

# Analysis And Design of Mobile Applications For Make-Up Artist Services (Halomua) With The Design Thinking Framework

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**Abstract:** Designing an application user interface design is an important part of creating an attractive application. However, there are several problems such as lack of attention to detail, failure to identify and solve customer problems, and poor planning or organization. The design thinking method performs stages ranging from empathize, define, ideate, and prototype, to usability testing to reduce these problems. At the empathize stage, data is obtained through interviews with MUAs and online questionnaires that have been filled out by respondents. At the define stage, a profile picture of each respondent along with their problems and goals was created. At the idea stage, feature mapping, information architecture, low fidelity wireframe, medium fidelity wireframe, and user flow are made so that it can facilitate users in operating the tasks designed in the application. The prototype stage is to create a flowchart design for each case so that users can find out how the application can run properly. The results of usability and user satisfaction are measured using the System Usability Scale (SUS). The SUS average value of 85.2 is obtained, which means that the value of the UI design results is included in category B with an "Excellent" status.

**Keywords:** Analysis, Design, Mobile, Design Thinking

## INTRODUCTION

Make-up Artist is a profession that has expertise in the field of art which in its work is focused on devoting its art to the skin, especially the face, and using tools, namely makeup. However, the Make-up Artist profession also has a different focus on each MUA, such as those who specialize in serving makeup services for weddings or other formal events, some are focused on traditional and traditional makeup (Kusumawardani, Sukmasari, Habsary, & Sarumpaet, 2022). Then some have experts in the field of face and body painting, namely making works (painting) of the face and body as well as special effects according to customer wishes in certain events. With the development of technology in this millennial era, all aspects of life that require the role of information systems are increasing and leading to its efficiency which is key in business competition, making it easier for customers to determine the right MUA services (novita & Tarigan, 2022). In addition, the appearance of the application is also important in branding related to the business being carried out. However, there are several problems faced such as lack of attention to detail, failure to identify and solve customer problems, and poor planning or organization.

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In designing a good User Interface and User Experience application several challenges need to be faced. Lack of problem statement: A problem statement is a way to describe the problem the user needs the UX design to solve. Forgetting things: Designers can forget important details or features that users need. Inconsistency: Inconsistent design elements can confuse users and make it difficult for them to navigate the app. Poor error messages: Error messages should be clear and concise, explaining what went wrong and how to fix it. No default values: Default values can help users understand what information is required and make it easier for them to complete tasks. Unlabeled icons: Icons should be clearly labeled so that users understand their meaning. Too many interface elements: A cluttered UI with too many interface elements can confuse and overwhelm users (Bilousova, Gryzun, & Zhytienova, 2021).

The design thinking method is an effective method to apply at the stages of development because it is flexible so that the running system is not constrained (Nasution & Nusa, 2021). The purpose of developing a design thinking model that emphasizes customer needs and solutions provided. This approach is suitable for short-term research development with the ability to accelerate adaptation and change. Design Thinking has five data processing processes, starting from the Emphasize stage, define, ideate, then proceed to the prototype stage, then testing (Brenner & Uebernickel, 2016). In testing the prototype using aspects of learnability and satisfaction with the system usability scale approach.

The results of this research are in the form of a high-fidelity prototype for the Harvest Harvest application and from the research that has been done it can be concluded that the user interface design made can be used by users. This is obtained from the results of user testing using maze.design for the usability of the prototype.

### LITERATURE REVIEW

In creating a UI/UX design, several things need to be considered so that the design can provide comfort and convenience for users. Some things that need to be considered include usability, efficiency, and ease of use (Saragih, et al., 2020) (Puteri, Aulia, & Sari, 2022). To achieve this, the User-Centered Design (UCD) or Design Thinking method can be used (Safitri & Andrianingsih, 2022) (Alao, Priscilla, Amanze, Kuyoro, & Adebayo, 2022) (Setiyani & Tjandra, 2022) (Saragih, et al., 2020). The UCD method involves users in every stage of design, from information gathering, and analysis, to testing the final product. While the Design Thinking method involves four stages, namely empathy, definition, ideation, and prototyping (Puteri, Aulia, & Sari, 2022).

In addition, in creating UI/UX design, it is also necessary to pay attention to visual aspects such as colors, layout, and fonts used (Saragih, et al., 2020) (Setiyani & Tjandra, 2022). The colors chosen should match the theme of the application and be easily recognizable by users. A good layout can make it easier for users to navigate the application. Meanwhile, the font used must be easy to read and follow the application theme. In testing UI/UX design, the User Experience Questionnaire (UEQ) or user testing method can be used (Safitri & Andrianingsih, 2022) (Alao, Priscilla, Amanze, Kuyoro, & Adebayo, 2022). UEQ can provide an overview of UI/UX quality from the user's perspective. Meanwhile, user testing can provide direct feedback from users about the strengths and weaknesses of the design. In creating a UI/UX design, it should also be noted that the design must be accessible to all users, including users with disabilities. Therefore, it is necessary to pay attention to accessibility aspects in UI/UX design (Puteri, Aulia, & Sari, 2022) [5]. This research uses the design thinking method by focusing on all stages personally or one by one.

Several studies discuss application design such as (Sibuea & Windarto, 2023) improvement on user interface and user experience using Lean UX to see user habits in using the application. besides that, there is also research using the Task System Centered Design (TSCD) method where this method emphasizes grouping the responsibilities of each user (Krisnanik & Rahayu, 2021) (Hardianto, 2019). Other studies use the user-centered design (UCD) method which is more suitable for prototype development (Goel, Tanwar, & Sharma, 2022). The above research has its advantages, but this research offers the use of design thinking methods that are more personalized one by one instead of groups or tied to certain methods such as prototypes.

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### METHOD

The methodology used is the "design thinking" method. This method is known as a comprehensive thinking process that concentrates on creating solutions that begin with a process of empathy for a certain human-centered need towards a sustainable innovation based on the needs of its users (Shahrasbi, Jin, & Zheng, 2021).

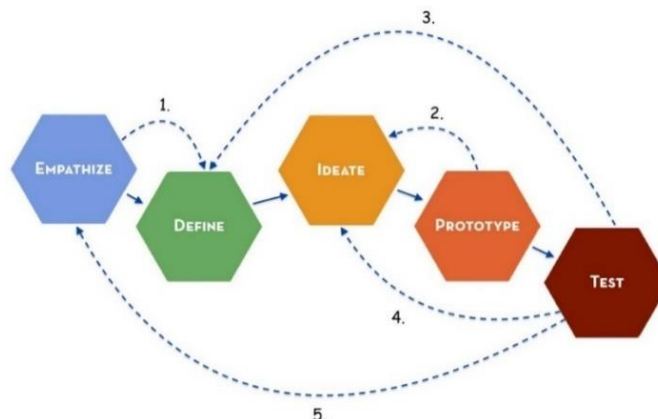


Fig. 1 Desain Thinking Method

The first stage is **1) Empathize**, at this initial stage what is done is to collect information by providing empathy to users to gain an understanding of the problems that will be solved through research. After information related to customer needs and problems is collected, the next step is to process the results of the information and then analyze and determine the core of the problems that have been identified, namely in the form of user personas at the **2) Define** stage. Based on the information obtained from the define stage, the **3) Ideate** stage contains the process of generating ideas, therefore it must generate ideas spontaneously as a solution to the problems that have been determined or can be called user personas. Problems that have been determined can be called brainstorming. Next, conduct trials to choose the best solution to each problem, namely through specific features in the product to determine the effectiveness of the ideas that have been generated, in this stage, you can use **4) Prototyping**. In the final stage in the **5) Test** stage, evaluate the prototype that has been made thoroughly, at this stage the design thinking used is still iterative, namely the team can improve the process at the previous stage so that future development can be refined.

### RESULT

This is the results of analysis and design using the design thinking method in the case study "HelloMUA". The following are the results at each stage carried out.

#### Empathize

The empathize process consists of filling out questionnaires and extracting data through interviews with sources aimed at making empathy maps. The data was obtained with the criteria of respondents who had ordered vegetables, fruits, fish, and meat with an age range of 23 - 30 years, with more than 80 respondents.



Fig. 2 Empathy map dewi and vivi

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From the results of distributing questionnaires and collecting data through interviews, 10 people were taken for the process of making an empathy map which was then grouped into an empathy map with the categories of says, feels, does, and thinks for problem mapping so that it can be seen what needs can be used as ideas for the next stage. Empathy Map results can be seen in the following table 1

Table 1. Summary Empathize map

Featured	Description
Says	Service Price
	Direct Payment
	Schedule Available
	MUA Information
	Makeup Price
	Booking Schedule
	Review
Think	what's the makeup result?
	Do you have a portfolio?
	Available date information?
	What makeup services are available?
	What payment method?
Feel	Wondering
	Confused
	Afraid
	Hesitant
	Interested
	Happy
Does	Featured Price, Chat, Booking date, search, payment method, service product review, notification

**Define**

at the define stage, there are 2 processes such as user persona and problem statement.

At this stage, researchers understand what is needed and what problems are faced by users at the time after carrying out the empathy stage. At this stage the researcher creates a user persona and explores a series of flows that users want, the steps are based on data obtained from questionnaires that have been filled in by respondents and then processed into an empathy map and then creates a user persona. So based on the results of the user persona, researchers can understand what needs and problems experienced by users so that then researchers can create features according to user desires, this aims to be the best solution to the problems previously faced by users. One of the user personas used in this study is shown in Figure 3 below.

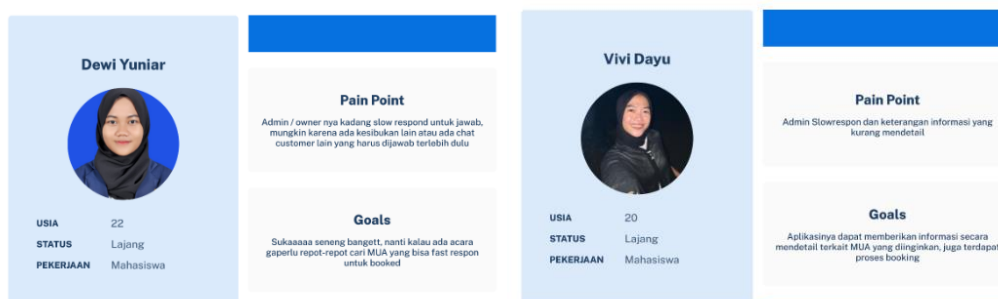


Fig. 3 User persona

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After making pain points from the user persona above, researchers made a problem statement where there are problems experienced by users. The problem statement is the conclusion of each user's pain point. The problem statements collected are 1) prices are not transparent, 2) slow response due to many communication tools, 3) lack of information, and others as in Figure 4 below.

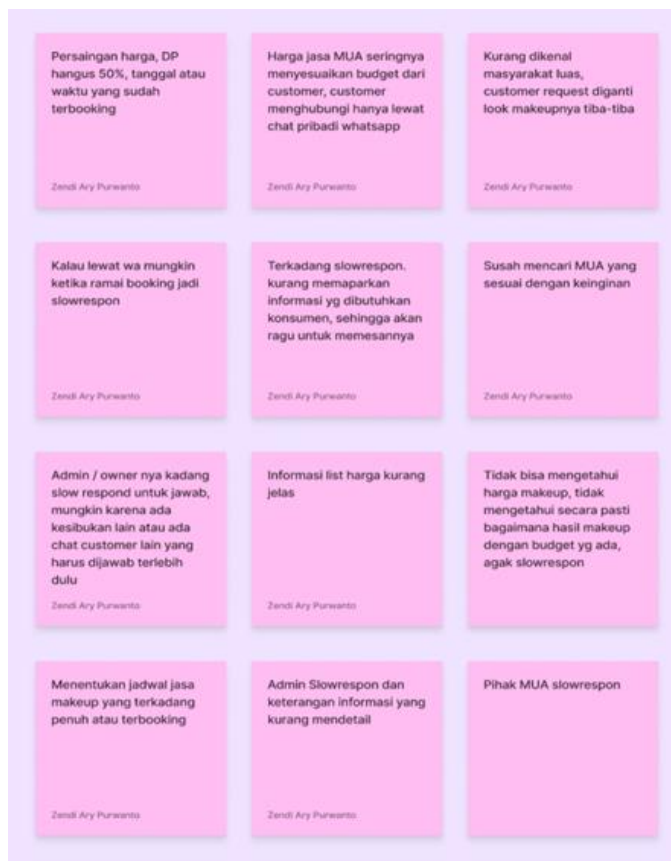


Fig. 4 Summary Problem Statement

**Ideate**

at the define stage, there are 5 processes such as solution idea, affinity diagram, user flow, crazy eight, and wireframe.

After making a problem statement, at the solution idea stage, researchers provide several solutions related to the problems faced by users. Will be displayed in Figure 5 below.

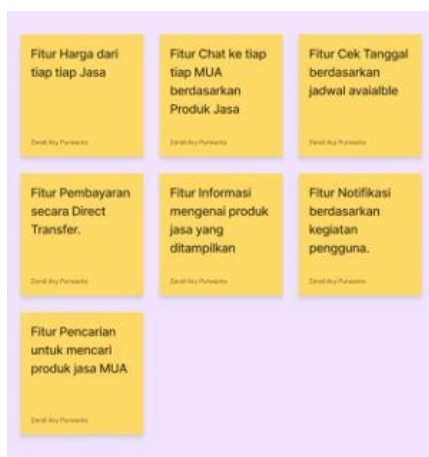


Fig. 5 Summary Solution Idea

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After the solution idea is made, at this stage the researcher creates an affinity diagram. Inside there is a grouping of features that will be made in the application. see in the following Figure 6.



Fig. 6 Summary Affinity diagram

After the solution idea is made, at this stage the researcher creates an affinity diagram. Inside there is a grouping of features that will be made in the application. see in the following Figure 7.

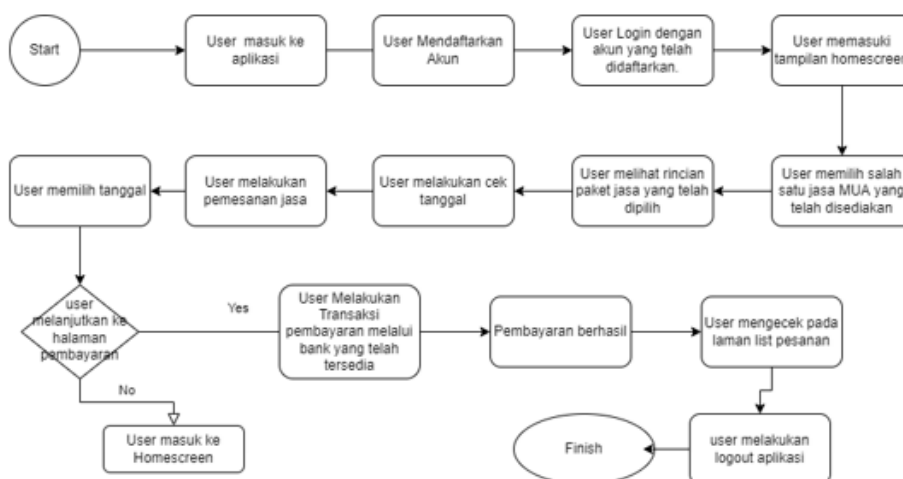


Fig. 7 User flow diagram

At this stage, the researcher draws a rough idea on paper that has been divided into 8 parts. Here are the crazy eight that have been made. Look like Figure 8.

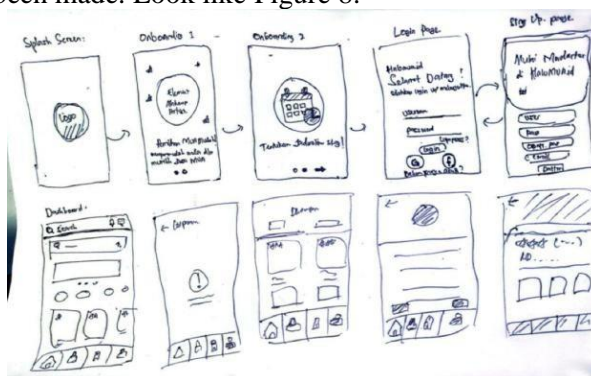


Fig. 8. Crazy Eight

At this stage, designing a structured display that has previously been drawn on a low-fidelity wireframe. Here is a medium-fidelity wireframe that has been created. as in Figure 9.

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## Prototype

Prototyping is based on the results of wireframe validation that has been made previously. The purpose of making this prototype is so that users can more quickly understand problems, ideas, and user experience when interacting with the application. Making prototypes in this application uses the help of the Figma application. One of the prototypes can be seen in Figure 10.

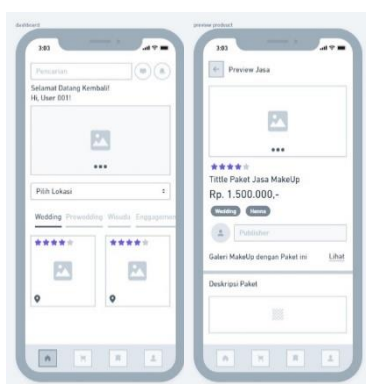


Fig. 9 Wireframe

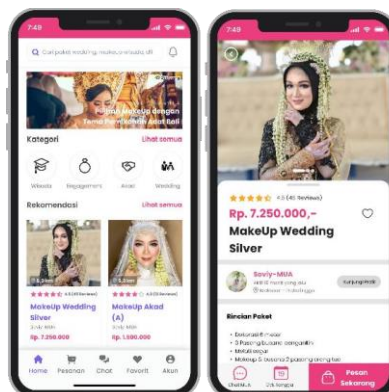


Fig. 10 Prototype

## Test

The final stage of the development made has obtained test result data, for the test, namely using the maze.design and usability scale system. The test results from the Maze Design This test gets a reported value of 70 with 32 testers. The usability Report can be seen in Figure 11 below.



Fig. 11. Crazy Eight

## DISCUSSIONS

The System Usability Scale (SUS) is a widely used questionnaire to assess the perceived usefulness of a system. It is a brief and psychometrically valid global measure of usability consisting of 10 items. The SUS uses a five-item agreement-based Likert scale and alternating valence of odd items with positive wordings and even items with negative wordings. It is a brief and psychometrically valid global measure of usability consisting of 10 items. The SUS uses a five-item agreement-based Likert scale and alternating valence of odd-numbered items with positive wordings and even-numbered items with negative wordings.

The SUS was originally developed in English, but adaptations in other languages have been developed, such as an adaptation in Indonesian. SUS is used to evaluate the usability of various systems, including educational technology systems, Knowledge Management Systems (KMS), and games. SUS is considered valid and reliable, as shown by the Cronbach's Alpha of the Indonesian adaptation of SUS of 0.841. In this study, the average SUS score obtained is 85.2, which means that the value of the results of the interface design (UI) is feasible and falls into category B which can be said to be "Excellence". When compared to other methods such as the LEAN UX Method method (Syafi'i, 2021) with a score of 76%, this design thinking method is superior with a score of 85.2.

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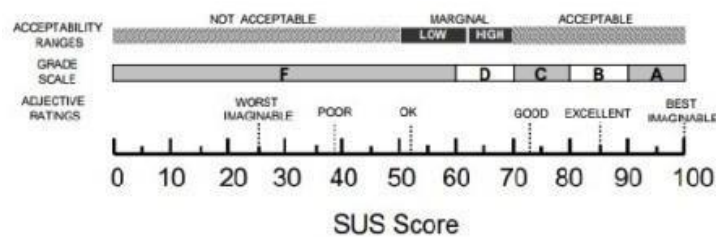


Fig. 12. Eligibility Scale Based on SUS Score

## CONCLUSION

Based on the results and discussion, it can be concluded that the design thinking method can be used to analyze and design user interfaces on HaloMua e-commerce. The design thinking method that focuses on user needs by overcoming existing problems makes the method superior to the LEAN UX method. This is evidenced by a score that is superior to the LEAN UX method, namely 82.5 for design thinking and 76 for LEAN UX. With good analysis and design, it will produce good products during the development process.

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