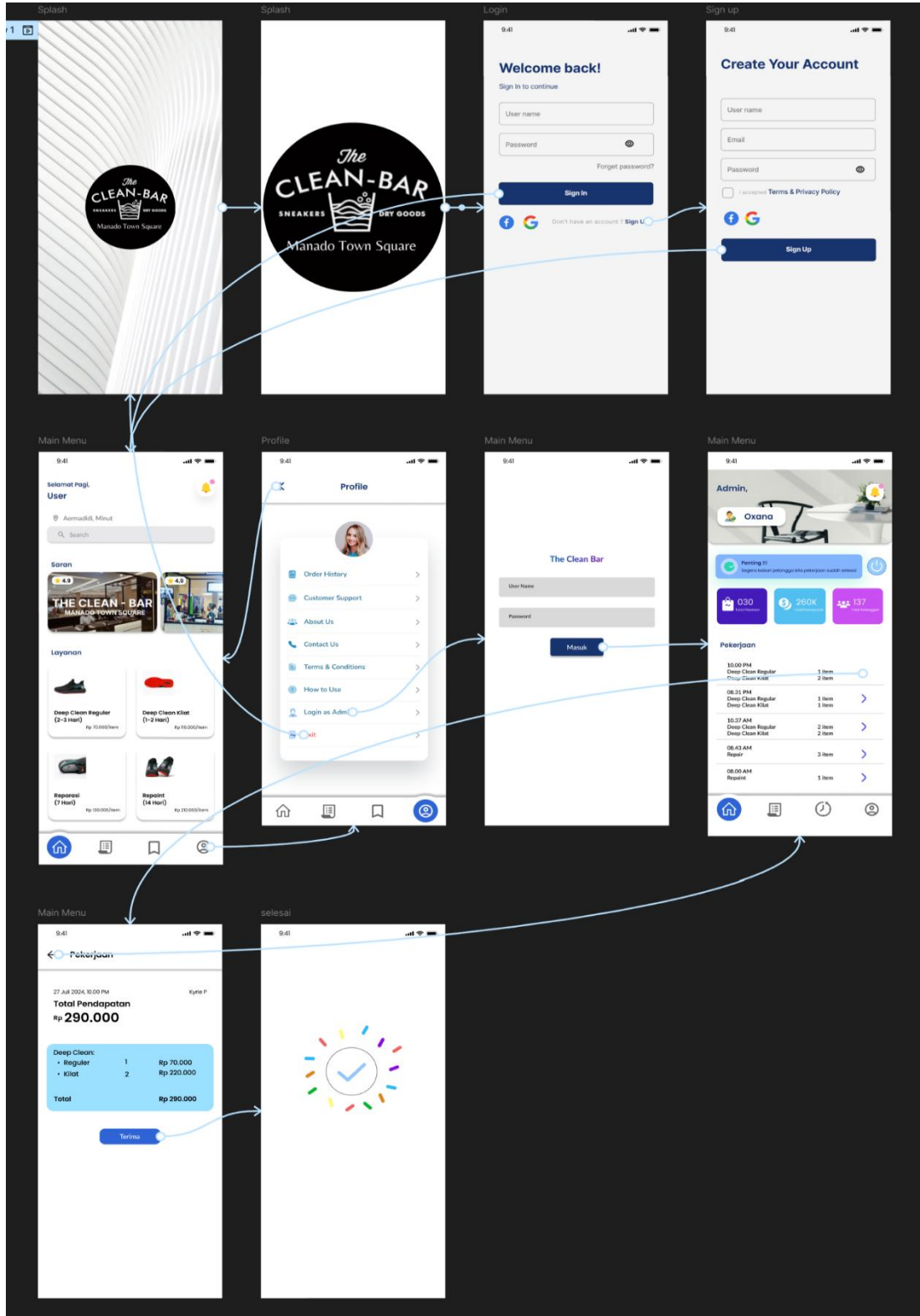


Figure 8. Scenario 3: Admin Goal – Confirming Customer Orders

This figure depicts the admin interface for confirming incoming customer orders and initiating the processing of those orders. It highlights the administrative functions needed to streamline the service fulfillment process and ensure timely processing of orders.

3.4.4 Potential Impact of the App

The Clean Bar application introduces key features such as a real-time task management system and automated notifications, designed to optimize employee workflows and reduce inefficiencies. These features significantly impact operational efficiency in, but not limited to, the following ways:

1. Real-Time Task Management System:
 - a. Enables employees to dynamically distribute and track workloads, especially during peak hours.
 - b. Reduces reliance on informal communication by providing clear task assignments and priorities.
 - c. Helps prevent employee overload by ensuring tasks are evenly and efficiently distributed.
2. Automated Notifications for Customers:
 - a. Sends timely updates to customers regarding the status of their orders, such as when items are ready for pickup.
 - b. Minimizes the time employees spend responding to repetitive customer inquiries about order progress.
 - c. Enhances transparency for customers without increasing the workload for employees.

Projections suggest that these features could reduce the time employees spend on manual coordination and customer follow-up, leading to smoother workflows and enhanced service delivery during high-demand periods. It is important to note that these are not the only features offered by the application. A complete list of features and their potential impacts can be found in the Ideate section, which details the solutions generated during the design process. By integrating these digital tools, the application not only improves employee productivity but also fosters a more organized and efficient operational environment.

3.5 Testing

The Test stage is a critical component of the Design Thinking process, aimed at evaluating the usability and effectiveness of the Clean Bar application. During this phase, the prototypes created in the Prototype stage were tested with real users to gather feedback on the design and identify any usability issues. 18 participants were involved during this testing phase. Both qualitative and quantitative data were collected to assess the overall user experience, identify pain points, and determine areas for improvement.

Usability testing was conducted with a group of potential users who interacted with the application through three specific task scenarios, each designed to simulate common tasks that users would perform within the app [22], [23]. These tasks were intended to evaluate the functionality and ease of use of the key features, such as service booking, order status notifications, and admin order processing. The results of these tests provided valuable insights into the app's performance and highlighted areas that needed refinement before the final release. To effectively evaluate the application, three specific task scenarios were created. Each scenario focused on a different aspect of the Clean Bar service, testing both user and admin functions. The task scenarios included:

3.5.1 Scenario 1: Finding a Nearby Clean Bar Location

The first task scenario focused on assessing how easily users could locate and select a nearby Clean Bar service point. Users interacted with the map and search functionalities of the application to perform this task. The objective was to evaluate the intuitiveness of the navigation system and the responsiveness of the search function. The usability testing results indicated that users found the map feature intuitive and helpful. However, several users faced difficulties with the search functionality, noting its lack of responsiveness and occasional failure to display relevant results. This issue highlighted the need for optimization of the search feature to ensure a smoother user experience.

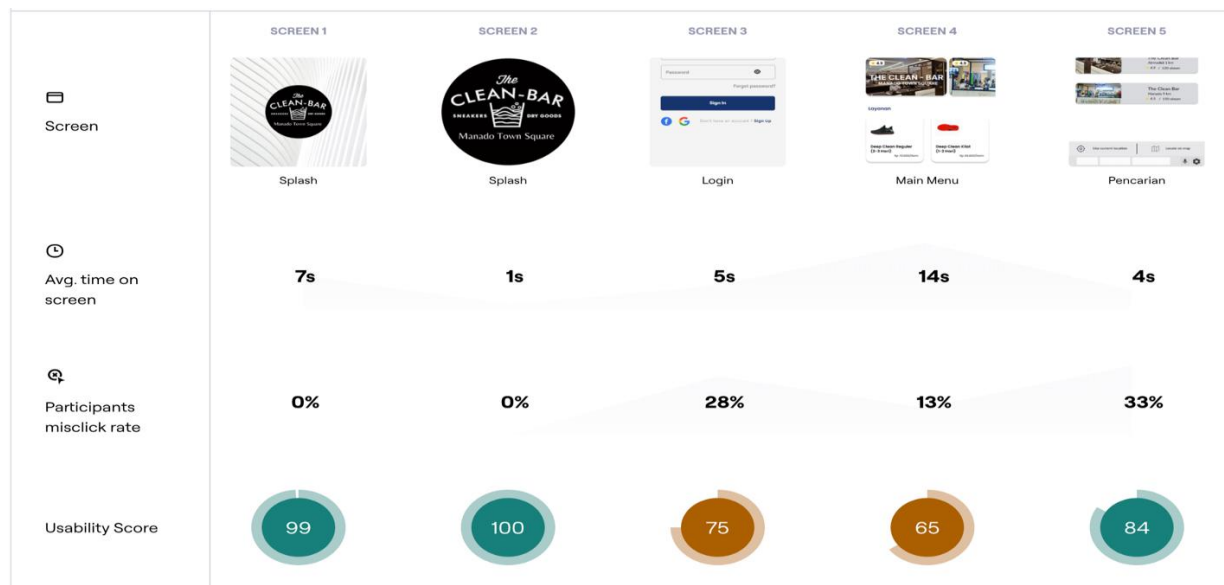


Figure 9. Usability Testing for Scenario 1: Finding a Nearby Clean Bar Location

This figure illustrates how users interacted with the app while attempting to locate a nearby Clean Bar. It showcases the areas of the interface they engaged with most frequently.

3.5.2 Scenario 2: Booking a Service and Completing Payment

This scenario evaluated the booking process, where users selected services, scheduled a pickup time, and completed the payment process. The focus was on testing the clarity and ease of navigation through the booking and payment interface. Most users successfully completed the booking process, as evidenced by a usability score of 100 for Screens 1 and 2 and scores above 69 for subsequent screens. However, challenges were noted on the payment interface, particularly on Screens 6 and 7, where 25% and 43% of users, respectively, misclicked, leading to usability scores of 75 and 79. The average time spent on these screens was 5 to 6 seconds. Feedback indicated the need for improved visual hierarchy and a more intuitive layout, particularly in the payment section, to address unclear button placement and difficulty identifying payment options.

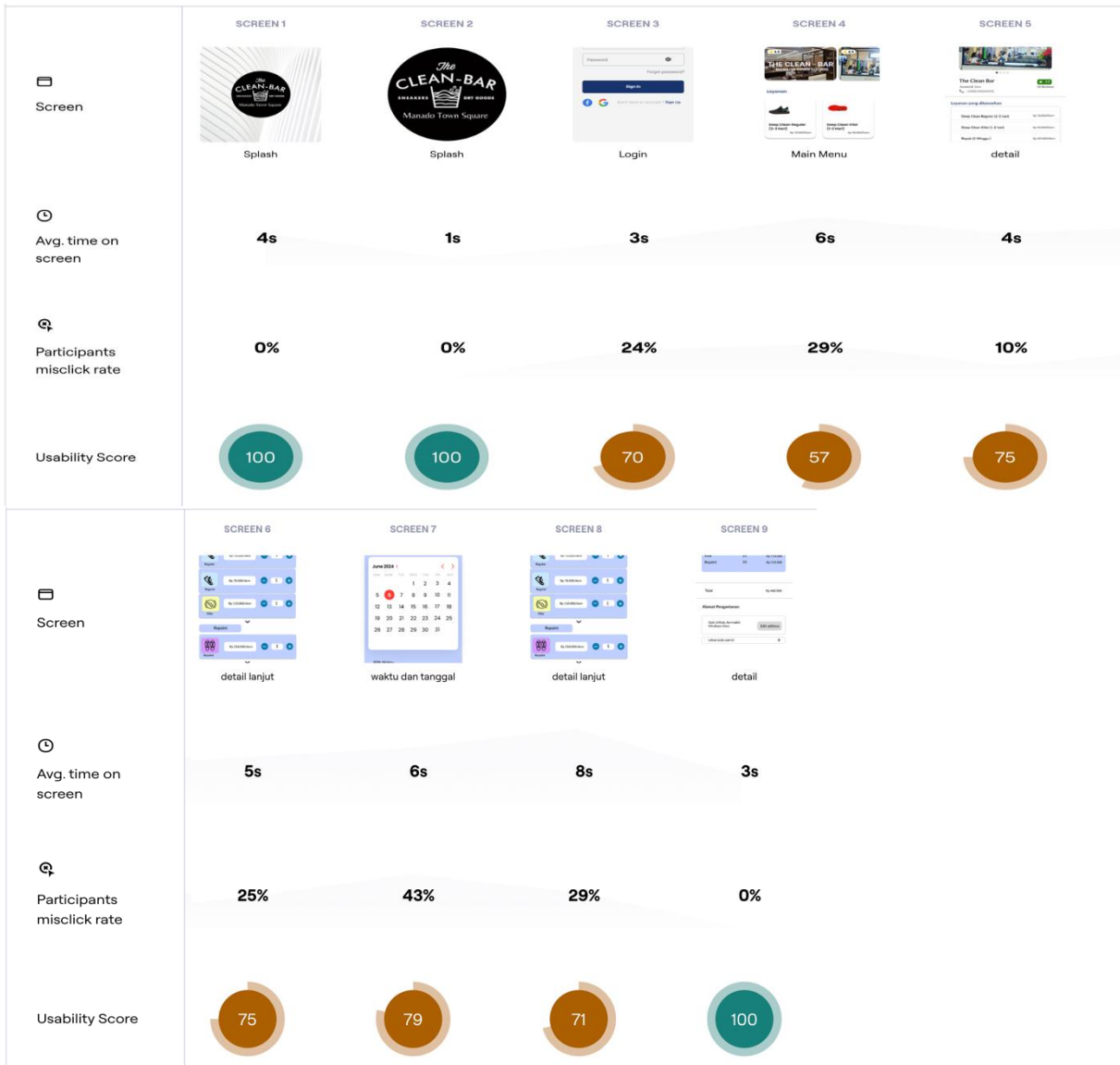


Figure 11. Usability Testing for Scenario 2: Booking a Service

This figure shows the steps users took while booking a service and highlights areas where users interacted with the app.

3.5.3 Scenario 3: Admin Confirming Customer Orders

This scenario focused on testing the admin interface, where administrators managed incoming customer orders. Admins were tasked with confirming and processing orders to assess the interface’s functionality and efficiency. The admin interface achieved mixed usability scores, with Screens 1, 2, and 3 scoring 92, 100, and 100, respectively, reflecting strong performance in initial tasks. However, Screen 4 showed a significant drop, with a usability score of 54 and a 42% misclick rate, indicating challenges in navigation. Similarly, Screen 7 recorded a usability score of 66, with 67% of users misclicking, suggesting difficulties in the layout of the confirmation and payment sections. Administrators spent an average of 2 to 8 seconds per screen, with longer times indicating areas

of inefficiency. Feedback highlighted the need for simplifying the layout, adding quick-access tools for confirming orders, and incorporating more visual cues to enhance the intuitiveness of the interface.

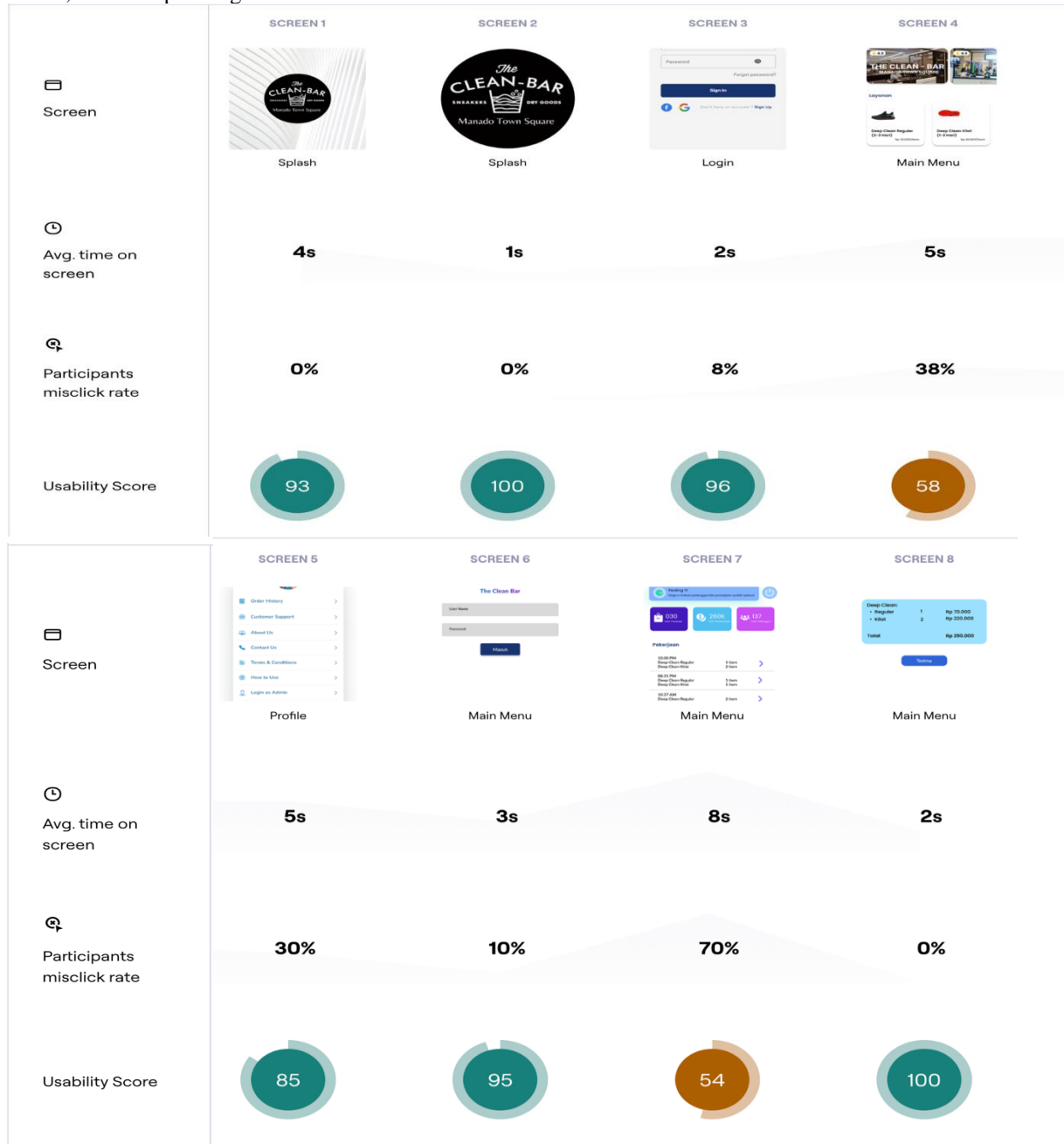


Figure 13. Usability Testing for Scenario 3: Admin Confirming Customer Orders

This figure demonstrates the usability test for the admin interface, highlighting how admins interact with the order confirmation process.

3.5.4 Overall Score of Usability Score, Average Time and Misclick Rate

Based on the Maze Help Center guidelines [24] usability scores between 80–100 are categorized as High, indicating a strong level of usability. In the testing results. As shown on Table 2, all scenarios—Scenario 1: Finding a Nearby Location (85.6), Scenario 2: Booking a Service (81.2), and Scenario 3: Confirming Customer Orders (86.4)—fall within this High usability range. This suggests that the designs across these scenarios are intuitive and meet usability standards for a functional and user-friendly interface, providing a generally positive experience for users.

However, the average misclick rate of 18.3% highlights an area for improvement. While the usability scores are high, a significant misclick rate indicates that users frequently interact with unintended elements, which may lead to confusion or inefficiency. Additionally, the average time per screen across the scenarios—6.4 seconds (Scenario 1), 4.8 seconds (Scenario 2), and 3.9 seconds (Scenario 3)—suggests that users generally complete tasks within an acceptable range.



Table 2. Overall Score

Scenario	Average Usability Score	Average Time (s)	Average Misclick Rate (%)
Scenario 1: Finding a Nearby Location	85.6	6.4	15.0
Scenario 2: Booking a Service	81.2	4.8	20.9
Scenario 3: Confirming Customer Orders	86.4	3.9	19.1
Overall Average	84.4	5.0	18.3

Unfortunately, there is no universal benchmark for Maze usability scores that can be applied across all applications or industries. However, the categorization provided by Maze—defining usability scores as High (80–100), Medium (50–80), and Low (0–50)—serves as a helpful starting point for evaluating design performance. While these thresholds provide a good initial reference, interpreting usability scores should also consider the context of the application, user base, and specific goals of the design. As such, the High usability scores in this study indicate strong usability, but further improvements, particularly in reducing misclick rates and optimizing screen interaction times, can elevate the design to an even higher standard.

4. CONCLUSION

This research utilized the Design Thinking methodology to develop a user-centered application for Clean Bar, aimed at addressing operational inefficiencies and improving the customer experience. By following the iterative stages of empathize, define, ideate, prototype, and test, this study successfully identified key user needs and challenges and proposed innovative solutions to resolve them. The usability testing conducted in the final stage demonstrated that the application provides a significant improvement in service accessibility and operational transparency, yet also highlighted several areas for refinement. The findings from the empathize stage revealed that employees struggle with workload management and time efficiency, particularly during peak periods, due to a lack of operational support tools. Customers, on the other hand, expressed frustration over long waiting times and limited visibility into the status of their orders. The define stage distilled these insights into specific problem statements that guided the ideation and prototyping phases. Through brainstorming sessions and the "How Might We" framework, the research team developed user-centered solutions, including a booking system, real-time notifications, and a streamlined admin interface. Usability testing revealed an overall usability score of 84.4, categorized as High based on the Maze guidelines, indicating that the application provides an intuitive and functional user experience. However, the average misclick rate of 18.3% suggests that users occasionally interact with unintended elements, potentially causing confusion. The average task completion time of 5 seconds per screen indicates that users generally complete tasks efficiently, although further optimization is necessary to enhance usability and reduce errors. Scenario 1 demonstrated the application's intuitive navigation for finding nearby locations, Scenario 2 highlighted its ability to streamline customer interactions through booking and payment features, and Scenario 3 emphasized the admin interface's role in managing customer orders. Improvements to the admin interface, such as simplifying navigation and enhancing task organization, could directly impact operational efficiency by reducing processing times and minimizing errors, aligning with the study's objective to optimize workflows and enhance service delivery. Despite these achievements, this study has several limitations. First, the usability testing was conducted with a relatively small sample size, which may not fully capture the diversity of potential user behavior. Second, the research focused primarily on the Clean Bar context, which may limit the generalizability of the findings to other industries or service types. Third, the study did not explore advanced features such as predictive analytics or AI-driven tools, which could further enhance operational efficiency and user satisfaction. Future research could address these limitations by focusing on the development and implementation of the application, gathering feedback from real users to refine its functionality, and better addressing identified pain points. Advanced technologies like AI for predictive order management could also be considered if they align with specific operational challenges. Additionally, further studies could explore sustainability aspects by developing features that reduce resource usage and support environmentally conscious practices.

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