Designing the UI/UX of the 'Skintopia' Skincare Application Using a User-Centered Design Approach

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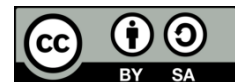## Article Info

ABSTRACT

In recent years, public interest in skincare has significantly increased, especially among younger generations. Although various skincare applications offering skin analysis features are already available, most of them still have limitations. These include product recommendations that are focused only on specific brands, the lack of validation by dermatologists, and the absence of a fully integrated skincare solution within a single platform. This study aims to develop a mobile skincare application called Skintopia, with a focus on user needs through the application of the User-Centered Design (UCD) method. The System Usability Scale (SUS) evaluation results showed scores of 92 from skincare users and 89 from dermatologists. Both scores fall under the "Excellent" category, receiving a grade of A and classified within the "acceptable" level of acceptability. These findings indicate that the UI/UX design of the Skintopia application successfully meets user needs and provides an intuitive and user-friendly experience.

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1. Introduction

In recent years, public interest in skincare has significantly increased, especially among younger generations. According to the ZAP Beauty Index 2024 report, more than half of Indonesian women experience issues such as dull skin, enlarged pores, and uneven skin tone. This indicates a growing awareness of skin health and appearance. Furthermore, 70.6% of teenage girls aged 15–17 have visited beauty clinics, demonstrating that attention to skincare begins at an early age [1]. This trend has also influenced the development of the beauty industry in Indonesia. The availability of local raw materials and a growing productive-age population have contributed to the emergence of various local beauty brands. According to data from the Coordinating Ministry for Economic Affairs, personal care and cosmetic products have consistently ranked among the top categories in e-commerce transactions from 2018 to 2022, with a total transaction value reaching IDR 13,287.4 trillion [2].

192

To better understand the challenges faced by skincare users, this study also conducted a survey involving 55 respondents. The majority were women aged 18–34, most of whom were students or university attendees. Survey results revealed that nearly all respondents use skincare products, yet many struggle to identify their skin type (89.1%), feel confused about choosing the right products (96.4%), and do not know the correct order of product application (45.5%). Additionally, 67.3% of respondents stated that their skincare routines are not yet optimal. While they seek information from social media and beauty apps, many of these sources lack medical validation, often increasing confusion. On the other hand, aggressive promotional tactics by skincare brands pose another issue. It is not uncommon for products to promise results that are disproportionate to their actual ingredients. Data shows that 54.6% of Gen Z consumers are influenced by product claims when making purchases [1]. Moreover, illegal products that have not been approved by the Indonesian Food and Drug Authority (BPOM) and contain harmful substances are still widely available, posing serious health risks such as cancer and liver damage [4].

Interviews with dermatologists emphasize that determining one's skin type and condition cannot be done arbitrarily. Although facial scanning technology can analyze factors such as oil levels, dark spots, wrinkle depth, and pore size, direct examination by a certified dermatologist remains one of the most effective methods.

Given the various challenges identified, developing an application that is oriented toward user needs becomes a strategic step in delivering relevant and effective solutions. Although several skincare applications with skin analysis features are currently available, most still face limitations—such as product recommendations that are biased toward specific brands, the absence of dermatologist validation, and a lack of integrated skincare features within a single platform. Therefore, there is a need for the development of a comprehensive skincare application that actively involves users throughout the design process. The User-Centered Design (UCD) method was chosen because it emphasizes a deep understanding of users' needs, behaviors, and expectations. This approach has proven effective in creating intuitive and user-friendly interfaces.

Several previous studies have explored the application of the User-Centered Design (UCD) method in interface development. The first study, titled UI/UX Design for the "Hallo Coffee" E-Commerce Website Using the User-Centered Design Method, adopted UCD to produce an attractive and easy-to-understand interface prototype. Expert evaluations concluded that the design met good interface standards and was deemed capable of supporting the sales process for coffee shop business owners [6]. The second study, UI/UX Design of the Mizanstore Mobile-Based Online Book Application Using User-Centered Design, focused on creating solutions that facilitate users in searching for and purchasing books. The design process involved identifying user needs, designing the interface, and conducting evaluations using the System Usability Scale (SUS). The evaluation yielded a SUS score of 90, indicating a high level of user satisfaction and functional alignment with user expectations [7]. The third study, Redesign of the UI/UX for the Learning Management System Website of Startup XYZ Using the User-Centered Design Method, aimed to improve user comfort and efficiency. Testing results using SUS showed an increase in score to 91.42, with user performance reaching 93.01%. These results suggest that the redesigned interface successfully accommodated user needs more effectively [8].

Based on the problems described, this study aims to design the UI/UX of a skincare application called Skintopia using the User-Centered Design (UCD) approach. The UCD method was chosen to ensure that the application design process is truly focused on user needs and preferences. It is expected that the resulting interface will offer a more intuitive user experience, thereby enhancing user comfort and satisfaction. Moreover, the design is intended to help users manage their skincare routines more easily and provide effective solutions to the skin problems they face.

2. Research Method

This study adopts the User-Centered Design (UCD) approach, which focuses on user needs and experiences. The process includes problem identification, context of use analysis, and user requirements gathering. Based on these stages, a design solution is developed and then evaluated. If the evaluation results do not meet expectations, improvements are made until the design aligns with user needs. The research flow is illustrated in Figure 1.
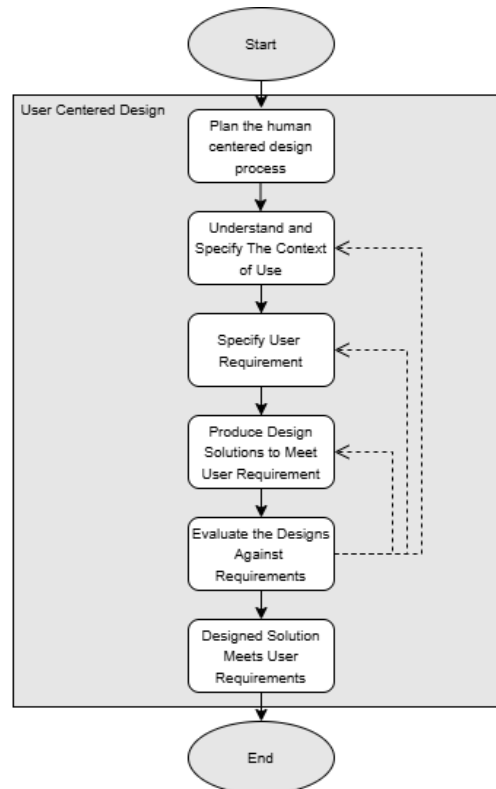
Figure 1. Research Flow of UI/UX Design Development for the Skintopia Application

2.1. Plan The Human Centered Design

The next stage involves developing a comprehensive plan for the user-focused design process. This includes defining design objectives, selecting the methods to be applied, and identifying the necessary resources. The purpose of this planning is to ensure that each step in the design process is carried out systematically and iteratively, thereby producing solutions that effectively meet user needs.

2.2. Understand and Specify the Context of Use

The next step is to understand and define the context of use for the application to be developed. This process involves collecting data about prospective users in order to gain a deeper understanding of their profiles and preferences. At this stage, user personas and empathy maps are created based on the results of the interviews conducted.

2.3. Specify User Requirements

At this stage, an in-depth analysis of user characteristics and needs is conducted to gather information that will serve as the foundation for system design. The collected data is used as a reference to determine the application requirements and features that align with user preferences.

2.4. Produce Design Solutions to Meet User Requirements

This stage involves designing solution concepts based on the previous analysis. The process includes applying a style guide to ensure interface consistency, creating wireframes as initial design drafts, followed by more detailed mockups to visualize the final appearance, and developing interactive prototypes using Figma to test the actual user experience.

2.5 Evaluate the Designs Against User Requirements

The design is then evaluated using the System Usability Scale (SUS) method. During usability testing, the prototype is tested through the Maze.co platform, where users perform predefined tasks to assess ease of use. After completing the tasks, users fill out the SUS questionnaire to evaluate the system's usability.

2.6 Designed Solution Meets User Requirements

This stage demonstrates that the developed design solution has met user needs and expectations. If any shortcomings are identified, iterations are carried out until the solution is fully optimized and can be effectively used by the users.

194

3.   Result and Discussion
3.1. Plan The Human Centered Design
At this stage, the researcher formulates a comprehensive plan for the design process based on the User-Centered Design (UCD) approach. The primary objective is to develop a skincare application tailored to the needs and characteristics of its target users, namely skincare users and dermatologists. This planning serves as a crucial reference for implementing the design process systematically and iteratively. The outcome of this stage indicates that the proposed UCD approach is expected to provide an effective framework for delivering design solutions that are responsive to user needs.

3.2. Understand and Specify the Context of Use
At this stage, data was collected through interviews with two groups of stakeholders: skincare users and dermatologists, each consisting of five respondents. The interviews were conducted both online via video conference and offline. The results of these interviews were analyzed to develop user personas and empathy maps. The information gathered served as the basis for identifying user problems and formulating solutions to be implemented in the mobile application design.

3.2.1. Empathy Map
The empathy map is a representation of the interview analysis results, used to gain a deeper understanding of users' needs and experiences. Through the empathy map, designers can identify what respondents say, think, do, and feel. In this study, the empathy maps were developed based on interviews with ten respondents from two stakeholder groups. Figure 2 illustrates the empathy map for skincare users, while Figure 3 shows the empathy map for dermatologists. Based on this analysis, various problems and proposed solutions shared by the respondents were successfully identified and served as the foundation for the application design process.

Figure 2. Empathy Map of Skincare Users

Figure 3. Empathy Map of Dermatologists

3.2.2. User Persona

The user personas in this study serve as fictional representations of the two main types of users: skincare users and dermatologists. These personas are designed to reflect key aspects such as demographic characteristics, needs, challenges faced, and the goals each user aims to achieve. The development of the user personas was based on in-depth interviews with prospective users, providing a comprehensive and realistic overview of their experiences and expectations regarding the application being developed. The visualizations of each user persona are presented in Figure 4 for skincare users and Figure 5 for dermatologists.
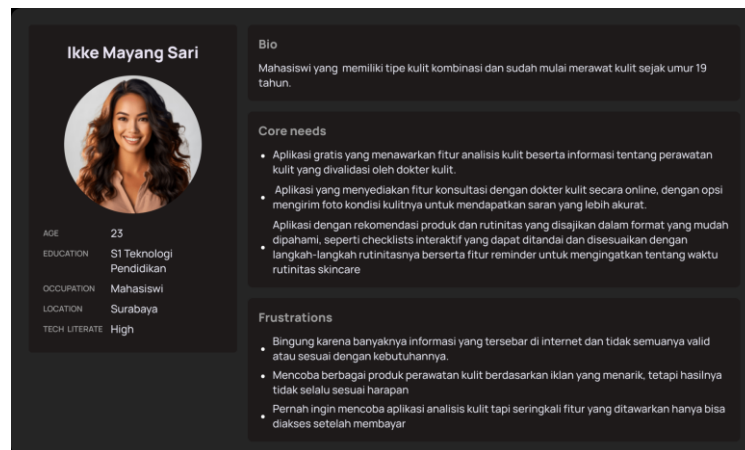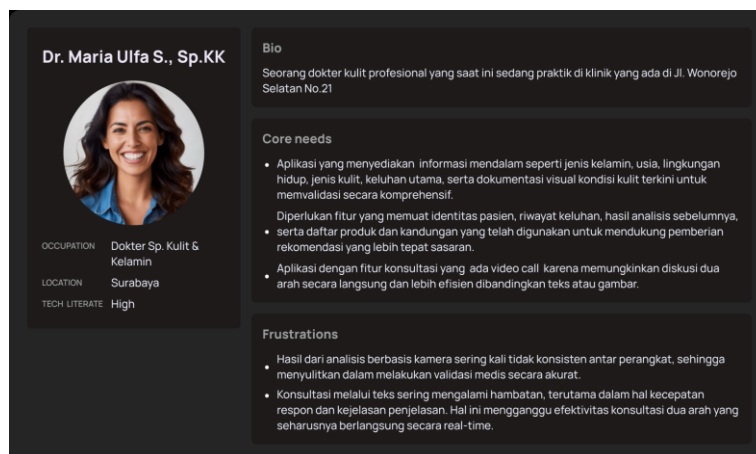

Figure 4. User Persona of Skincare User

Figure 5. User Persona of Dermatologist

3.3. Specify User Requirements

This stage involves analyzing user characteristics and needs to gather data that serves as the foundation for the system design process. The information obtained is used to formulate the application's design requirements and guide feature development to align with user preferences and expectations. The outcome of this stage is presented in the form of an information architecture and user flow, which illustrate the structure and user interaction pathways within the application.

3.3.1. Information Architecture

At this stage, the information structure of the Skintopia application was designed to serve as the foundation for interface development. This information architecture reflects how the application's content is organized and how users will navigate through it, thereby facilitating access to key features. The structure was developed based on the analysis of user needs and findings from previous studies, with the aim of creating an intuitive and efficient user experience. The visualization of the information architecture from the skincare user's perspective is presented in Figure 6, while the dermatologist's perspective is shown in Figure 7.
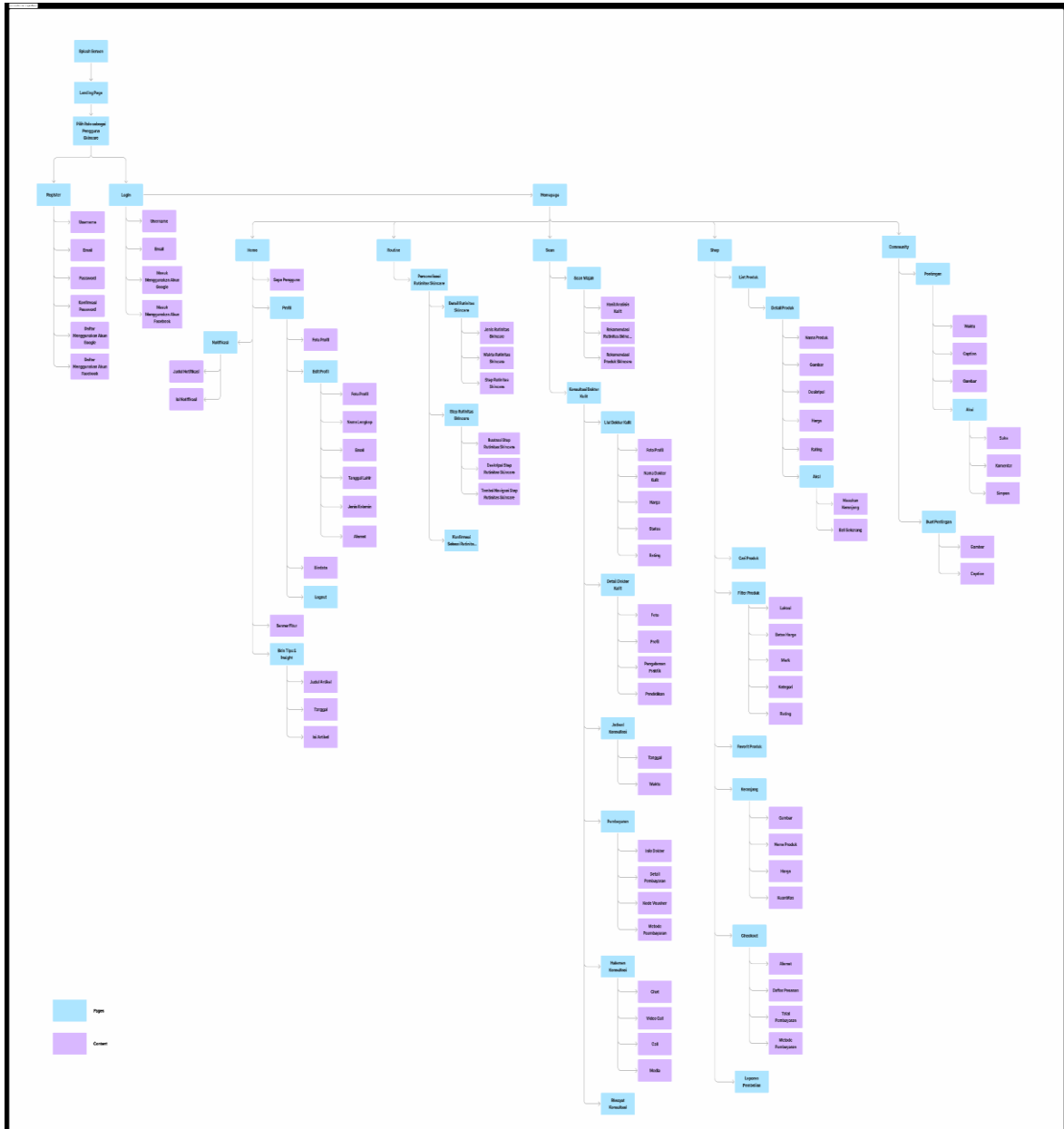
Figure 6. Information Architecture of Skincare User

The information architecture for skincare users is designed in a hierarchical and systematic manner to facilitate user navigation through the core features. The IA begins at the initial screen (Splash Screen) and proceeds to the authentication process (Login or Register), followed by access to the Homepage, which serves as the main navigation hub. There are five primary features available: Home, Routine, Scan, Shop, and Community—each supporting the user's personal skincare needs.

The Home feature includes profile information, notifications, and insights into the user's skin condition based on scan results. The Routine feature allows users to personalize their daily skincare routine generated from skin analysis data. Through the Scan feature, users can perform facial scans, view the analysis results, and receive product and routine recommendations, including options for consulting with dermatologists. The Shop feature facilitates skincare product purchases via search, filter, and detailed product information up to the payment process. The Community feature enables user interaction through posts, comments, and other social features.

This entire IA structure is designed to support an integrated, intuitive user experience that is fully oriented toward comprehensive skincare needs..
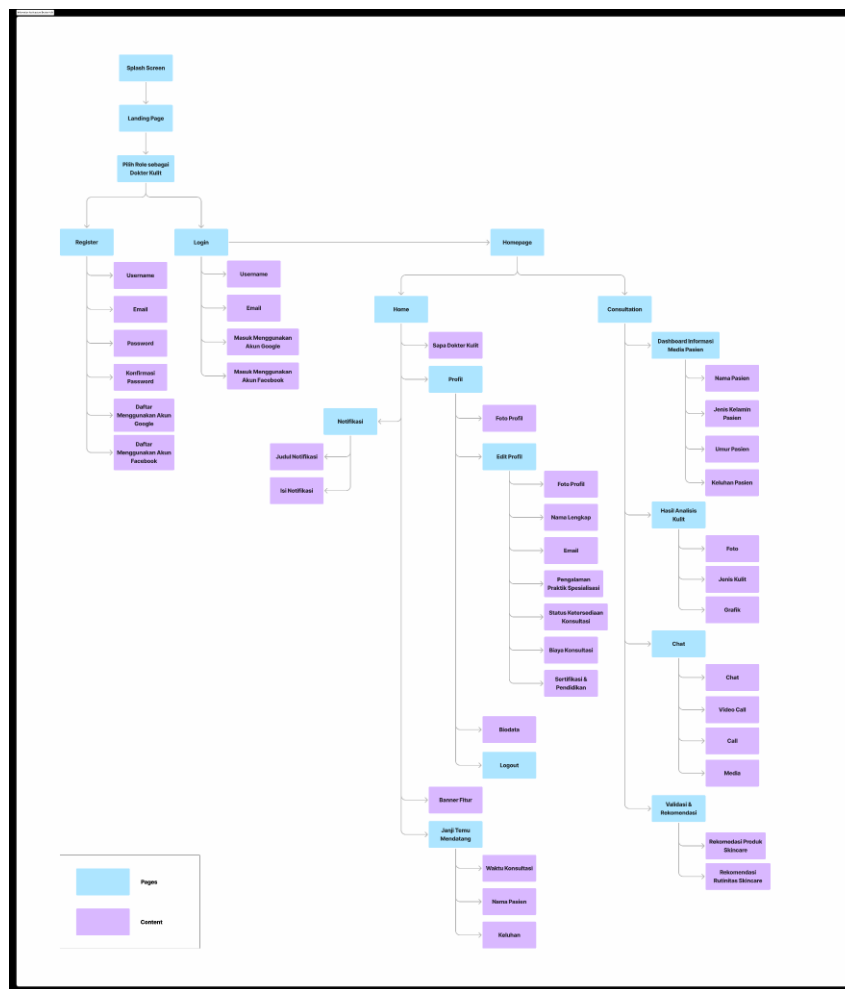
197

Figure 7. Information Architecture for Dermatologists

The information architecture for the dermatologist role in this application is structured hierarchically to facilitate the digital consultation process. Users start from the Splash Screen and proceed to the Landing Page, where they select the role of a dermatologist. Next, users can register or log in using their Google or Facebook accounts, or manually via email and password.

Once logged in, dermatologists are directed to the Homepage, which consists of two main features: Home and Consultation.The Home feature includes the dermatologist's profile information, such as photo, name, email, years of practice, availability status, consultation fee, and educational certifications. It also displays notifications and a list of upcoming appointments, including consultation times, patient names, and reported concerns. The Consultation feature facilitates direct consultation services. It includes a Patient Medical Information Dashboard, containing essential data such as the patient's name, gender, age, and complaints. Skin analysis results are presented through photos, graphs, and skin type classification. Dermatologists can communicate with patients via Chat, Voice Call, Video Call, and Media Sharing features. At the end of the session, a Validation & Recommendation feature is available to provide personalized skincare or nutritional advice tailored to the patient's condition.

This structure is designed to support dermatologists in delivering comprehensive, effective, and integrated consultation services through a single digital platform.

3.3.2. User Flow

This stage results in the mapping of interaction flows that illustrate the steps users take to complete specific tasks within the application. The user flow depicts the user's journey from start to finish in utilizing the application's features comprehensively. The interaction flow diagram from the user's perspective is presented in Figure 8, while the diagram from the dermatologist's perspective is shown in Figure 9.
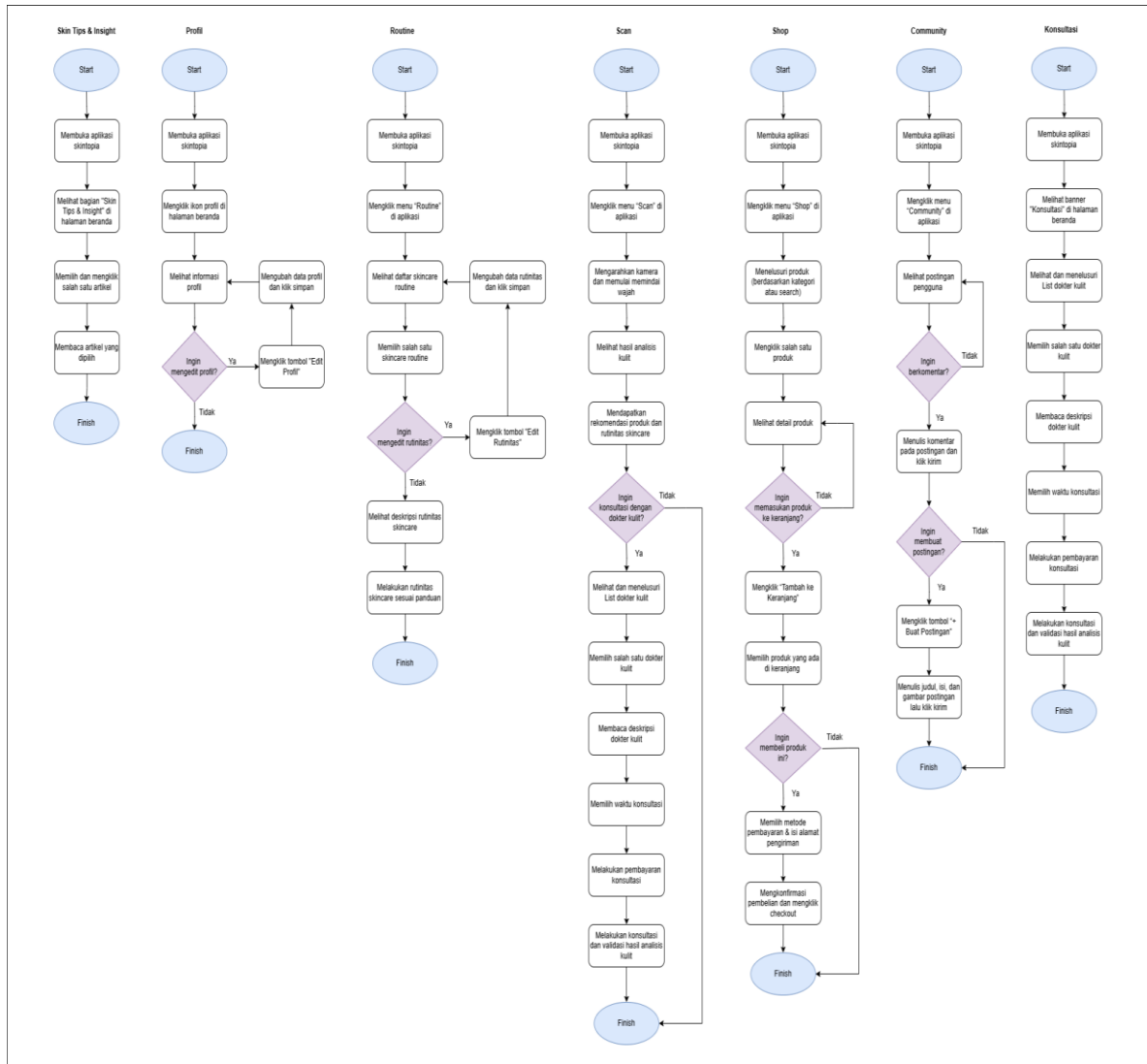
Figure 8. User Flow of Skincare User

The user flow of the Skintopian application for skincare users is designed to guide users in accessing various key features in a structured and efficient manner. The process begins with launching the application, which then directs users to menus or features according to their needs.

In the Skin Tips & Insight feature, users can select available articles for further reading. The Profile feature allows users to view and edit their personal information if necessary. Within the Routine feature, users can view their saved skincare routines. If they wish to modify them, they can select the "Edit Routine" button, update the data, and save it before following the updated skincare guide.

The Scan feature enables users to scan their face using the camera to receive a skin analysis. Based on the results, the system provides product recommendations and skincare routines. If needed, users can proceed to consult with a dermatologist by selecting an available doctor, scheduling an appointment, making a payment, and attending the consultation session.

In the Shop feature, users can search for skincare products, view their details, and add items to the cart. After selecting the products, they can proceed to the checkout process by choosing a delivery method and completing the payment. The Community feature allows users to view and interact with posts from other users. They can comment on posts or create a new post by filling in the title, content, and image.

Finally, in the Consultation feature, users can choose a dermatologist, read their profile, schedule a consultation, and make a payment. The consultation is then conducted, and the skin analysis results can be validated.
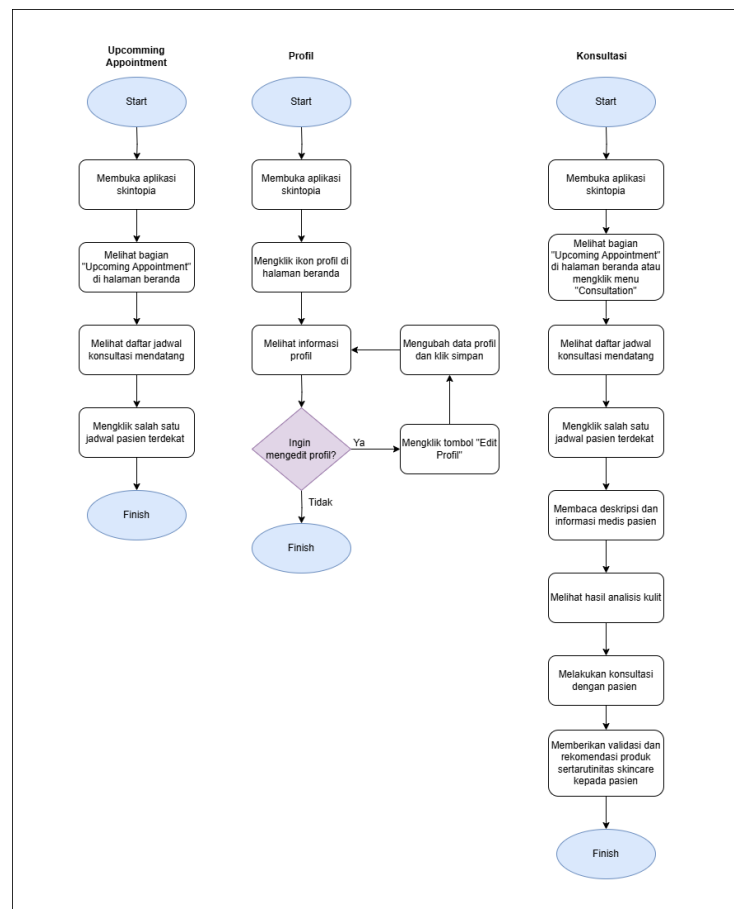
Figure 9. User Flow of Dermatologist

The user flow for dermatologists in the Skintopia application is designed to facilitate doctors in managing their profiles, viewing consultation schedules, and providing services to patients. Upon launching the application, doctors can immediately access the "Upcoming Appointments" section on the homepage to view a list of scheduled consultations. They can then select the nearest appointment to view detailed medical information and the patient's skin analysis results.

Based on the displayed data, doctors can initiate an online consultation session with the patient. After the session, they play a crucial role in validating the skin analysis results and recommending suitable skincare products and routines.

Additionally, doctors can access and manage their personal information through the Profile feature. By tapping the profile icon on the homepage, doctors can review their recorded details and make changes if needed using the "Edit Profile" button, followed by saving the updated information.

3.4. Produce Design Solutions to Meet User Requirements

This stage outlines the interface design process of the application, which is carried out in several phases, starting from system planning to the development of wireframes, mockups, and prototypes. Each step is conducted systematically to ensure that the resulting design not only meets user needs but also has a clear structure and delivers an optimal user experience.

3.4.1. Style Guides

The style guide serves as a visual reference in designing the Skintopia application interface, covering elements such as color selection, typography, iconography, and other visual components. Its purpose is to maintain aesthetic consistency and reinforce the application's visual identity. Additionally, this guide assists both designers and developers in ensuring visual alignment across all interface components. The style guides are illustrated in Figure 10.
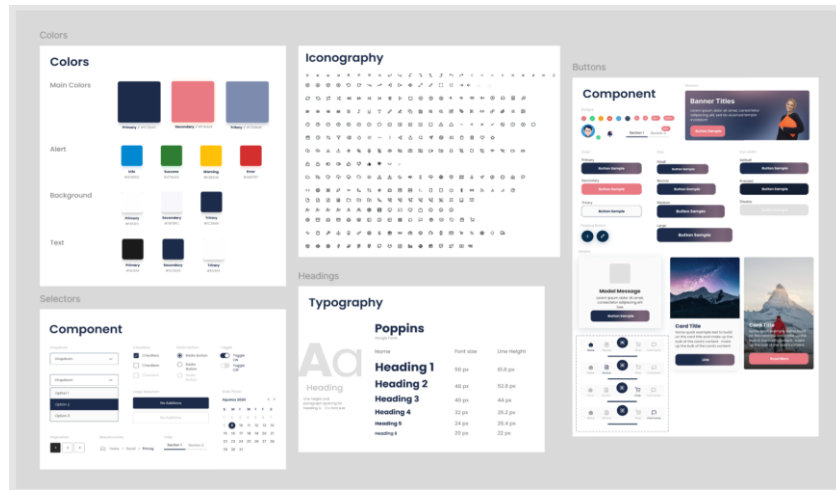
Figure 10. Skintopia Application Style Guides

3.4.2. Wireframe

A wireframe is an initial sketch of the interface that presents the structure and layout of the application pages in a simple form, without visual elements such as colors and images. The wireframe for skincare users is shown in Figure 11, while the wireframe for dermatologists is presented in Figure 12.
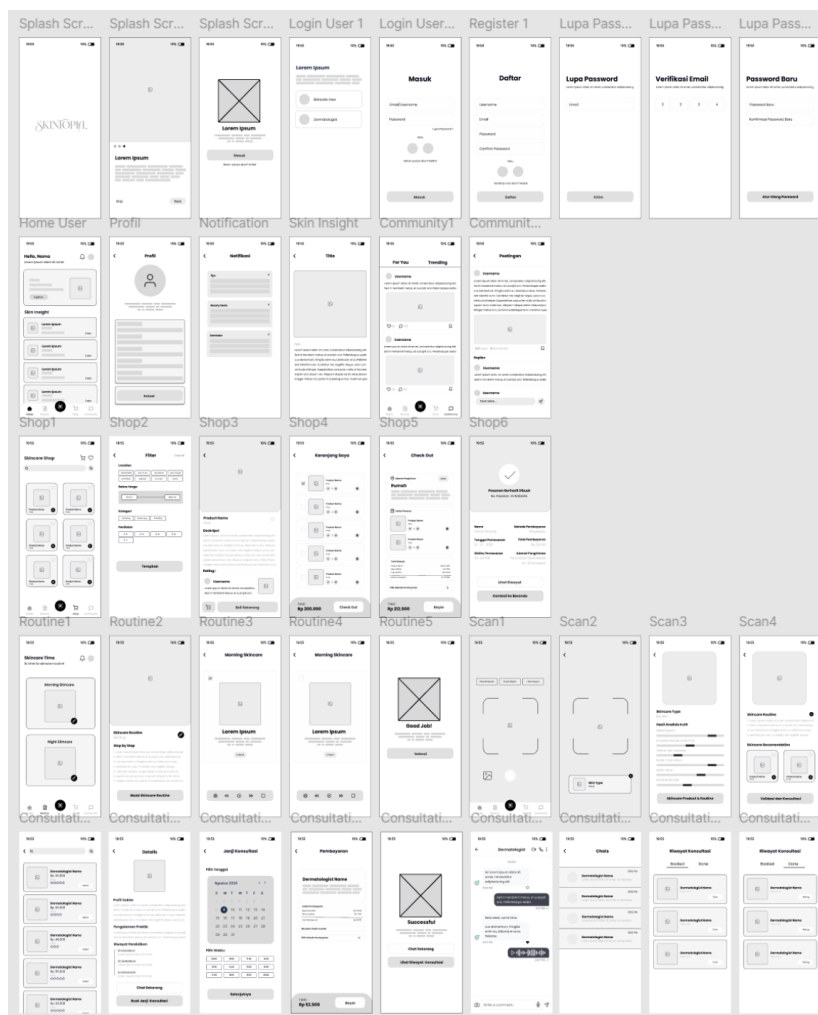

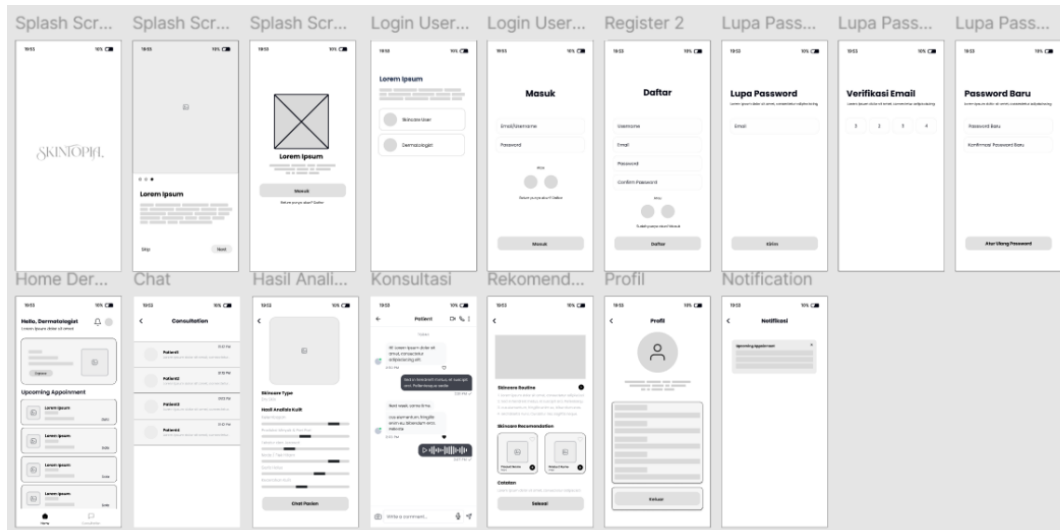Figure 11. Skintopia Wireframe for Skincare Users

201

Figure 12. Skintopia Wireframe for Dermatologists

3.4.3. Mockup

Mockup is a static visual representation of the application interface that displays the final appearance in detail, including colors, typography, images, and element placement. Although it resembles a finished application, the mockup is not yet interactive. The mockup for skincare users is shown in the following figure.
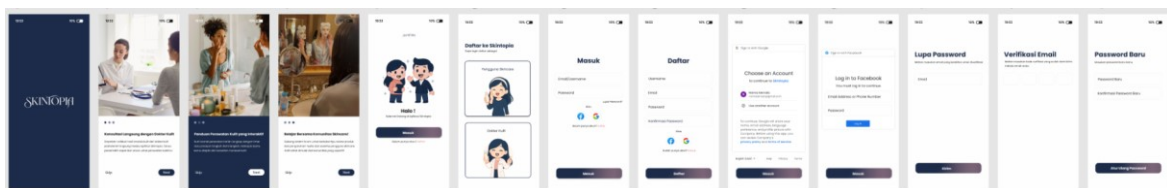

Figure 13. Skintopia Application Login and Register Mockup

Figure 13 displays the mockup of the login and registration pages of the Skintopia application. The splash screen is the initial display that appears when the application is launched, typically showcasing the logo and application name as the main visual identity. Users are then directed to a welcome page containing an introductory message, the application's slogan or tagline, and a navigation button to start exploring the available features.

Before proceeding to login or register, users are prompted to choose their role—either as a skincare user or a dermatologist. On the login page, users are required to enter their username and password to access their registered account. A "Forgot Password" option is available, allowing users to reset their password if needed. Meanwhile, on the registration page, users must provide information such as a username or email, phone number, and password to create a new account. The login and registration processes in the Skintopia application can be completed in three ways: by manually entering information into the text fields, by using a Google account, or via a Facebook account.
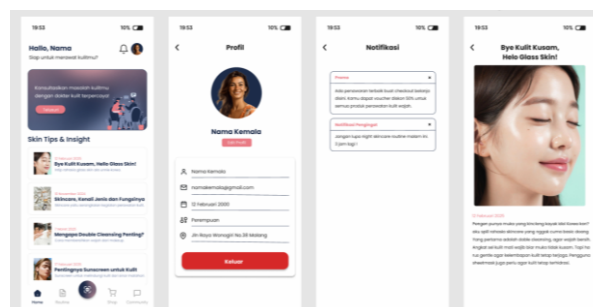

Figure 14. Mockup of the Skintopia Application Home Page for Skincare Users

202

After successfully logging in, users are directed to the Home page, which serves as the main navigation hub of the application. The Home page mockup is shown in Figure 14. Through this page, users can access various key features such as Notifications, Profile, and the Skin Insight feature, which is a core component of the application's services.
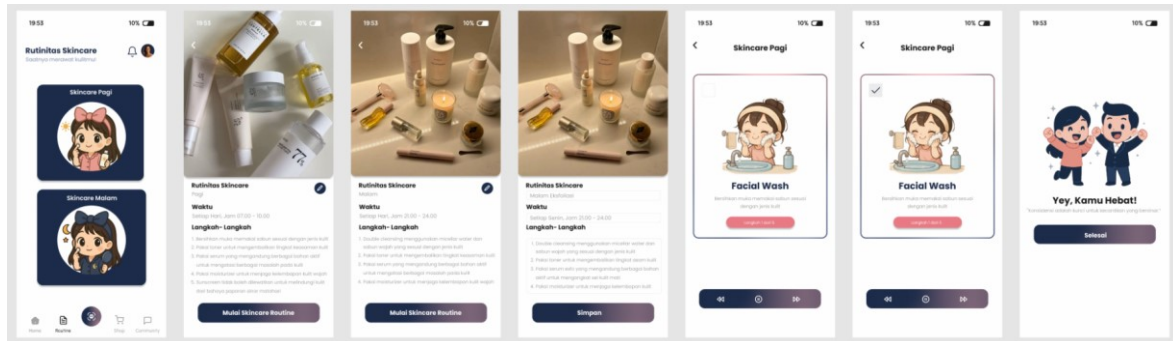

Figure 15. Skintopia Skincare Routine Page Mockup

Figure 15 displays the mockup of the Skincare Routine feature in the Skintopia application. This feature is designed to assist users in following their morning and evening skincare routines in a structured manner. Users can view a list of personalized skincare steps, start the routine by tapping the "Start Skincare Routine" button, and mark each step as completed. Additionally, animations or illustrations are included to enhance the visual experience as users go through their daily routines.
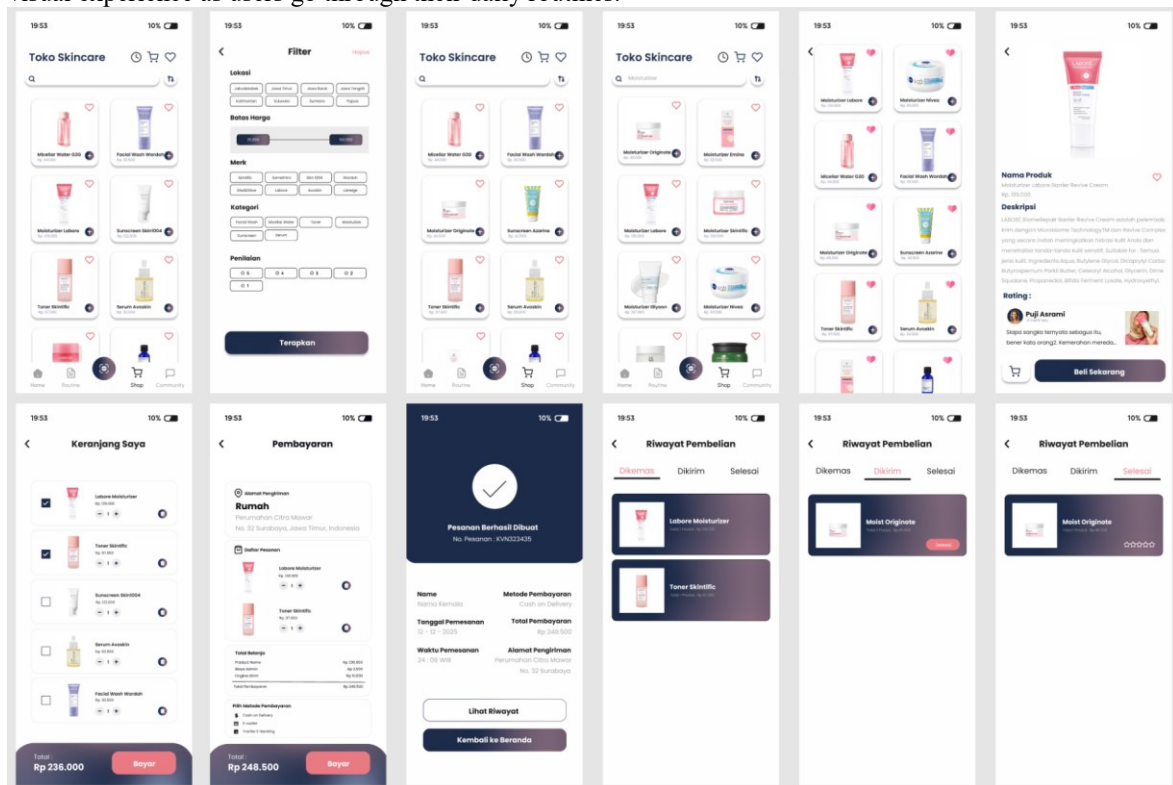

Figure 16. Mockup of the Skintopia Application Shop Feature

Figure 16 presents the mockup of the Shop feature in the Skintopia application. This feature allows users to browse and purchase skincare products directly within the app. Users can search for products by category, view detailed product information, make purchases, and access their purchase history to track order status. The interface is designed to be user-friendly, with clear navigation and appealing product visuals.
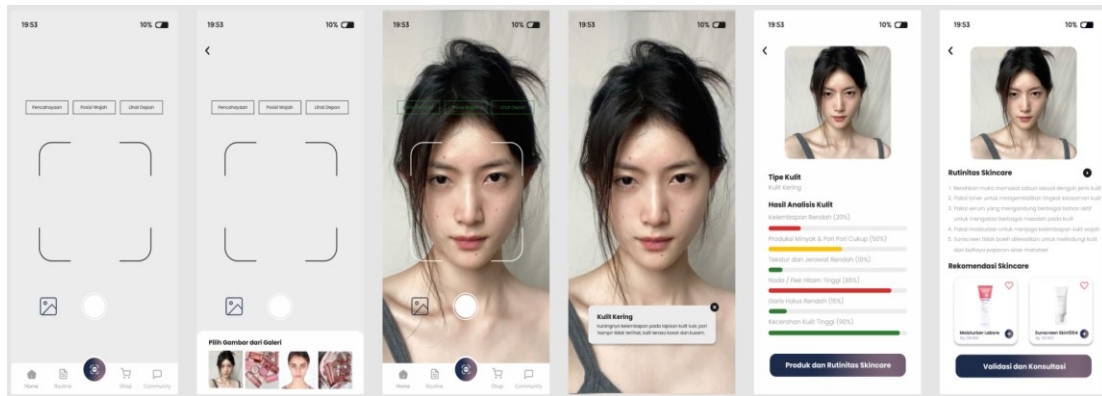
Figure 17. Skintopia Application Skin Condition Scan Mockup

Figure 17 shows the mockup of the Skin Condition Scan feature. This feature enables users to scan their faces using the camera to analyze skin conditions such as acne, pores, or redness. The analysis results are then displayed in the form of graphs and personalized recommendations for skincare products and routines. This feature leverages AI-based approaches to enhance the personalization of the user experience.
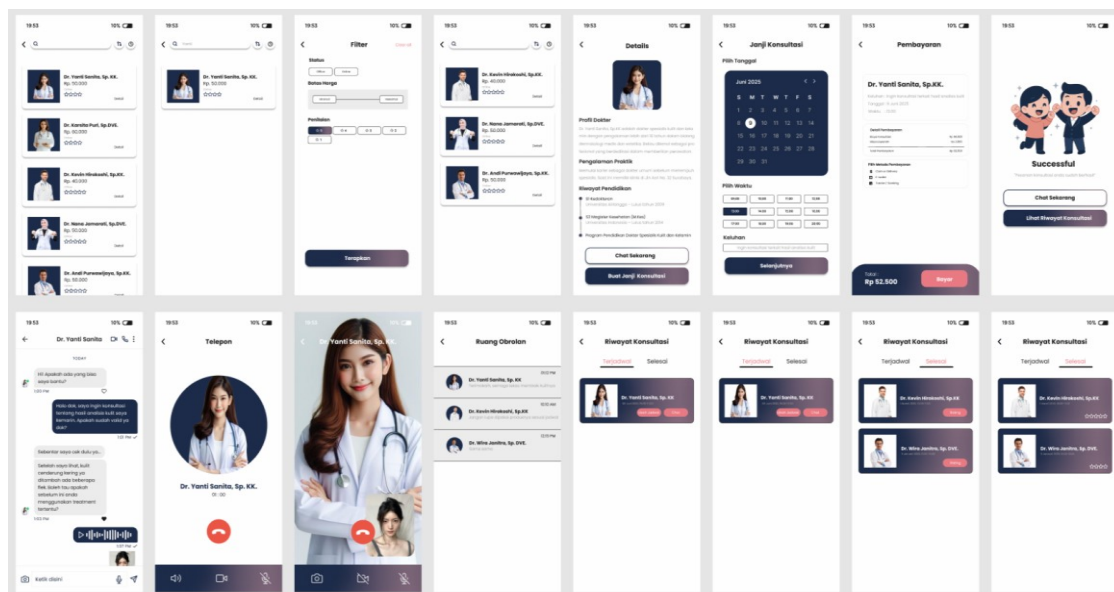

Figure 18. Skintopia App Dermatologist Consultation Mockup

Figure 18 illustrates the mockup of the Dermatologist Consultation feature. Users can select a dermatology specialist, view available consultation schedules, book online sessions, and initiate video calls directly from the app. The feature also includes consultation history and a chat function for continued communication. This functionality makes it easier for users to receive professional skincare advice without needing to visit a clinic.
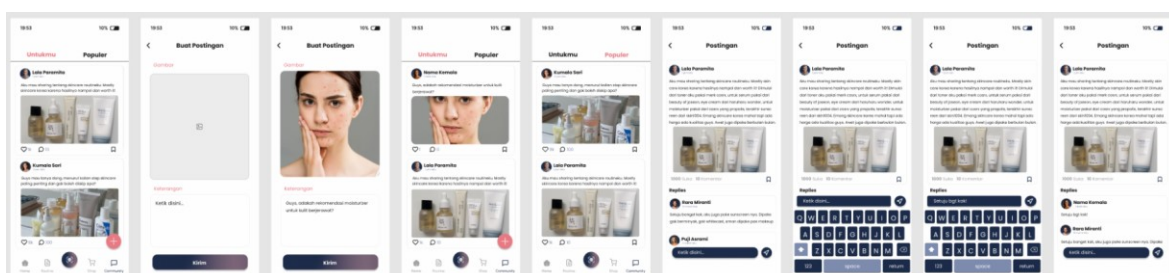

Figure 19. Skintopia App Community Feature Mockup

204

Figure 19 shows the mockup of the Community feature in the Skintopia app. This feature allows users to interact with one another, share experiences, and discuss topics related to skincare. Users can create posts using images and text, view content from other users, leave comments, and like relevant posts. The interface is designed to resemble a forum or social media platform, with a clean and responsive layout.
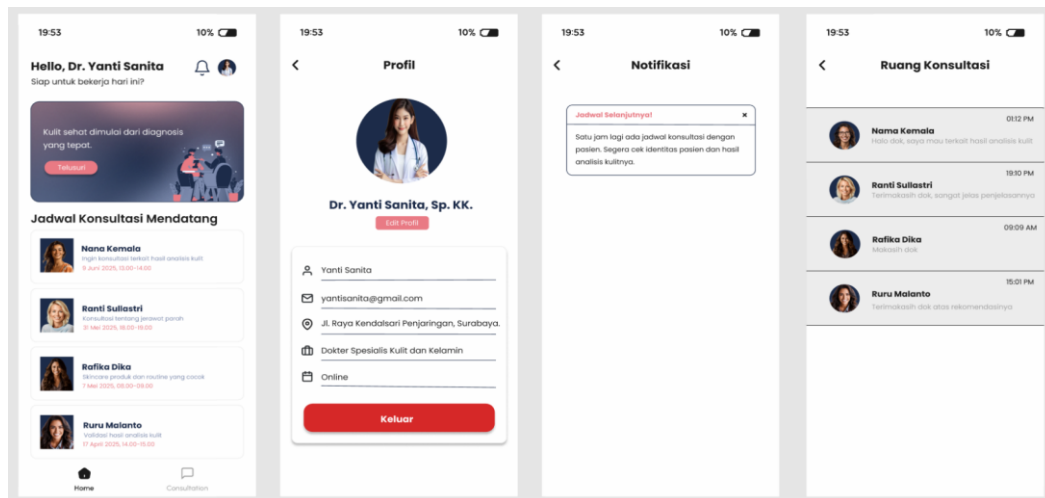

Figure 20. Skintopia App Dermatologist Home Screen Mockup

Figure 20 displays the mockup of the home screen for dermatologists. On this screen, doctors can view a list of upcoming appointments, receive system notifications, and manage their profile information. Additionally, there is a consultation menu that allows easy access to patient history and direct interaction with patients. The page is designed with a focus on providing convenience for dermatologists to efficiently manage their consultation services..

Figure 21. Skintopia App Patient Consultation Mockup

Figure 21 presents the mockup of the Patient Consultation feature, showing the doctor's interface during a consultation session. This feature allows doctors to view detailed patient information, analyze skin condition results, and provide recommendations for products and skincare routines. The consultation is conducted online through text messages or video calls, with conversation history and recommendations saved for the patient. The interface is designed to be professional, yet friendly and easily accessible.

3.5. Evaluate the Designs Against User Requirements

At this stage, the application design was evaluated by involving users as participants, specifically skincare users and dermatologists. The evaluation was conducted using the System Usability Scale (SUS) method. The purpose of this evaluation is to identify design shortcomings and provide feedback that can be used to improve the alignment of the design with users' needs and expectations. In this testing phase, the System Usability Scale (SUS) was employed as a method for measuring the system's ease of use. SUS is a standardized instrument consisting of 10 Likert-scale questions designed to assess users' overall perception of an application or system's usability.

Table 1. System Usability Scale for Skintopia – Skincare User Perspective

Partic ipants	q1	q2	q3	q4	q5	q6	q7	q8	q9	q10	SUS Score
p1	5	2	4	1	4	1	5	1	5	1	92.5
p2	5	2	4	2	5	1	4	1	5	1	90
p3	5	2	4	1	4	2	5	2	5	1	87.5
p4	5	1	5	1	5	1	5	2	5	1	97.5
p5	5	2	4	1	4	1	5	1	5	1	92.5
RATA RATA											92

Based on the results of the System Usability Scale (SUS) evaluation conducted with five participants, the skincare application received an average SUS score of 92. This score indicates a very high level of usability from the users' perspective. With this score, the skincare app falls into the "Excellent" category and is rated as "Acceptable" in terms of acceptability. This suggests that the majority of users found the system easy to use, intuitive, and capable of delivering a satisfying user experience.

Table 1. System Usability Scale for Skintopia – Dermatologist Perspective

Partic ipants	q1	q2	q3	q4	q5	q6	q7	q8	q9	q10	SUS Score
p1	4	2	5	2	5	1	4	1	5	2	87.5
p2	4	1	5	2	4	1	4	1	5	1	90
p3	4	2	5	1	5	1	5	2	5	2	90
p4	4	2	5	1	4	1	5	2	5	1	90
p5	4	2	5	2	5	1	4	1	5	2	87.5
RATA RATA											89

Based on the usability evaluation of the skincare application using the System Usability Scale (SUS) method with five participants, an average SUS score of 89 was obtained. This score indicates a very high level of usability according to user perception. With an average score above 80, the application falls into the "Excellent" category and has an acceptability level rated as "acceptable," indicating that users found the app easy to understand, intuitive, and comfortable to use.

4. Conclusion

Based on the results of this study, it can be concluded that the UI/UX design of the Skintopia application, developed using the User Centered Design (UCD) method, successfully meets the needs of both dermatologists and skincare users. This is demonstrated by SUS scores of 92 from skincare users and 89 from dermatologists. These scores indicate that the Skintopia app is not only easy to understand and comfortable to use but also highly accepted by its users. With an acceptability level rated as "acceptable," this application has great potential to enhance user experience by simplifying skincare routines and providing effective solutions for their skin concerns.

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