

DESIGNING A USER INTERFACE APPLICATION FOR A COLLECTION OF RECIPES USING THE DESIGN THINKING METHOD

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ABSTRACT

The Covid-19 pandemic has changed people's behaviour, so people are more concerned about their cleanliness and environment, one of which is food hygiene. People now prefer to cook by themselves by watching cooking tutorial videos. However, the number of recipes circulating on social media does not guarantee the accuracy, so some people cook them with bad taste. In this paper, we will discuss the design of a User Interface Design for a mobile application called 'Koken' to help users find accurate references to recipes without having to buy groceries directly from the market. The method used in this study, namely design thinking, is an approach and process of thinking in finding the concept of the design of an application. Design Thinking has five stages: empathize, define, ideate, prototype and test. The final result of this research is the user interface design for the 'Koken' application. Koken app has a recipe recommendation feature based on the ingredients it has, a short video collection feature about cooking, and a shopping feature to make it easier for users to find ingredients and tips about cooking. This User Interface Design has also been tested with Usability Testing. It is hoped that this interaction design can be a reference in making the actual application.

Keywords— *User Interface Design, Recipes, Design Thinking, Usability Testing, Mobile Application.*

1. INTRODUCTION

The COVID-19 pandemic has forced humanity to stay at home. The government has also issued regulations restricting outdoor activities or PPKM [1]. This, various activities are carried out by the community only in the home, such as studying, working, or playing [2]. Of course, during a pandemic, people are encouraged to keep their bodies and food clean [3]. One of the efforts to keep food hygienic is to cook your food. Nowadays, cooking is easy because there are many recipes on the Internet [4]. Recipes are a collection of dishes that aim to provide knowledge and information on how to prepare food [5]. People prefer watching cooking demonstration videos to reading recipes [6], as evidenced by a government survey in the media and information sector that shows that 90% of Indonesians prefer to watch videos. than reading books [7].

However, watching recipe videos at this time still needs clarification, such as unclear photos, too-quick explanation videos, and no clear explanation of the ingredients used. Therefore, the information obtained is minimal [8]. Because of these problems, the authors devised a solution to create a mobile recipe application called Koken.

Koken is an interactive and informative recipe app. Koken is used for people who like to cook. Audiences can watch better, more advanced cooking demonstration videos in every way. And ingredient recipe playback is also available to make it easier for audiences to follow cooking demonstration videos. In addition, Koken also allows app users to trade in cooking ingredients so that later, people can watch and participate in cooking demonstrations and buy ingredients in the app. The purpose of this research is to create a display design for an application that

contains a collection of recipes tailored to user needs, as a solution to the aforementioned problems. Additionally, the User Interface (UI) design will be updated and completed based on recommendations from previous research related to similar solutions.

This research focuses on designing the UI/UX of the Koken application using the design thinking method, which was chosen because it directly addresses the identified issues [9]. This approach will make it easier to provide solutions that are relevant to the existing problems.

Hopefully, in the future, the Koken app will make it easier for the public to find up-to-date recipe information and buy ingredients directly through the Koken app.

2. LITERATURE REVIEW

2.1 Recipes

Recipes are a guide or instructions to explain the steps in making food or drink. Usually, a recipe contains a list of the ingredients needed, the stages of making it, pictures of the stages, the time needed, and the number of portions produced [10]. People can find recipes in various sources such as cookbooks, culinary magazines, websites, cooking apps, and social media. Recipes consist of various kinds of dishes, from traditional dishes to modern dishes or from simple dishes to very complicated dishes.

2.2 Mobile Application

Mobile Application is a collection of programs or software that can be installed by users that run on mobile devices such as smartphones or tablets [11]. Mobile applications include several categories: communication, games, multimedia, productivity, travel, and utilities [12]. Mobile applications provide convenience and comfort for users in accessing and interacting with the services and information needed. This mobile application can be accessed anytime and anywhere, making it easier for consumers to carry out their activities. Apart from that, mobile technology can increase the effectiveness of students' language learning, and students can develop independent learning skills [13]. People can download mobile applications from the App Store or Play Store platforms.

2.3 User Interface

The User Interface (UI) is a system or device display used as a medium for interaction between the user and the system. The UI includes everything the user can see and use, such as buttons, menus, nav bars, icons, graphic images, instructions, and more.

There are four dimensions in building a User Interface (UI): appearance, feel access to tools and services, and communication and collaboration support [14]. The goal of the UI is to make the interaction between the user and the system easier, faster and more efficient. A good UI should be easy to use, intuitive and create an efficient and effective interaction between the user and the system.

2.4 User Experience

The User Experience (UX) is a feeling and experience that is experienced and felt by users when using a product, service or system. UX refers to the user's thoughts, feelings and perceptions after interacting with a product or system [15]. According to [16], there are two users in user experience (UX), namely: as a synonym that aims for user-focused interaction, design and usability and as a new research movement that focuses on user needs and experience.

2.5 Design Thinking

Design Thinking is a method for solving problems by providing innovative solutions that suit the needs and desires of users [17]. This design thinking refers to a user-centred innovation process regarding the user needs of an application or service. This design thinking emphasizes observation, collaboration, fast learning, visualization of ideas, prototyping concepts, and concurrent analysis of innovation and business strategy [18]. The design thinking method has several stages in producing creative and innovative solution designs to overcome a problem that exists in today's society. The design thing method consists of 5 stages, including empathize, define, idea, prototype and testing.

2.6 User Persona

User Personas are fictitious representations of a group of target users based on data and information about their behaviour, motivations and expectations. It helps product developers to understand and visualize user needs and expectations and create better designs and experiences [19]. User Personas help to increase focus and ensure that the product design meets the expectations and needs of the right users. User Personas are created by collecting data through interviews, surveys, and data analysis. This data is then used to create a profile of the target user, which includes information such as age, education, occupation and lifestyle. This profile also includes information about the user's motivations, expectations, and behaviour, such as what motivates them to use the product and what they expect.

2.7 Empathy Maps

An Empathy Map is a visual tool used to understand and represent a user's perspective and feelings. This helps the product team understand what users feel, receive, and do when using a product or service. Empathy Map helps to build empathy and understand the needs and expectations of users also helps to avoid assumptions, and ensures that products are designed for real users so that they can help to create better designs and experiences [20].

An Empathy Map is created by dividing the paper or whiteboard into four sections, namely "Say", "Think", "Feel", and "Do". Each section includes what users say, think, feel, and act when using a product or service. The product team can gather information through interviews, observation, and data analysis to populate each part.

2.8 How Might We

"How Might We" (HMW) is a technique used to identify and formulate problems to be solved in the product or service development process [21], [22]. It is used to help the team to focus on a specific problem and helps them to think of innovative solutions.

HMW usually begins with identifying a problem or challenge to be resolved. The product team then formulates the problem into a question by starting the question with "What if we built...?" or "What if we could...?" These questions identify a problem and help to think of a solution. After formulating the problem into a question, the product team can think of a solution by helping to answer the question. These solutions can be innovative ideas for solving problems and improving products or services.

2.9 User Flow

User flow is a visual representation of the flow of user interaction with the product or service they use. It shows how the user moves from one page or feature to another when using a product or service. User flow helps to understand how users navigate a product or service and ensures that they can complete their tasks quickly and efficiently [23].

User flow is significant in the product development process and contributes to ensuring that the product has an intuitive design and is easy to use. It helps to understand how the user interacts

with the product and ensures that it meets its expectations and needs.

2.10 Wireframes

The wireframe is the initial visual representation of a digital product, such as a website or application, which shows how the page will look and function [24]. Wireframes display crucial elements such as layout, navigation, buttons, and content, but don't include colours, fonts, or other visual details. The goal is to focus on basic structure and function before considering the final look. Wireframes help development and design teams understand how the product will work and help them work together on effective product planning and development.

2.11 Visual Design Principles

In making a design, one must pay attention to aspects of the User Experience (UX), one of which is the Visual Design Principle. The visual Design Principle is the principle used to determine the visual appearance of a product to create a practical and aesthetic design [22]. Basic principles in visual design include: unity and variety, hierarchy and dominance, the economy of elements, proportion and balance, interaction principle and psychology principle.

2.12 Usability Testing

Usability testing is the process of evaluating how real users in appropriate situations use a product. It helps to understand how the product can be improved to meet the users' expectations and needs. Usability testing can be performed on products such as software, web applications, or hardware and helps product developers to understand how their products are used and accessed by users [25].

The results of usability testing can include information such as the time required to complete tasks, the level of difficulty experienced by users, and the level of user satisfaction. Also, the results of usability testing help product developers understand problems and improve product quality and efficiency.

2.13 Figma

Figma is a cloud-based design tool used to design the appearance of mobile, desktop, or website applications for users' digital projects [26]. People can use Figma on Windows, Linux or Mac operating systems connected to the internet. Figma consists of several components, including vector networks, prototyping, design systems,

collaboration, inspection & handoff, and plugins [27].

In this figma application, users can collaborate on a project even though the users are in different places. Therefore, the figma application is in great demand and is used by the community.

2.14 Whimsical

Whimsical is a graphic design platform that provides tools and design elements to create logos, business cards, and other products easily [28]. This site offers collaborating features to work as a team on design projects. It's perfect for businesses, startups or individuals who want to create brand designs without hiring a professional designer.

2.15 Related Work

In research [29], an Android application for food recommendations based on the ingredients users have was designed. This study utilizes content-based filtering algorithms and the Word2vec model to recommend alternative ingredients and filter food ingredients based on user preferences. However, this research only provides a design plan with limited features, including recommendation features, recipe filters, and the ability to add user-made recipes, with limited interaction between users and the system. Therefore, the researcher in this study has expanded upon the previous research by adding more interactive features, such as a video collection feature and using more attractive design colours to ensure users have a comfortable experience while using this application.

Research [30] focuses on the design of an Android application called Foodorials, which provides a collection of cooking recipes that can be accessed offline. This application provides information on the preparation time, serving size, required ingredients, a grocery shopping list, and the nearest supermarket. However, this application can only be used on Android 3.0 devices and above, and the provided design is less interactive with monotonous colouring that does not align with the theme of a cooking application. Therefore, the researcher in this study has improved upon the previous design by redesigning it, taking into account more interactive elements, and using a more appealing colour scheme. This research serves as a reference for the current research.

Research [31] discusses changes in people's behaviour towards food due to the Covid-19

pandemic. The research indicates that public interest in food has decreased while interest in recipes and food delivery has increased significantly. Many people now watch YouTube videos to get information on Covid-19 updates, food, and grocery shopping. Therefore, based on this research, the idea of creating an interactive and user-friendly cooking collection application design that facilitates users in finding recipes according to their preferences was developed.

Research [32] describes the use of the design thinking method in interior design as a tool for teaching and learning, utilizing the double diamonds method. Hence, this research can serve as a reference for understanding the stages of design thinking that the researchers will apply in designing the collection of recipes.

Research [33] discusses the use of collaborative design thinking and quantitative methods to help students improve their English writing skills. Although this research pertains to a different field, it serves as a reference for the researchers in using the design thinking method in the context of system design for a collection of recipes.

3. RESEARCH METHODS

In making the UI/UX design for this Koken application, the researcher proposes using the design thinking method. Meanwhile, collecting user needs for this application by making observations and questionnaires through Google forms, comparing existing applications, and completing previous research related to cooking recipe applications. By using this method, it is expected to be able to produce innovative designs that suit consumer needs. The Design Thinking method consists of five stages, including:

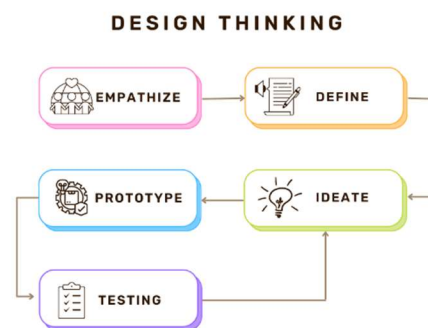


Figure 1 Design Thinking Method

3.1 Emphatize

The empathize stage aims to take an empathetic approach to find out the problems being faced by the community so that researchers can understand what users think, feel and need. At this stage, the researcher conducted user research by distributing questionnaires via the online Google form and conducting interviews with several people. The goal is to find out the user persona and the requirements that the user wants.

The target respondents sought are following the target market for the Koken application including:

- Demographic Segmentation of the Koken application: young women to adults who like cooking and want to learn various kinds of cuisine. Aged 18-40 years and have lower to upper-class economic conditions.
- Geographic Segmentation of the Koken application, namely people who live in cities and understand technology.
- Psychographic Segmentation of the Koken application, which is intended for all economic classes from the lower to the upper class. This Koken is intended for busy people who want to make practical and fast dishes.

The following is a sample user persona in the Koken application design.

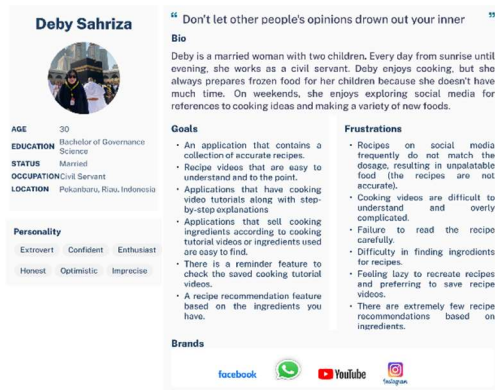


Figure 2 Deby User Personas

In addition, the following is a sample empathy map on Koken application design.

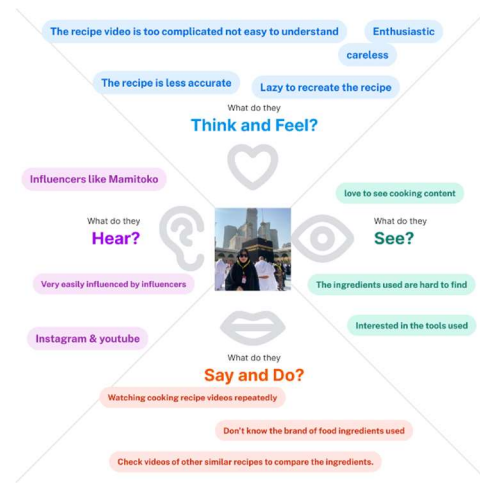


Figure 3 Deby Empathy Maps

3.2 Define

The define stage is where all data and information obtained and collected at the empathize stage is identified and further analyzed to produce meaningful information related to the problems that users face. The stages in the defined stage are as follows:

3.2.1 problem statement

Based on the results of the questionnaire survey and interviews that have been conducted, the majority of respondents need help cooking by using the help of cookbooks or video content from social media. Most people who want to learn to cook need clarification about where to start and their limited tools and materials. People who still need help understanding kitchen spices have difficulty if they have to go and buy directly from the supermarket. Apart from that, respondents also felt that video tutorials for other platform dishes were too fast, and explanations for tools and ingredients needed to be completed, so they had to watch the videos repeatedly, which was very time-consuming.

3.2.2 how might we

After knowing the problems that occur in society, researchers arrange How Might We to get solutions to the problems that researchers find. As for How Might We, as follows.



Figure 4 How Might We

3.3 Ideate

At this Ideate stage, researchers develop ideas for solutions to problems being faced by users. Researchers collect ideas from journals and previous research and compare them with other competitors to produce innovative ideas. It is hoped that at this stage, we can identify as many solutions to the problems that the researcher previously found. The stages in the ideate stage are as follows:

3.3.1. solution map

In finding solutions to the problems developed at the defined stage, the researcher creates a solution map based on How Might We. So by making a solution map, you will be more focused on providing solutions to the needs and desires of users.

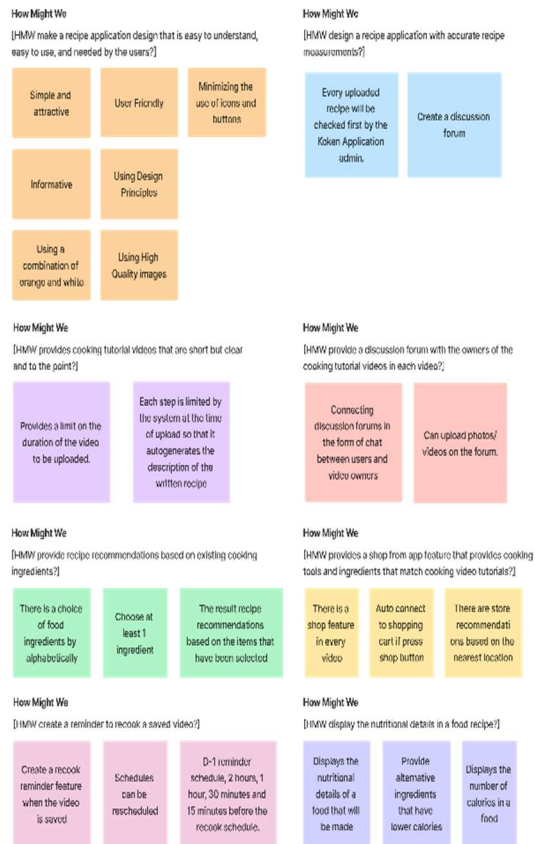


Figure 5 Solution Map

3.3.2 sitemap

After determining the solution based on How Might We, the researcher compiled a Koken application sitemap. The preparation of a sitemap as the main structure of this application determines the flow of each page. Compiling a sitemap can make it easier for internal researchers to determine the components that exist in this application.

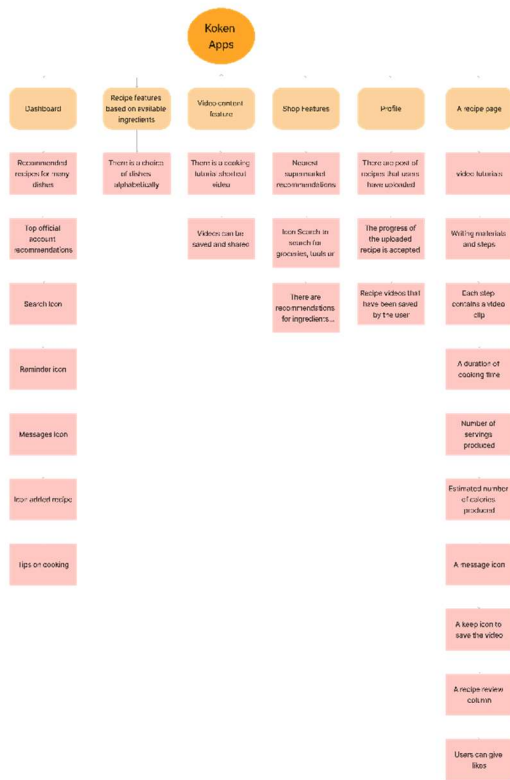


Figure 6 Sitemap Koken App

3.4 Prototype

At this prototyping stage, the researcher made a User Interface design for the Koken application, ranging from low-fidelity (wireframe) to high-fidelity (prototype/mockup). In making wireframes and prototypes, researchers use the figma platform. The components in the Koken application that the researchers have designed are as follows:

3.4.1 visual design principle

Researchers used the Visual Design Principle method to design the Koken application mockup design. Effective visual design will influence the user on a subconscious level, thus allowing the user to gain interest without making conscious judgments about this Koken application. The principles of visual design are:

3.4.1.1 hierarchy & dominance

Researchers use attractive images and icon shapes that stand out and have more contrast so that they appear more dominant, and use short texts containing instructions.

3.4.1.2 use of color

In this design, the author plans to use several colors on the icon and background that are neutral, not too contrasty so that certain icons that have a dominant color will still look different. The color palette of the Koken application is as follows.



Figure 7 Color Palette Koken App

3.4.1.3 use of font

The font that will be used is 'Lato', this is because the font looks simpler and easier to use.

3.4.1.4 element placement

In compiling elements in this application, researchers will arrange them with various purposes to make them more exciting and make differences between them so that they can add a fresh feeling and desire to explore this application.

3.4.1.5 consistent design

Researchers will use the size of each icon with the same size and background colour that is similar and aligned. The goal is to keep the appearance consistent and look neater.

3.4.1.6 cognition

Researchers use the same layout as competitors and other applications that users frequently use. The goal is for users to feel more familiar with and understand more quickly in using this application.

3.4.1.7 engagement

It will display recipes many users are cooking and looking for to make it easier for other users to find cooking recipe ideas.

3.4.1.8 functional

Researchers minimize the use of icons and taskbars, aiming so that users are clear in using this Koken application.

3.4.2 user flow

The user flow designed by the researcher aims to show how users interact with this Koken application. With user flow, it can provide convenience and understanding for users. The user flow in the Koken application is as follows.

3.4.2.1 user flow login and view main page

The first time users use this application, they will be asked to register for an account to enter and view this Koken Application page.



Figure 8 User Flow Login and View Main Page

3.4.2.2 user flow searching for recipes

This user flow is the user's steps in searching for recipes based on the keyword, the name of the dish, the name of the user account or the name of the ingredients..

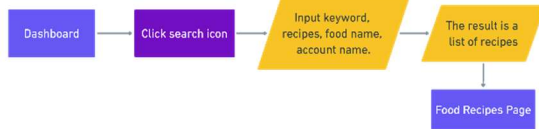


Figure 9 User Flow Searching for Recipes

3.4.2.3 user flow adding or uploading recipes

This user flow is the user's steps in adding recipes to be uploaded.

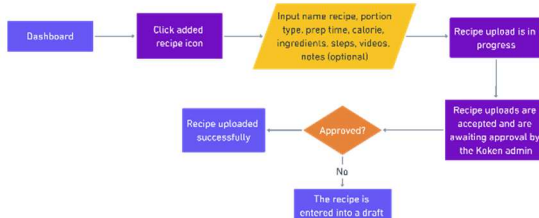


Figure 10 User Flow Adding or Uploading Recipes

3.4.2.4 user flow searching for recipes based on ingredients

This User Flow is the steps for the user to look for references to recipes based on their ingredients.

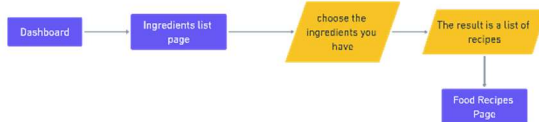


Figure 11 User Flow Searching for Recipes Based on Ingredients

3.4.2.5 user flow viewing a collection of cooking tutorial videos

This user flow is the user's steps in viewing a short cooking tutorial video page. Users can like, comment, share or save this video. And there is a shop icon to buy the cooking ingredients used in this video.

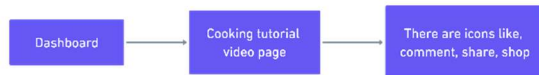


Figure 12 User Flow Viewing a Collection of Cooking Tutorial Videos

3.4.2.6 user flow adding ingredients to the shopping cart through the video page

This user flow is the user's steps in buying cooking ingredients listed in the cooking tutorial video.

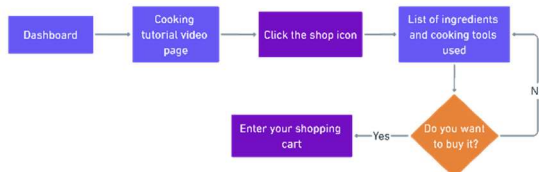


Figure 13 User Flow Adding Ingredients to The Shopping Cart Through The Video Page

3.4.2.7 user flow view shopping pages

This user flow is the user's steps in viewing the shopping page on the Koken application. This page contains recommendations for the closest supermarket stores and a list of recommended ingredients for cooking.



Figure 14 User Flow View Shopping Pages

3.4.2.8 user flow viewing shopping cart page

This user flow is the user's steps in viewing their shopping cart page, where this shopping cart page contains the ingredients they have added to check out.



Figure 15 User Flow Viewing Shopping Cart Page

3.4.2.9 user flow adding notes list of ingredients to the shopping list

This user flow is the user's steps in adding notes to the list of ingredients they want to buy but not for checkout.



Figure 16 User Flow Adding Notes List of ingredients to the Shopping List

3.4.2.10 user flow viewing shopping list notes page

This user flow is the user's steps in viewing the user's shopping list notes page. These notes are from the recipe page. On this page, there are also special notes for users.

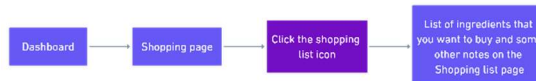


Figure 17 User Flow Viewing Shopping List Notes Page

3.4.2.11 user flow view profile page

This user flow is the user's steps in viewing the profile page. This profile page contains a list of posts uploaded by the user and videos that the user has saved.

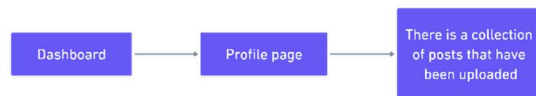


Figure 18 User Flow View Profile Page

3.4.2.12 user flow viewing the recipe column

This user flow is the user's steps in seeing the progress of the recipe that the user uploads, whether the Koken admin has approved it..

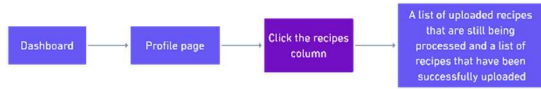


Figure 19 User Flow Viewing the Recipe Column

3.4.2.13 user flow to edit profile

This user flow is the user's steps to edit the profile.



Figure 20 User Flow to Edit Profile

3.4.3 wireframe

At this stage, the researcher made a low-fidelity wireframe design for the Koken application based on the results obtained from the empathize process to the defined process. The wireframe the researcher has designed will later be used as a basis for prototyping and will be tested on users. Some examples of wireframes that researchers designed are as follows.

3.4.3.1 recipe page wireframe based on cooking ingredients

This wireframe design is a design on the recipe search page by selecting the user's ingredients.

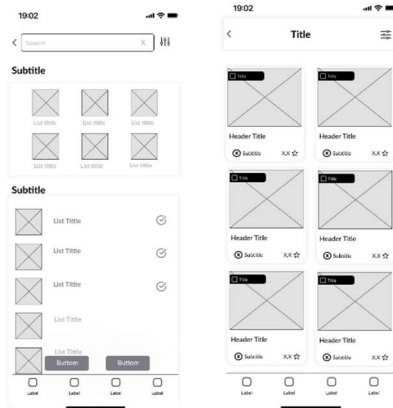


Figure 21 Recipe Page Wireframe based on Cooking Ingredients

3.4.3.2 video page wireframe

This wireframe design is a design on the cooking tutorial video page. On this page, users can view other videos by scrolling down.

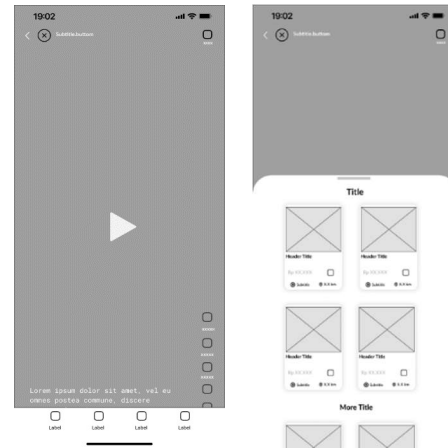


Figure 22 Video Page Wireframe

3.4.3.3 shopping page wireframe

This wireframe design is a design on the shopping page. Users can make purchases on this page.

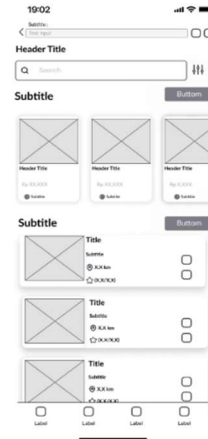


Figure 23 Shopping Page Wireframe

3.5 Testing

After the prototype stage is complete, the results of this user interface design will be tested for the user to find out whether the solution ideas proposed in this design have met the needs and desires of the user. And also to get feedback from respondents, which will be used to improve designs on prototypes.

This test will use usability testing. In the ongoing testing, the respondent will run the prototype without being directed by the researcher. Researchers make several scenarios to determine how far respondents can use this prototype to complete their tasks. The test scenario is as follows.

Table 1 Koken application test scenarios

Scenario	Goals
Users login to the Koken application	From the homepage page, users can log in using a Google account, Facebook, or email. However, if the user already has an account, the user can press the login button and enter the dashboard page.
The user is looking for a recipe.	From the dashboard page, the user can use the search icon and write the required recipe to get the desired recipe page later..
The user wants to add a special note for ingredients.	Users can go to the recipe page they want to see from the dashboard page. After the recipe page, the user can press the add button to the shopping list.
The user uploads a recipe.	From the dashboard page, the user clicks the add-reverse icon and fills in the recipe data they want to upload.
Users search for references to recipes based on ingredients.	The user can go to the recipe collection page from the dashboard page. And choose the ingredients they have, and then the user will click the apply button and produce a collection of related recipes.
The user wants to see the price of the material used in the video.	From the dashboard page, the user can go to the cooking tutorial video page and click the shopping icon.
Users want to buy ingredients on the Koken application.	From the dashboard page, the user can go to the shopping page and press the shopping cart icon to enter the shopping cart page and make payments.

The user wants to see a record of cooking ingredients.	From the dashboard page, the user can go to the shopping page and press the grocery list record icon to go to the shopping list note page.
Users want to see posts that have been uploaded.	From the dashboard page, the user can go to the profile page and see a collection of posts that have been successfully uploaded.
Users want to check the status of recipes that have been uploaded.	From the dashboard page, users can go to the profile page, click the recipe column and display the progress of the recipe they have uploaded.

4. RESULT AND DISCUSSION

4.1 Flowcharts

In this flowchart the researcher divided it into several flowcharts based on the page to make it easier for users to read and understand the flow of this Koken application. In making the flowchart, the researcher used a whimsical platform. The several flowcharts in the Koken application are as follows.

4.1.1 dashboard page flowchart

There are several activities on the dashboard page, namely using the search icon to search for specific recipes and the add recipe icon to upload the desired recipe. The flowchart is as follows.

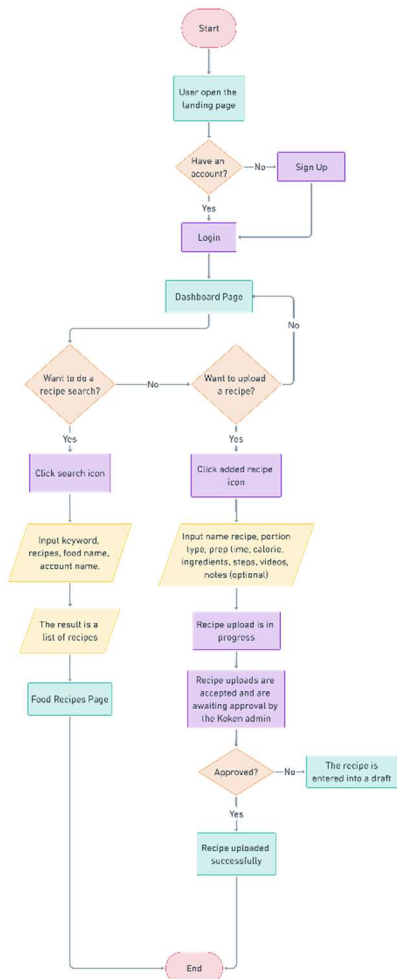


Figure 24 Dashboard Page Flowchart

4.1.2 food recipe page flowchart

On a recipe page, several activities can be carried out by the user. The Flowchart explanation on this page is as follows.

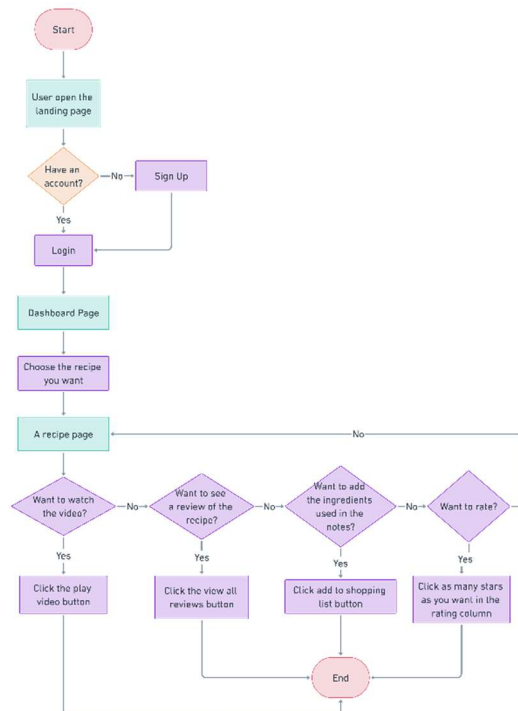


Figure 25 Food Recipe Page Flowchart

4.1.3 flowchart of ingredients list pages

search for references to recipes based on the ingredients they have. The flowchart is as follows.

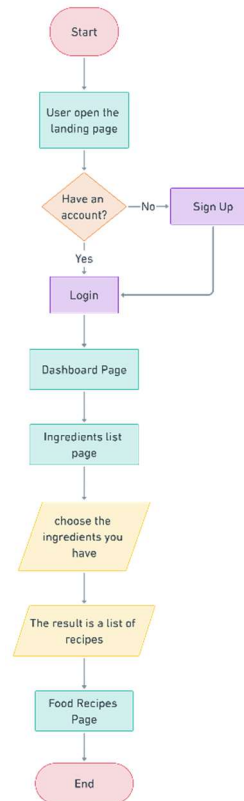


Figure 26 Flowchart of Ingredients list Pages

4.1.4 video page flowchart

On this video page, there are several activities that the user can carry out. The Flowchart explanation on this page is as follows.

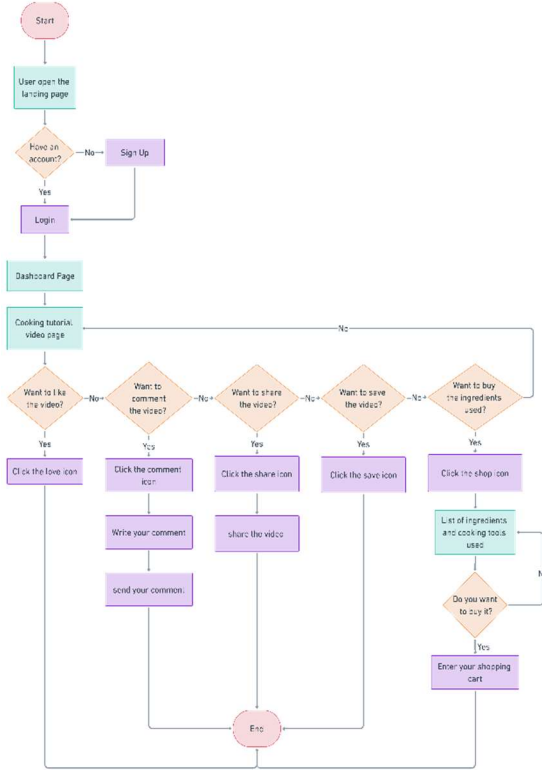


Figure 27 Video Page Flowchart

4.1.5 shopping page flowchart

Users can purchase at the nearest supermarket store on the shopping page. The flowchart is as follows.

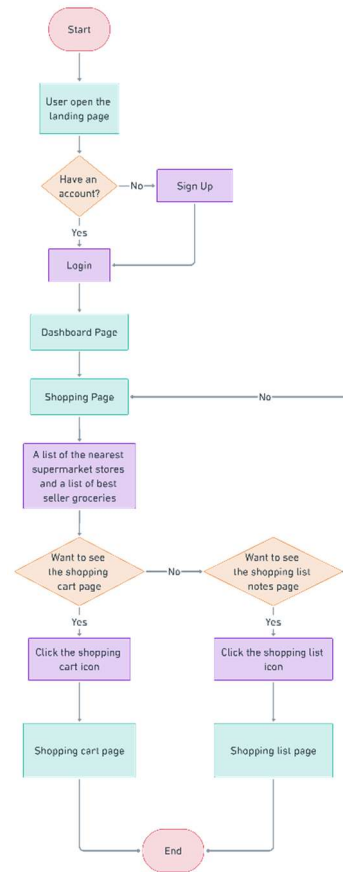


Figure 28 Shopping Page Flowchart

4.1.6 profile page flowchart

On the profile page, users can see a collection of recipes that users have uploaded along with their progress. The flowchart is as follows.

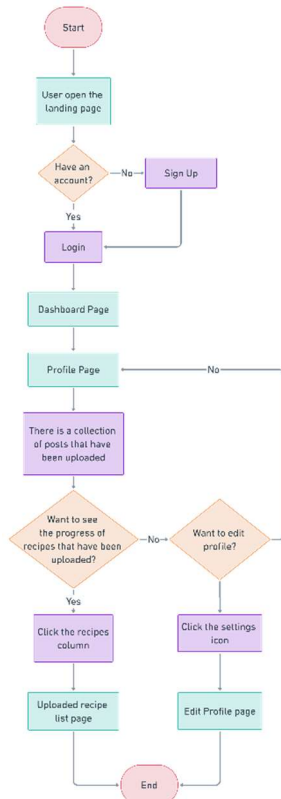


Figure 29 Profile Page Flowchart

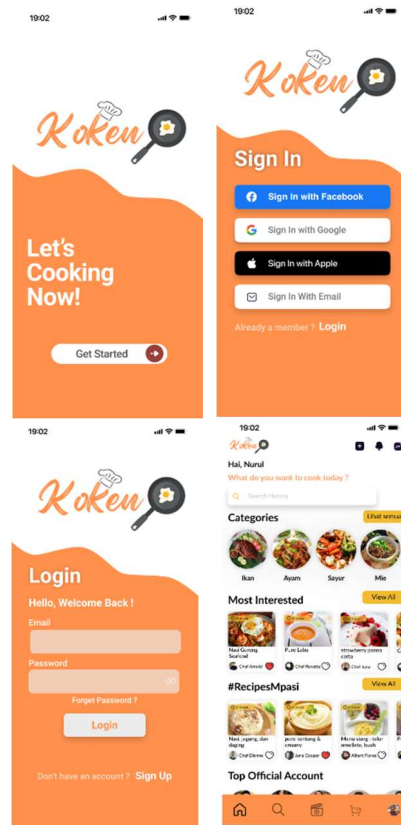


Figure 30 Login Page Design

4.2 User Interface Design

At this stage, the researcher carried out the process of designing the user interface design based on the pre-designed wireframe. In making user interface designs, researchers use figma tools. The results of the Koken application user interface design are as follows.

4.2.1 login page design

This design shows the interaction from the initial view page the first time the application is opened. Users are asked to log in via their Google or social media accounts, but if they already have an account, they will be asked to log in directly using their email. After successfully logging in, the user enters the dashboard page.

4.2.2 dashboard page design

The design of this page is an interactive display of the icon on the dashboard page. On the dashboard page, the user can upload their recipe and search for the recipe they want.

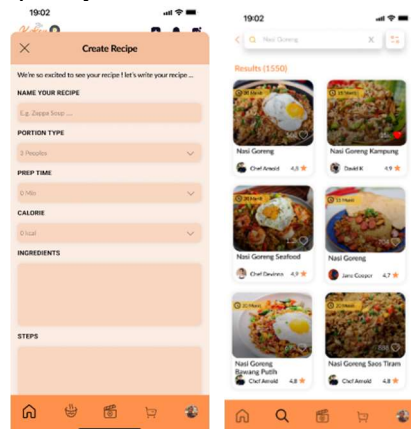


Figure 31 Dashboard Page Design

4.2.3 recipe search page design

This page design displays interactions on the page of a recipe. Users can interact on this page, including watching cooking video tutorials, viewing recipe reviews from other users, adding ingredients used to notes, chatting with recipe owners, providing ratings, and more.

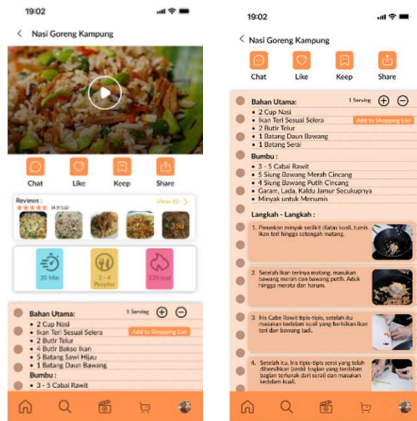


Figure 32 Recipe Search Page Design

4.2.4 ingredients list page design

The design of this page is an interactive display when the user wants to find references to recipes based on the ingredients they have. The user can choose at least one cooking ingredient.

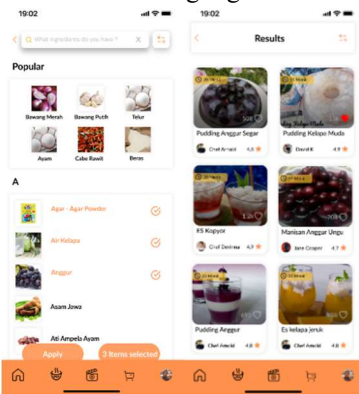


Figure 33 Ingredients List Page Design

4.2.5 video page design

The design of this page displays a collection of short cooking tutorial videos; users can scroll through the video to see other videos. On this page design, there are several interactions that users can make, including giving likes, and comments, sharing with other users, saving the video and wanting to buy the same material used in this video.

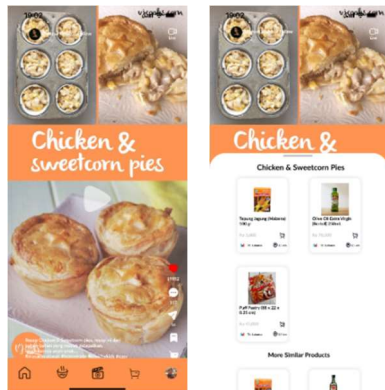


Figure 34 Video Page Design

4.2.6 shopping page design

This design is a shopping page display, users can buy ingredients or cooking utensils on this page, and there are recommendations for the nearest supermarket store. On this page, users can see their shopping cart page and notes on ingredients.

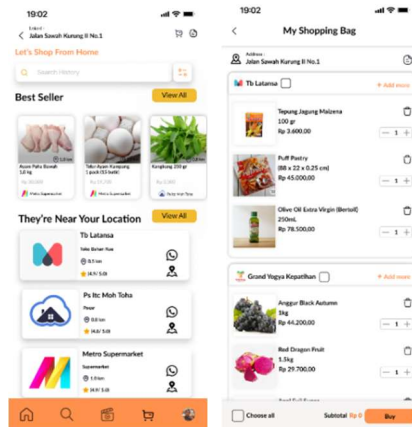


Figure 35 Shopping Page Design

4.2.7 profile page design

This design is a display of the profile page. This page displays a collection of uploaded recipes that users have uploaded and the progress of recipes that users have uploaded, whether the Koken admin has approved them or not.

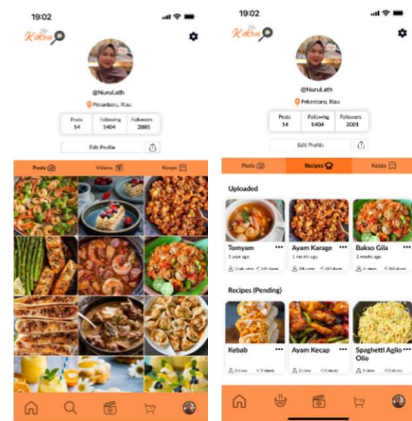


Figure 36 Profile Page Design

4.3 Testing

At this testing stage, the researcher uses the usability testing method by involving five respondents for each scenario. The goal is to get practical and valid results. In this test, the researcher asked respondents to complete the tasks given. The tasks given are in the form of test scenarios. The researcher will observe, hear and record the findings and input during the testing. In this test, there are 9 test scenarios. The following are the results of the tests that the researchers have done.

4.3.1 user scenario login to the koken application

The following is the result of testing the user scenario for login.

Table 2 Test Scenario Login

Activity	Respondent				
	1	2	3	4	5
Homepage	V	V	V	V	V
Sign In	V	V	V	V	V
Login	V	V	V	V	V
Input Email	V	V	V	V	V
Input Password	V	V	V	V	V
Dashboard	V	V	V	V	V
Success Rate (%)	100	100	100	100	100
Average Rate (%)	100				

Indicator: V: Easy, X: Relatively Difficult

The table above shows that respondents can complete all tasks in this scenario quickly and smoothly. Users are clear and confident in the process.

4.3.2 user scenario searching for a recipe

The following results from testing the user scenario are looking for a recipe.

Table 3 Test Scenario Searching For A Recipe

Activity	Respondent				
	1	2	3	4	5
Dashboard	V	V	V	V	V
Click search Icon	X	V	V	V	V
List recipe	V	V	V	V	V
A recipe page	V	V	V	V	V
Success Rate (%)	75	100	100	100	100
Average Rate (%)	95				

Indicator: V: Easy, X: Relatively Difficult

The table above shows that respondents can complete all tasks in this scenario quickly and smoothly. However, one respondent named Santa needed clarification in finding the search icon.

4.3.3 scenario users want to add special notes to ingredients.

The following is the result of testing the scenario. The user wants to add special notes regarding cooking ingredients.

Table 4 Test Scenario Add Notes

Activity	Respondent				
	1	2	3	4	5
Dashboard	V	V	V	V	V
Click search Icon	V	V	V	V	V
A list of recipes	V	V	V	V	V
A recipe page	V	V	V	V	V
Add to shopping list button	X	V	V	V	V
Success Rate (%)	80	100	100	100	100
Average Rate (%)	96				

Indicator: V: Easy, X: Relatively Difficult

The table above shows that almost all users can quickly complete all tasks in this scenario without confusion. Still, one of the respondents needed clarification when looking for the add to shopping list button.

4.3.4 user scenario uploading a recipe

The following results from testing the user scenario uploading an owned recipe.

Table 5 Test Scenario Uploading A Recipe

Activity	Respondent				
	1	2	3	4	5
Dashboard	V	V	V	V	V
Click added recipe icon	X	V	V	X	V
Success Rate (%)	50	100	100	50	100
Average Rate (%)	80				

Indicator: V: Easy, X: Relatively Difficult

The table above shows that respondents could quickly complete all tasks in this scenario, but two respondents did not immediately find the upload recipe icon. The researcher will make revisions by increasing the size of the icon and changing the colour so that users can see the upload recipe icon directly without confusion.

4.3.5 user scenario searching for recipe references based on ingredients

The following are the results of testing user scenarios in finding references to recipes based on their ingredients.

Table 6 Test Scenario Searching for A Recipe Based on Ingredients

Activity	Respondent				
	1	2	3	4	5
Dashboard	V	V	V	V	V
Ingredients list page	V	V	V	V	V
Choose the ingredients	V	V	V	V	V
A list of recipes	V	V	V	V	V
Success Rate (%)	100	100	100	100	100
Average Rate (%)	100				

Indicator: V: Easy, X: Relatively Difficult

The table above shows that respondents can complete all tasks in this scenario quickly and smoothly. Users do not feel confused and ask questions about this scenario.

4.3.6 scenario users want to see prices of ingredients used in videos

The following results from testing the user scenario in seeing the price of the material used in the video.

Table 7 Test Scenario Users Want to See Prices of Ingredients Used in Videos

Activity	Respondent				
	1	2	3	4	5
Dashboard	V	V	V	V	V
Cooking tutorial video page	V	V	V	V	V
Click the shop icon	X	X	V	X	V
List of ingredients and cooking tools used	V	V	V	V	V
Success Rate (%)	75	75	100	75	100
Average Rate (%)	85				

Indicator: V: Easy, X: Relatively Difficult

The table above shows that not all respondents can run this scenario smoothly. Three respondents, Santa, Nanda, and Deby, needed help finding the shop icon. This was because the icon size needed to be bigger, and the navbar covered it. Researchers will make revisions by increasing the size of the icon on the video page and changing the icon's position so that the navbar does not cover it.

4.3.7 scenarios of users shopping on koken app

The following results are from testing the user scenario in buying ingredients in the Koken application.

Table 8 Test Scenarios of Users shopping On Koken App

Activity	Respondent				
	1	2	3	4	5
Dashboard	V	V	V	V	V
Shopping page	V	V	V	V	V
Click the shopping cart icon	V	V	V	V	V
Shopping cart page	V	V	V	V	V
Success Rate (%)	100	100	100	100	100
Average Rate (%)	100				

Indicator: V: Easy, X: Relatively Difficult

The table above shows that respondents can complete all tasks in this scenario quickly and smoothly. Users are clear and confident in the process.

4.3.8 scenario user wants to view notes

The following are the results of testing user scenarios in buying food ingredients in the Koken application.

Table 9 Test Scenario User Wants to View Notes

Activity	Respondent				
	1	2	3	4	5
Dashboard	V	V	V	V	V
Shopping page	V	V	V	V	V
Click the shopping list icon	V	V	V	V	V
Shopping list page	V	V	V	V	V
Success Rate (%)	100	100	100	100	100
Average Rate (%)	100				

Indicator: V: Easy, X: Relatively Difficult

The table above shows that respondents can complete the scenario easily and quickly, and the scenario is evident in using the application.

4.3.9 scenario users views his recipe

The following is the result of user scenario testing in checking the status of recipes that have been uploaded.

Table 10 Test Scenario Users Views His Recipe

Activity	Respondent				
	1	2	3	4	5
Dashboard	V	V	V	V	V
Profile Page	V	V	V	V	V
Click the recipes coloumn	V	V	V	V	V
Uploaded recipe list page	V	V	V	V	V
Success Rate (%)	100	100	100	100	100
Average Rate (%)	100				

Indicator: V: Easy, X: Relatively Difficult

The table above shows that almost all respondents completed this scenario efficiently; it's just that one respondent needed clarification in completing this scenario.

5. CONCLUSION AND FUTURE WORK

Based on the results of the research carried out by researchers, it produces a user interface design for a collection of recipe applications called Koken. Making a user interface design uses the design thinking method in 5 stages: empathy, defining, ideating, prototype and testing. In the empathy process, the researcher distributes questionnaires and interviews to target users, which are then poured into the user persona and empathy map. To find out the problems in the community environment in the process of getting a recipe. Then define the process by analyzing the results of the empathy map and collecting the problems that occur. After knowing the problem, the researcher developed the How Might We method to get a solution and understand the problem and the needs and desires of users. The next step is the ideate stage. In searching for ideas, the researcher makes a solution map based on the How Might We that was made before, and then the researcher starts to focus on ideas by making a site map. The aim is to make it easier for researchers to describe the framework for this Koken application. The results of this idea are implemented as a user interface design prototype for a collection of cooking recipe applications that suit the community's needs. Researchers make user flows and flowcharts easier for researchers to describe their use and flow. After that, the researcher created a wireframe as a rough description that can be used as a reference in designing the Koken application user interface. Lastly, testing was carried out using

the usability testing method on five respondents who matched the criteria for the target user of the Koken application. The final result of this research is in the form of a user interface design for a collection of recipe applications called Koken. Koken app has a recipe reference feature based on ingredients owned, a short video collection feature about cooking, and a shopping feature to make it easier for users to find cooking ingredients that match recipes.

In this study, there are several research limitations, namely, the results of this study are only in the form of a user interface design that has not been implemented so that in future work, implementation of the Koken application user interface design can be carried out. In the empathize process, add the number of respondents and expand the target user again to get insight into more broadly related problems and user needs. And also, in the usability testing process, there are only five respondents, so in the future, it is advisable to increase the number of respondents and other assessment indicators to get complete results and fulfil every aspect. It is hoped that this research design can help and facilitate the community in finding recipes and liking cooking activities.

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