Mobile Application Design for Startup Zyon Using Design Thinking Method

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ABSTRACT

Zyon is one of the startups in the mental health field that concern of inadequate handling of mental health issues. Consequently, the design of the Zyon application is driven by the aim of addressing these challenges and providing user-oriented solutions. This research focuses on the integration of users and psychologists on a platform, using the design process that incorporates the five stages of design thinking: empathize, define, ideate, prototype, and test. Through in-depth interviews, observations, and expert validation, a conceptual framework for the Zyon application was formulated, resulting in the creation of application mockups. The Zyon application offers consultation services and a range of features to enhance the interaction between users and psychologists, ultimately aligning with user needs. The application design, validated by respondents using the System Usability Scale (SUS) with a score of 87.75, signifies its high usability and fulfillment of acceptable requirements. This research contributes to the advancement of mental health services by delivering an effective and user-friendly application that caters to the needs of its users and psychologists.

1. INTRODUCTION

Building a startup in the mental health space is a compelling endeavor driven by the urgent need to address the growing mental health crisis. By building such a startup, we have the power to make a significant and positive impact on individuals' lives, families, and communities. We recognize the increasing demand for accessible, affordable, and effective mental health services, as well as the pressing need to reduce the stigma associated with mental health. Through innovative technological solutions, personalized interventions, and data-driven approaches, we can bridge the gaps in mental health care, reaching individuals who may have previously been underserved or unable to seek help. By fostering collaborations with mental health professionals, researchers, and policymakers, we can build a comprehensive ecosystem that promotes mental well-being, improves outcomes, and contributes to a healthier and more resilient society. Together, we can build a startup in the mental health space to create lasting change and pave the way for a brighter future for all.

The development of digital technology is currently growing rapidly, every activity that carried out cannot be separated from technology and there are many new discoveries one of them with the presence of startups. A startup is a start-up that plays an important role in boosting the economy. Startups can give birth to a quality company and have a positive impact by solve problems in society and open up new jobs. A startup business is an institution created for create new and innovative products or services under conditions of uncertainty high [1].The existence of startups contributes to national economy. Minister of Trade of the Republic of Indonesia, Muhammad Lutfi projects that Indonesia's digital economy will have a large GDP more than 55% of ASEAN digital GDP by 2030 [2].

The presence of startups has spurred continuous innovation within businesses, driving them to compete with the competitors. Companies employ various strategies to sustain growth; however, the intense competition often leads startups to fail as they struggle to withstand the challenges. Despite numerous efforts to maintain success, failure factors such as decreased demand, mismatched user experiences, and inadequate goods availability persist. Based on the Startup Ranking report, Indonesia boasts a significant number of 2,346 startups [3]. Nevertheless, the country's startup success rate stands at a mere 5%, with the Bureau of Labor Statistics (BLS) reporting a staggering 50% failure rate within the first four years of operation, including 19% due to fierce competition and 18% attributed to cost-related issues [4].

Zyon is a startup that is focused on mental health support, connecting users and psychologists to offer a range of mental health services tailored to individual needs. Recognizing the growing prevalence of mental health issues and the barriers individuals face in accessing timely and affordable care, Zyon aims to provide a convenient and user-friendly solution. The purpose of this research is to design and develop an innovative mobile application for Zyon, a startup focused on mental health support. By using the design thinking methodology, this study aims to create an intuitive and user-centered application that effectively connects users with psychologists.

2. METHOD
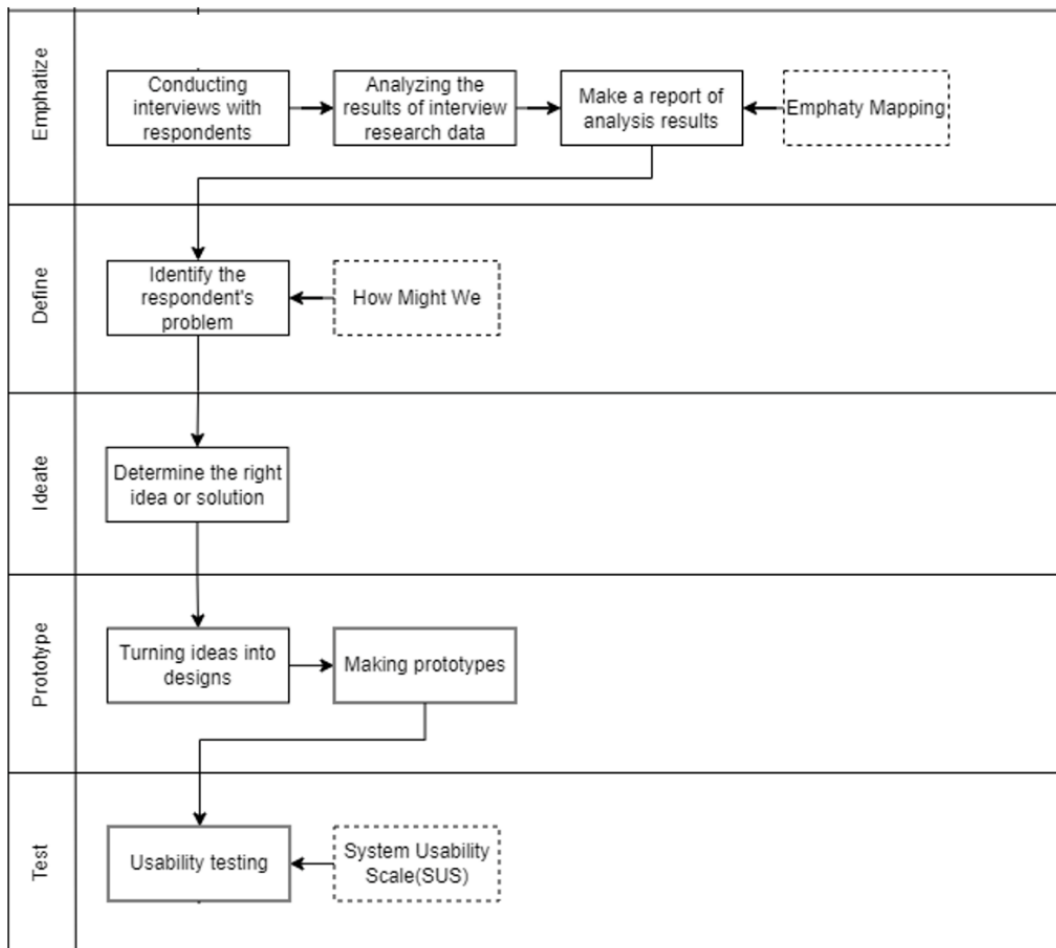Systematics of research methodology can be seen in Figure 1.

Figure 1 - Research Methodology

The following is a systematic explanation of the research methodology in Figure 1 [6].

a. Empathize

After knowing some information from the observation process carried out by the author, then validate the information by conducting the interview process. After doing the validation, the writer analyzes the results of the interview research to be able to make a report from the analysis that has been done. The results of the analysis in the form of empathy mapping are helping to understand the wishes of the respondents.

c. Define

After making a report on the results of the analysis of the interview data, the writer then identified the problem from the user by using an empathy map. The results of the identification that have been made by the author make How Might We (HMW) which is to collect the best ideas based on the top findings from respondents.

d. Idea

After the process of collecting ideas and solutions, the authors discuss with the internal team to determine the best ideas or solutions to the respondent's problems and prioritize business, user, and technical needs.

e. Prototype

After determining the idea and prioritizing the idea, then the writer makes the idea into a design. The design that has been made then the author makes it a prototype so that the ideas from the design can become more real. The prototype is also used at the validation stage that the design that has been made is in accordance with the specified idea.

f. Test

At this stage the author uses the System Usability Scale (SUS), which is a testing technique carried out to determine the level of effectiveness, efficiency, and satisfaction in the application by testing questionnaires on respondents. At this stage the respondent directly interacts with the prototype design that has been made.

3. RESULT AND DISCUSSION

3.1 Emphatize

Data collection was conducted to gather relevant information necessary for achieving the research objectives. The primary data for this study consisted of questionnaire responses and interview data obtained from participants. Sampling was carefully executed to ensure a representative sample that accurately reflects the characteristics of the population under study, with the aim of achieving a functional sample that can provide meaningful insights into the actual situation [7]. The questionnaire responses provided general data about the respondents, which formed a valuable foundation for the research analysis.

Table 1 - Data Processing

Information	Data	Percentage
Gender	Man	41.50%
	Woman	58.50%
Age	12-19 years	29.30%
	20-29 years	70.70%
Mental Health Condition	Depression	85.40%
	No depression	14.60%
How to solve problem	Share to others	34.20%
	Me Time	30.00%
	Looking activity	27.30%
	Others	8.50%
Causes Stress	Many targets to be achieved	29.60%
	Pressure	20.90%
	Family	15.30%
	Love	14.00%
	Friends	6.00%
	Obsession	6.00%
	Others	8.20%
Willingness Using App	Interested	80.00%
	Not interested	20.00%

Based on the questionnaire data, the majority of respondents were women, accounting for 58.50% of the sample. The age distribution of respondents shows that the majority, 70.70%, fell within the 20-29 years age group, while 29.30% were in the 12-19 years age group. The survey revealed a high prevalence of depression among the respondents, with 85.40% indicating that they were experiencing depression, while 14.60% reported no depression. When faced with problems, the most common approach was to share them with others, with 34.20% of respondents choosing this method. The top factors contributing to stress among respondents included having many targets to achieve (29.60%), experiencing pressure (20.90%), family-related issues (15.30%), love-related issues (14.00%), and challenges with friends (6.00%), obsessions (6.00%) and other factors (8.20%). An encouraging finding was that 80% of respondents expressed an interest in using an app related to mental health support, while 20% indicated no interest.

In the empathize stage, further interviews were conducted with 20 respondents regarding their mental health conditions, interest in the application, and access to the application and its features. Regarding mental health conditions, six questions were asked, which are as follows:
• Have you recently experienced stress, depression, or other mental health issues?
• How do you cope with and resolve your problems?
• What are the causes of your recent stress/depression/other issues?
• Have these issues ever led you to engage in self-harming or risky behaviors (e.g., substance abuse)?
• Have you experienced any significant events that brought you to a low point? If yes, what were those events?
• How do you express or communicate your feelings?

Regarding the interest in the application:
• Have you ever used or are currently using any mental health-related applications? If yes, which applications do you use?
• Why do you use those applications?
• If not, are you interested in using an application to maintain your mental health?

Regarding access to the application and its features:
• If there was an application for maintaining mental health, what device would you use to access it?
• What features do you need to maintain your mental health?

In Table 2, can be seen the summary of empathy map.

Table 2 - Empathy Map User Summary

Think	*Feel*
Obtaining a solution	Happy to find a solution to the problem faced
Understanding from others	Happy when people understand the condition.
Expectation alignment	Happy when results meet expectations
Affordable price	Happy with affordable prices for students
Finding inner peace	Worried about not being able to find inner peace

Do
Consulting with professionals
Seeking solutions
Explaining details about the condition

| *Pain*	*Gain*
Overthinking	Desiring information and articles about the importance of mental health
Consultation flexibility	Wanting flexibility in consultation sessions, anytime and anywhere
Results not meeting expectations	Wanting to find solutions to existing problems
High price	Wanting affordable prices

3.2 Define
The solution to this problem is described based on How Might We Questions, these questions are the opening for the brainstorming session to get ideas and solutions which will then be further developed to become a feature. In the previous stage, it was known the inspiration phase from users and experts, then made questions to be solved. Table 3 presents the insight statement and corresponding How Might We (HMW) question, which provide a framework for further ideation and development of the Zyon application.

Table 3 - How Might We Question

No	Insight	How Might We Question
1	Users want the right solution from a professional	**How can we reduce user anxiety?**
2	Users want flexible consultation so that it can be done anywhere and anytime	
3	Users want the self-care feature to overcome various problems they face	

The proposed value proposition design is offered to users based on the results of research and discussion [10]. This value describes the benefits that users can expect from the product and service. This is illustrated by the value proposition design which can be seen in Figure 2.
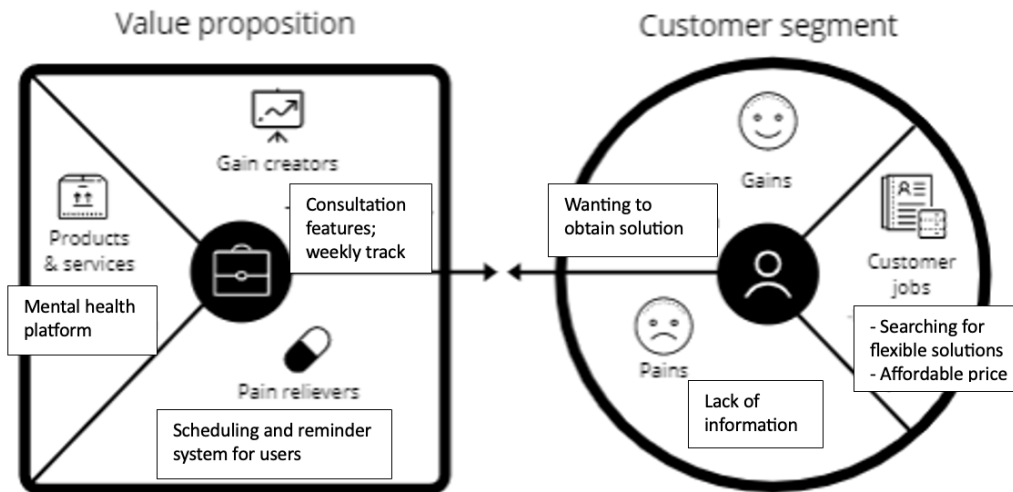
Figure 2 - Mental Health Service Value Proposition Design

The value offered from the proposed formulation of the mental health service concept is based on the problems that are present for the user, namely problems with solutions to problems faced, flexibility in time and place, and affordable prices. Value proposition offered in mental health services:

- Digitizing mental health business processes with proposed ideas in the form of features that will solve problems experienced by users and psychologists.
- There is a weekly progress track for mental health that is useful for users
- Users find solutions to problems and psychologists find new users

The option to resolve the problems that arise in mental health services is to provide consulting services. Offers by digitizing consulting business processes make it easier for psychologists to get new users. Engagement is the interaction of both parties to give each other positive feedback.

3.3 Ideate
The following is a proposed idea to solve the problem can be seen in Table 4.

Table 4 – Brainstorming

Ide	Criterion 1 (Consultation)	Criterion 2 (Reduce user anxiety)
Idea 1	There is a psychological test feature before starting the consultation	Forum features with fellow users
Idea 2	There are private and group features for consultation	Podcast feature for sharing with fellow users
Idea 3	There is an easy payment feature with various options	Consultation history feature
Idea 4	There is a feature to choose a schedule according to a schedule	Transaction history feature
Idea 5	There is a consultation time	Podcast feature for sharing among users

Idea 6	There is a calendar for the entire sustainability consultation process	Podcast saving feature
Idea 7	There is a psychological profile	Scheduling feature with complete psychological data
Idea 8	There is a background and the appearance of a psychologist	Confirmation feature before payment
Idea 9	There is a description of the services that have been carried out	Direct progress info to the user
Idea 10	There is a price statement per session	There is complete information about psychologists and users to be trusted

In the brainstorming stage generate broad ideas. Then determine some ideas to be the right solution in solving the problem. The following is a selection of ideas to be developed into application features can be seen in Table 5.

Table 5 - Determine
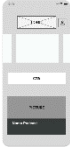
No	Idea	Feature	Information
	SELECTION OF PROPOSED IDEAS AND FEATURES		
1	Company profile features	Company Profile	Contains company logo and company name
2	There is a registration feature for users and psychologists	Registration	Registering for new users
3	There is a login feature for users and psychologists	Login	Log in for users who have already created an account
4	There is a home feature as the main menu which will display menu icons	Home	Displays several icons and shows the features in the application
5	There is a consultation feature between the user and the psychologist	Consultation	Displays photos, psychologist profiles, prices, and the number of people who have consulted
6	There is a chat feature between the user and the psychologist	Chat	Displays a chat feature for users and psychologists to make consultation appointments and so on
7	There is a schedule confirmation feature	Calendar	Displays a calendar that provides psychologist free time so that users can make an appointment for a consultation
8	There is a payment feature with various services	Payment	Displays the payment feature using several available options to make it easier for users to make payment transactions
9	There are features for psychologists	Psychologist	Featuring features for psychologists, namely being able to view profiles and full details
10	There is a setting feature to help answer questions for users	Settings	Provides various options such as contact us, terms of use, privacy policy, and log out.
11	There is a forum feature for discussion between users and psychologists	Forum	Provide a forum for discussion between users on mental health issues
12	There is a podcast feature for sharing between each other	Podcast	Provides audio recordings and can get various information from users

3.4 Prototype

Wireframes can be referred to as blueprints in low fidelity architecture [13]. The purpose of wireframes is to convey the structure, layout, navigation, and organization of content. Therefore, the wireframe is made in black and white. At the wireframe design stage, based on the results of data processing and respondents as well as decision considerations from the internal team in processing data to make a wireframe design.

Table 6 - Wireframe Design

No	Feature	Description	Wireframe
1	Start Page	Wireframe start page is the initial display when the user opens the Zyon application.	
2	Registration Page	The registration wireframe is a display if the user wants to register and register. Users can fill in their first name, last name, email, username, and password. On the bottom there is also a register button with Facebook which means you can directly connect to a user's Facebook account or a register button to complete the registration process.	
3	Main Page	The main page wireframe is a view that provides a preview of the main features of the application.	
4	Consultation Page	The wireframe of the consultation page is a display that shows the search for the name of the psychologist and the number of activities that have been carried out by the psychologist in consultation with the user.	
5	Chat Page	Wireframe chat page is a display of discussions between users and psychologists. Users can start conversations with psychologists and have discussions. There is an answer button to send messages to each other.	
6	Schedule Page	Wireframe schedule page is a view that appears when users create schedules such as services for online consultations. Users can also choose who they want to consult with and a psychologist profile will appear. There is a button at the bottom to continue the payment after the user selects a schedule for the consultation session.	
7	Choose Payment	The payment page wireframe is a view that will appear when the user has scheduled a consultation session with a psychologist. This page displays the user's payment options by bank transfer or e-wallet and chooses to make a payment transaction.	
8	Pay Page	The wireframe of the payment confirmation pop up screen page is the display that will appear when the user confirms a payment for a consultation session. A confirmation pop-up screen will appear containing the name of the psychologist and the nominal price and then there is a pay button to complete the payment confirmation process.	
9	Pay Successfully	The wireframe of the pop up screen payment page is the display that will appear when the user has successfully made a payment transaction for the consultation session. A pop up screen will show that the payment was successful and there is a button at the bottom to complete the payment process.	
10	Profile	Wireframe profile page contains a photo of a psychologist. Then in the middle section there is information about the profile of a psychologist. In the section below is information about the history of consultations with other users.	
11	Settings	Wireframe settings page is the display when the user wants to change the rules on the application such as notifications, passwords, and help.	

No	Feature	Description	Wireframe
12	Forum Page	Wireframe forum page page is a discussion page between other users who can express their opinions. Psychologists can also have discussions with users on the forum page.	
13	Podcasts	The podcast page wireframe contains the name of the podcast that both the user and psychologist can create. In the lower section, there is a list of podcasts that have been created by other users.	

Mock-ups serve as visual representations of the design, incorporating elements such as high-fidelity images, colors, and typography. They provide a comprehensive preview of the product before it is developed [14]. The experimental stage is conducted to assess the prototype's functionality and gather feedback from relevant stakeholders, including users and psychologists. This stage aims to verify if the application is running smoothly and determine if any additional features are required. The Zyon team presented the prototype to the respondents, and based on their feedback, several key points were identified and agreed upon by the team.

Table 7 - Prototype Changes
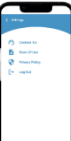
No	Prototype	Results
1	Adding new features to podcasts	Succeed
2	Add a new page for successful payment	Succeed
3	Redesign the psychologist profile	Succeed
4	Redesigned to create an attractive appearance on the main menu onboarding page	Succeed
5	Added page for schedule confirmation feature with psychologist	Succeed

The following is a prototype of the Zyon mental health application:

Table 8 – Prototype

No	Feature	Wireframe
1	Start Page	
2	Registration Page	
3	Main Page	
4	Consultation Page	

No	Feature	Wireframe
5	Chat Page	
6	Schedule Page	
7	Choose Payment	
8	Pay Page	
9	Pay Successfully	
10	Profile	
11	Settings	
12	Forum Page	

3.5. Test

Usability testing was conducted to evaluate the implementation of the Zyon mobile application. The test involved 10 respondents, consisting of 5 individuals from student and general backgrounds, and 5 respondents from psychologist backgrounds. The participants were given a questionnaire-based task designed by the author, which they completed. During the design validation phase, specific targets for validation and fulfillment were set. The validation process was based on performance targets, stakeholder requirements, and relevant reference standards.

Table 9 - Test

| Category Validation	Validation Target	Fulfillment
Performance Target	Home	Can publish articles
		You can choose between consultation menus, self-care, psychological tests, and podcast forums
		Can go to profile
		Can read articles

Category Validation	Validation Target	Fulfillment
		There is a consultation reminder
		Navigation bar: Home, notifications, settings, profile, chat
	Login	Can login via facebook/manual
		Can enter password
		Can reset password if forgot password
	List	Can register manually / facebook
		Fill in the password
		Verify your email or phone number
		Agree with the terms of services
	Profile	Can edit profile
		Can see activity history
	Consultation	Can choose a consultation schedule
		Can choose a psychologist
		Can receive schedule booking notifications
		Can chat with psychologist
		Can cancel as long as you haven't paid
Stakeholder Requirement	Internal Team	In accordance with the needs through discussions with the internal team and receiving input and suggestions for further implementation
	User psychologist	Identifying needs through responses from users
		According to the needs between users and psychologists
Reference Standard	Respondent	Meet acceptable or appropriate usability using usability testing using System Usability Scale (SUS)

At this stage, improvements are made to the design based on the results of testing the prototype that has been made, namely the Zyon Mental health application prototype. Testing is carried out to ensure whether the application meets usability by using the System Usability Scale (SUS). System Usability Scale (SUS) is used to perform testing, namely, to assess the overall application. The use of usability testing to measure efficiency, ease, and ability to remember how to interact without difficulty or minimize errors that occur. Based on the results of the assessment of the questionnaire regarding usability testing conducted by 10 respondents, the results can be seen in Table 10.

Table 10 - Respondents' Assessment Results

Resp.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q 10	Total	SUS Score
1	4	3	4	2	3	4	4	4	4	3	35	87.5
2	4	3	4	4	4	3	3	4	4	4	37	92.5
3	4	4	4	3	3	3	4	3	4	0	32	80
4	4	3	3	3	4	4	4	3	4	4	36	90
5	4	3	4	4	4	2	4	4	4	3	36	90
6	4	3	4	2	4	4	4	3	4	3	35	87.5
7	4	3	4	2	4	3	4	3	4	2	33	82.5
8	4	3	4	3	4	4	4	4	4	3	37	92.5
9	4	3	4	3	4	3	4	3	4	4	36	90
10	4	3	4	4	4	4	3	2	4	2	34	85
Average												87.75

In the evaluation of the results of the assessment, the average score of the System Usability Scale (SUS) was 87.75. After getting the results from the respondent's assessment, the next step is to determine the grade of the assessment results. Based on the results of the assessment carried out by respondents compared to the table for determining Acceptability, Grade Scale, and Adjective Rating, the results are obtained as shown in Figure 3 below [15].
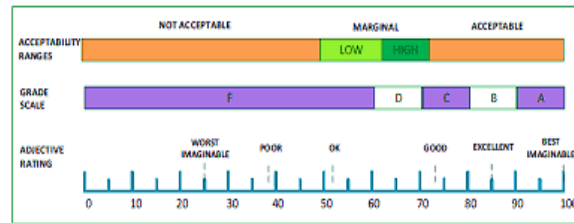
Figure 3 - Determination of System Usability Scale Assessment Results

Based on Figure 3, the results of determining the assessment results are:
a. The user's Acceptability Range level for the Zyon Application Mock Up is in the Acceptable category,
b. The user's Grade Scale level for the Zyon Application Mock Up belongs to category B,
c. The level of the user's Adjective Rating of the Zyon Application Mock Up is in the Best Imaginable category.

Based on the provisions of determining the results using the System Usability Scale (SUS) Percentile Rank Score, the results obtained that the Zyon Application Mock Up which has a score of 87.75 is in grade B. This means that usability based on the data gets the best rating. The final stage after conducting the experiment is the stage of reciprocity and research on the application. Here are the results of the final stage:
a. Prototype development makes real applications
b. Evaluation of prototyping
c. Implementation into applications on android and IOS

4. CONCLUSION

Based on the research conducted on the Zyon mental health application, several key conclusions can be drawn. Firstly, the study successfully addressed user needs by designing a mobile application using the Figma application for visual design. This ensured that the application's appearance and functionality aligned with user expectations. Secondly, the research process resulted in the development of a prototype for the Zyon mental health application, employing the design thinking methodology. This approach allowed for a user-centered design that incorporated valuable insights and feedback. Wireframe designs were utilized to provide a low-detail representation of the application's framework, aiding in the visualization and planning stages before progressing to the visual mockup phase. Lastly, the validation stage involved conducting usability testing using the System Usability Scale (SUS), which demonstrated a strong level of usability with a score of 87.75, meeting the acceptable criteria for usability testing assessments. These findings highlight the successful design and development of the Zyon mental health application, ensuring its effectiveness, user-friendliness, and alignment with user needs.

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