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Implementation of the Design Thinking Method in the UI/UX Development of a Mobile Application for Flower Bouquet Customization

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ABSTRACT

Flower bouquet ordering often requires customers to communicate multiple customization details, including flower types and quantities, wrapping materials, greeting cards, previews, and estimated prices, which may cause uncertainty and inefficient communication. This study aimed to develop and evaluate the user interface and user experience (UI/UX) of BloomCraft, a mobile application for flower bouquet customization, using the Design Thinking approach. The research followed five stages: Empathize, Define, Ideate, Prototype, and Test. A preliminary Google Forms survey yielded 50 eligible responses from participants with bouquet-purchasing experience. The findings were used to define user needs and generate design solutions, while a high-fidelity interactive prototype was developed in Figma. The prototype was subsequently evaluated by 11 participants through seven task-based scenarios, ten five-point Likert-scale statements, three overall evaluation questions, and open-ended feedback. All participants reported completing the seven tasks, resulting in a task completion rate of 100%; 68 of 77 task executions (88.3%) were completed without difficulty, and nine (11.7%) were completed with difficulty. The prototype achieved an overall mean score of 4.77 out of 5, with 106 of 110 responses (96.4%) categorized as positive. These results indicate that BloomCraft's main customization features were understandable and supported users in selecting bouquet components, viewing previews, identifying estimated prices, and reviewing order details. The study concludes that Design Thinking can support a user-centered bouquet customization prototype, although evaluation with a larger and more diverse user group on an implemented mobile application is recommended.

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INTRODUCTION

The expansion of digital services has shifted many transactions from conventional communication to mobile applications that offer more practical and accessible interaction. In this setting, user interface (UI) and user experience (UX) are important because users rely on the interface to understand information, perform functions, and complete ordering activities. Effective UI/UX design therefore concerns not only visual appearance but also navigation clarity, interaction ease, element consistency, and alignment with user needs. Design Thinking supports these requirements through an iterative, user-centered process that identifies needs, defines problems, generates ideas, develops prototypes, and evaluates proposed solutions (Zamakhsyari & Fatwanto, 2023). Its application can help organize digital ordering interactions into a clearer and more comprehensible flow (Rantung & Mambu, 2023).

Flower bouquets are customizable creative products composed of flower types and quantities, wrapping materials and colors, accessories, greeting cards, and budget considerations. Because these components must be discussed in detail, conventional ordering through social media or messaging applications can require sellers to repeat product information and may leave customers uncertain about their selections (Maricar et al., 2022). Existing bouquet e-commerce applications have introduced catalogs, online payments, order tracking, and notifications (Mutia et al., 2025). However, bouquet customization requires a more specific interaction design through which users can select individual components, observe price changes, and visualize the expected arrangement before placing an order.

A preliminary survey of 50 respondents with prior bouquet-purchasing experience confirmed these concerns. Difficulty selecting an appropriate bouquet design was reported by 31 respondents (62%), difficulty obtaining a price estimate by 24 (48%), and difficulty determining flower combinations by 20 (40%). Thirteen respondents (26%) could not view a bouquet preview before ordering, while 35 (70%) had experienced a discrepancy between the submitted order details and the received bouquet at least rarely. Moreover, only 10 respondents (20%) considered the existing ordering process and communication of customization details easy or very easy. These results indicate uncertainty regarding bouquet design, component combinations, price, and expected appearance.

Respondents also expressed strong interest in a structured customization solution. Positive responses were recorded for a bouquet-preview feature by 43 respondents (86%), automatic price estimation by 41 (82%), wrapping selection by 40 (80%), and flower selection by 38 (76%). When asked to choose a maximum of three priority features, flower selection and bouquet preview were each selected by 32 respondents (64%), followed by automatic price estimation by 29 respondents (58%). Consequently, the proposed application should emphasize component selection, visual preview, price transparency, and a clearly presented order summary.

Several previous studies have implemented Design Thinking in UI/UX design. An online café application was developed through the Empathize, Define, Ideate, Prototype, and Test stages and evaluated using task scenarios (Rantung & Mambu, 2023). A mobile prototype for determining flower-seed quality was also designed by considering users' abilities and experiences in operating mobile applications (Widiatmoko & Utami, 2022). In creative-gift ordering, the Empathize, Define, and Ideate stages were used to identify user problems and produce alternative wireframes that were evaluated through A/B testing (Maricar et al., 2022).

These studies demonstrate that understanding user problems is essential for determining appropriate interface solutions.

Regarding product customization, a cake-sales application was designed with customization features using *Design Thinking* (Hidayati et al., 2025). A flower-bouquet ordering application was also investigated, but its features primarily focused on product catalogs, payments, order tracking, and notifications (Mutia et al., 2025). Meanwhile, the flower-related prototype developed for seed-quality assessment did not support bouquet customization (Widiatmoko & Utami, 2022). Consequently, previous studies have not specifically integrated flower type and quantity selection, flower-color customization, wrapping and ribbon options, greeting cards or accessories, bouquet preview, automatic price estimation, and an order summary within a unified mobile bouquet-customization flow.

Accordingly, this study aims to implement the Design Thinking method in developing and evaluating the UI/UX of a mobile flower bouquet customization application. The research follows the Empathize, Define, Ideate, Prototype, and Test stages. Its contributions include identifying user needs through empirical data, developing a high-fidelity interactive prototype that integrates the principal bouquet-customization components, and evaluating the prototype through task-based scenarios and user feedback. The resulting design is expected to help users select bouquet components, visualize the customized arrangement, understand the estimated price, and review order details before continuing the ordering process.

METHODS

This study employed an applied design research approach using the *Design Thinking* method to develop the UI/UX of a mobile flower bouquet customization application. The method was selected because it supports a user-centered and iterative design process that begins with understanding user problems and continues through solution formulation, prototype development, and user evaluation (Rantung & Mambu, 2023; Zamakhsyari & Fatwanto, 2023). The research consisted of five stages: *Empathize, Define, Ideate, Prototype,* and *Test* (Saputra & Ramadhan, 2024). Quantitative data were collected through structured questionnaire items, while qualitative data were obtained from open-ended responses concerning users' experiences, difficulties, and suggestions.

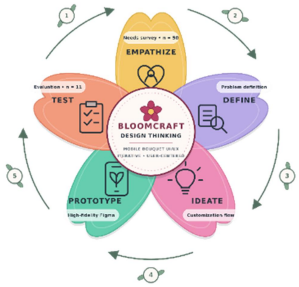


Figure 1. Design Thinking Method

The study included two data-collection stages. The preliminary needs survey initially received 67 responses. After the inclusion criterion was applied, 17 responses from individuals who had never purchased or ordered flower bouquets were excluded, leaving 50 eligible responses for analysis. A non-probability purposive sampling approach was employed, with previous bouquet-purchasing or ordering experience as the inclusion criterion. The final prototype evaluation involved 11 participants representing prospective users of the proposed

application. Both data-collection stages used online questionnaires distributed through Google Forms.

During the *Empathize* stage, the preliminary survey was used to understand users' experiences, problems, and expectations regarding flower bouquet ordering. The questionnaire examined difficulties in selecting bouquet designs, determining flower combinations, obtaining price estimates, viewing the expected final appearance, and receiving products that corresponded to the submitted order details. It also collected information concerning the customization features required by users, including flower selection, wrapping options, bouquet previews, price estimation, accessories, greeting cards, and order summaries. For the feature-priority question, respondents were permitted to select a maximum of three options.

During the *Define* stage, the preliminary survey responses were organized and analyzed to formulate the primary user problems and design requirements. The frequency of each reported problem was compared to identify the aspects that most frequently created uncertainty during the ordering process. User expectations concerning potential application features were also examined to determine the functions that should receive priority in the proposed design. The resulting problem definition focused on the need for a structured customization process that could assist users in selecting bouquet components, understanding estimated prices, visualizing the expected result, and reviewing their selections before continuing the ordering process.

During the *Ideate* stage, alternative interface and interaction solutions were formulated based on the problems and requirements identified during the previous stage. The proposed interaction flow was organized from the customization entry point to flower selection, wrapping selection, the addition of accessories or greeting cards, bouquet preview, estimated-price presentation, and order summary. The design ideas were developed by considering information hierarchy, navigation clarity, consistency of interface elements, visibility of controls, and feedback following each user selection. The selected ideas were subsequently converted into a mobile application interface design.

During the *Prototype* stage, the selected design solution was developed as a high-fidelity interactive prototype using Figma. The prototype enabled users to navigate between screens and simulate the principal customization process. Its functions included selecting flower types and quantities, selecting wrapping options, adding accessories or greeting cards, viewing a bouquet preview, observing changes in the estimated price, and reviewing the selected components on the order-summary page. For the evaluation, the flower-selection flow used a representative configuration consisting of three roses and two tulips. The prototype simulated the intended interface and interaction flow and did not generate an actual order or financial transaction.

During the *Test* stage, the interactive prototype was evaluated by 11 participants using a task-based evaluation and a post-test questionnaire. Each participant accessed the Figma prototype using a mobile phone and completed seven principal tasks: opening the bouquet-customization menu, selecting three roses and two tulips according to the predefined testing scenario, selecting a wrapping color or material, adding a greeting card or accessory, viewing the bouquet preview, identifying changes in the estimated price, and proceeding to the order-summary page. After completing the tasks, participants returned to Google Forms and self-reported the outcome of each task using three categories: completed without difficulty, completed with difficulty, and not completed. Participants also identified the most difficult task and described the difficulties they experienced.

The post-test questionnaire contained 10 statements assessing menu and icon clarity, navigation flow, ease of using the flower-selection feature, ease of selecting wrapping options, ease of adding accessories or greeting cards, usefulness of the bouquet preview, clarity of the estimated price, clarity of the order summary, visibility of text and buttons, and consistency of colors and layout. Each statement was assessed using five ordered agreement categories: strongly disagree, disagree, neutral, agree, and strongly agree. Three additional questions evaluated overall ease of use, the suitability of the customization features, and participants' willingness to use the application if it were fully developed. These questions used a five-point rating scale, with higher scores representing more positive evaluations. Open-ended questions were also included to identify helpful features, confusing elements, difficult-to-find information, functions that did not operate as expected, recommended improvements, and expected additional features.

The quantitative data were analyzed descriptively using frequencies, percentages, and mean scores. Percentages were calculated by dividing the frequency of each response by the number of participants and multiplying the result by 100%. For multiple-response questions, each percentage was calculated using the total number of respondents as the denominator; therefore, the cumulative percentage could exceed 100%. In the task-based evaluation, both "completed without difficulty" and "completed with difficulty" were classified as successful task completion, while the categories remained separated when identifying interaction difficulties. Responses to the five-point agreement items were coded from 1 for strongly disagree to 5 for strongly agree. The three additional rating questions retained their original scores ranging from 1 to 5. Higher mean scores indicated more positive assessments of the prototype. Responses in the agree and strongly agree categories were grouped as positive responses when calculating the proportion of positive assessments. Open-ended responses from the preliminary needs survey were analyzed descriptively by grouping similar comments into recurring themes, including difficulties visualizing the expected result, limited price transparency, difficulties selecting bouquet components, stock availability, and seller communication. Open-ended responses from the prototype evaluation were analyzed separately and grouped into themes such as navigation difficulties, unclear controls, missing information, visual inconsistency, and requested improvements or additional features.

Participation in both data-collection stages was voluntary. Before completing the prototype-evaluation questionnaire, participants were informed of the research purpose, the representative customization scenario, and the assigned tasks. Participants were also informed that the prototype was only a simulation. By continuing the questionnaire, participants indicated their willingness to participate, and their responses were used solely for research purposes.

RESULTS AND DISCUSSION

The results of this study are presented according to the five stages of *Design Thinking*, namely *Empathize, Define, Ideate, Prototype,* and *Test*. Each stage describes the findings and design outcomes obtained during the development of the mobile flower bouquet customization application.

Empathize

The *Empathize* stage examined the experiences, difficulties, and expectations of 50 eligible respondents who had previously purchased or ordered flower bouquets. The analysis focused on the ease of the existing ordering process, the difficulties encountered when selecting and customizing bouquets, discrepancies between submitted order details and received products, and

the application features that respondents wanted and prioritized. These findings provided an empirical basis for identifying the principal sources of uncertainty experienced by users during the bouquet-ordering process.

Regarding the ease of the existing ordering process and the communication of customization details, 29 respondents (58%) provided a neutral assessment, 11 respondents (22%) considered the process difficult, seven respondents (14%) considered it easy, and three respondents (6%) considered it very easy. Therefore, only 10 respondents (20%) evaluated the existing process positively in terms of ease.

The most frequently reported difficulty was selecting an appropriate bouquet design, identified by 31 respondents (62%). This was followed by difficulty obtaining a price estimate before ordering, reported by 24 respondents (48%), and difficulty determining suitable flower combinations, reported by 20 respondents (40%). The complete distribution of the reported difficulties is presented in Table 1. Because respondents could select more than one difficulty, the percentages do not total 100%.

Table 1. User Difficulties in Ordering Flower Bouquets

User Difficulty	**Frequency**	**Percentage**
Difficulty selecting an appropriate bouquet design	31	62%
Difficulty obtaining a price estimate before ordering	24	48%
Difficulty determining suitable flower combinations	20	40%
Limited bouquet choices	16	32%
Inability to view a preview before ordering	13	26%
Difficulty finding a bouquet shop that matched their needs	10	20%
Difficulty selecting a wrapping color	10	20%
Complicated ordering process	4	8%

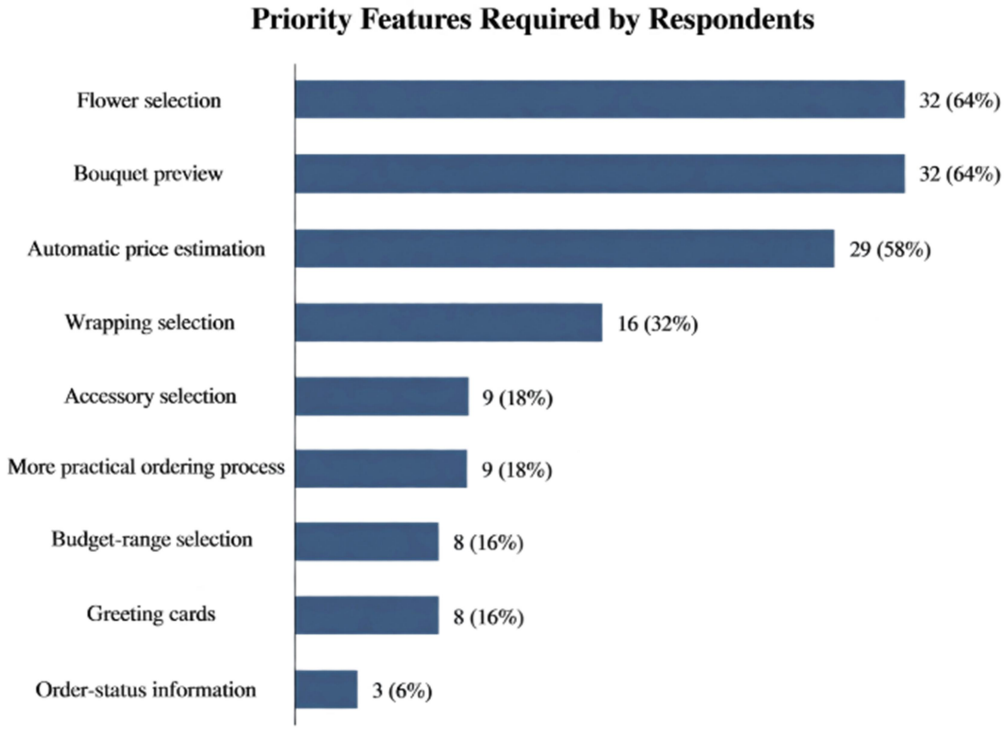
Respondents were also asked how frequently they had received a bouquet that did not correspond to the submitted order details. Fifteen respondents (30%) reported that this had never occurred, another 15 respondents (30%) selected rarely, 13 respondents (26%) selected sometimes, and seven respondents (14%) selected often. Thus, 35 respondents (70%) had experienced a discrepancy between the ordered details and the received bouquet at least rarely.

The assessment of the proposed application functions also produced predominantly positive responses. Bouquet preview received positive responses from 43 respondents (86%), followed by a more practical mobile ordering process from 42 respondents (84%), automatic price estimation from 41 respondents (82%), wrapping selection from 40 respondents (80%), and flower selection from 38 respondents (76%). In addition, 37 respondents (74%) agreed or strongly agreed that they would use a mobile bouquet-customization application if it were available.

In the feature-priority question, respondents were permitted to select a maximum of three features; therefore, the percentages do not total 100%. Flower selection and bouquet preview were each selected by 32 respondents (64%), while automatic price estimation was selected by 29 respondents (58%). The remaining selections included wrapping selection by 16 respondents (32%), accessory selection and a more practical ordering process by nine respondents each (18%), budget-range selection and greeting cards by eight respondents each (16%), and order-status

information by three respondents (6%). The distribution of feature priorities is presented in Figure 2.

Figure 2. Priority features required by respondents



The open-ended responses reinforced the quantitative findings. The question concerning the primary difficulties experienced during bouquet ordering was answered by 33 respondents (66%). Recurring difficulties included uncertainty regarding the expected final appearance, unclear or delayed price information, difficulty combining flowers and wrapping materials, limited stock availability, differences between displayed examples and received products, and slow communication with sellers. Meanwhile, the question concerning the ideal customization process was answered by 29 respondents (58%). Respondents described an ideal customization process as one that allowed them to select bouquet components independently, view a preview before confirmation, observe price changes according to their selections, receive recommendations based on their budget, and complete the process through a practical mobile interface.

Overall, the *Empathize* findings identified four principal areas of concern: difficulties in selecting bouquet components, limited price transparency, insufficient visualization of the expected result, and discrepancies between order details and received products. These findings were subsequently used to formulate the primary user problems and design requirements during the *Define* stage.

Define

The Define stage synthesized the findings obtained during the Empathize stage to identify the principal user problems and formulate the corresponding design requirements. Four problem areas were identified: difficulty selecting bouquet components, limited price transparency, insufficient visualization of the expected final result, and a lack of clarity in the existing ordering process. The relationship between the empirical findings and the defined user needs is presented in Table 2.

Table 2. Problem Definition and User Needs

Problem Area	Empirical Evidence	Defined User Need
Difficulty selecting bouquet components	Difficulty selecting a bouquet design was reported by 31 respondents (62%), determining flower combinations by 20 respondents (40%), and selecting wrapping colors by 10 respondents (20%).	Users need a guided and understandable process for selecting flower types, quantities, wrapping options, and additional bouquet components.
Limited price transparency	Difficulty obtaining a price estimate was reported by 24 respondents (48%), while 41 respondents (82%) wanted automatic price estimation.	Users need price information that is displayed and updated according to their selected bouquet components.
Insufficient visualization of the final result	Thirteen respondents (26%) were unable to view a preview before ordering, 35 respondents (70%) had experienced a discrepancy at least rarely, and 43 respondents (86%) wanted a bouquet-preview feature.	Users need a visual preview that represents the selected components before confirming an order.
Lack of clarity in the ordering process	Only 10 respondents (20%) evaluated the existing ordering process positively, while 42 respondents (84%) wanted a more practical mobile ordering process.	Users need a structured customization flow that allows them to review their selections before continuing with the ordering process.

Based on this synthesis, the primary problem was defined as the uncertainty experienced by users when selecting bouquet components, determining the estimated price, and anticipating the final appearance of a customized bouquet. This uncertainty was reinforced by the ordering and communication processes currently conducted through different channels.

Accordingly, the proposed application needed to provide a structured mobile customization process that allowed users to select bouquet components, view the resulting bouquet, understand changes in the estimated price, and review their selections before confirming the order. Flower selection, bouquet preview, and automatic price estimation were established as the main design priorities because they received the highest responses in the feature-priority question. These defined user needs and design priorities were subsequently used as the basis for generating interface and interaction solutions during the Ideate stage.

Ideate

The Ideate stage focused on translating the user needs identified during the Define stage into practical design solutions for the proposed mobile bouquet customization application. The formulation of design ideas considered the difficulties experienced by respondents, the features prioritized in the initial questionnaire, and the need for a structured customization process. The proposed solutions were directed toward flower selection, flower color customization, wrapping and ribbon selection, greeting card personalization, bouquet visualization, and price transparency. The relationship between user needs and the proposed design solutions is presented in Table 3.

Table 3. Proposed Design Solutions for the Bouquet Customization Application

User Need	Proposed Design Solution	Application Feature
Personalize flower selection	Select flower types, quantities, and colors.	Flower selection and color customization.
Customize bouquet presentation	Choose wrapping materials, colors, ribbons, and card messages.	Wrapping, ribbon, and greeting card.
Visualize the customized bouquet	Display the selected bouquet composition.	Bouquet preview.
Understand prices and order details	Present estimated prices and selected components.	Price estimation and order summary.

Based on the feature-priority questionnaire, flower selection and bouquet preview were each selected by 32 of 50 respondents (64%), while automatic price estimation was selected by 29 respondents (58%). These findings indicated that flower selection, product visualization, and price transparency should be prioritized in the interface design. Flower color customization, wrapping options, ribbons, and greeting cards were incorporated as supporting features to provide a more personalized customization experience.

The BloomCraft user flow begins with account registration or login and continues to the Home screen. From the Home screen, users can access profile-related features and supporting menus or enter the DIY bouquet customization process. The primary customization path includes flower selection, flower color customization, wrapping selection, greeting card personalization, and bouquet preview, which presents the estimated price and order summary. Users can subsequently continue to the cart, checkout, payment, and order-tracking screens. Although Fig. 3 presents the complete application flow, the prototype evaluation in this study focused on the bouquet customization path.

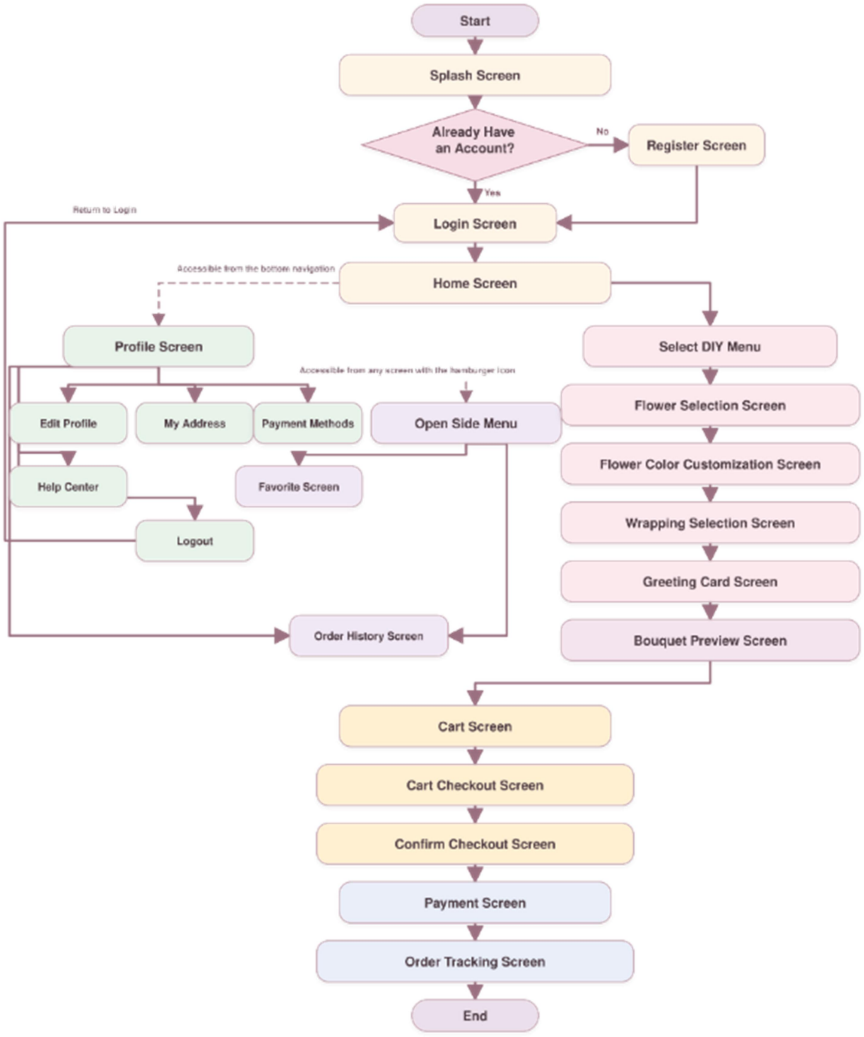


Figure 3. User Flow of the BloomCraft Mobile Application

The resulting design solutions and user flow were subsequently used as the basis for developing the interactive prototype of the BloomCraft mobile application.

Wireframe

Based on the previously defined user flow, low-fidelity wireframes were developed as an initial representation of the BloomCraft interface. This stage focused on organizing the information hierarchy, navigation structure, and placement of essential interface components before visual elements such as colors, typography, and images were applied. Six key wireframes were selected to represent the bouquet customization features: Home, Flower Selection, Flower Color Customization, Wrapping Selection, Greeting Card, and Bouquet Preview. Each wireframe presents the arrangement of content, customization controls, navigation elements, and primary action buttons required to guide users through the customization process. These wireframes were subsequently used as a structural reference for developing the high-fidelity prototype. The complete wireframe designs are presented in Figure 4.

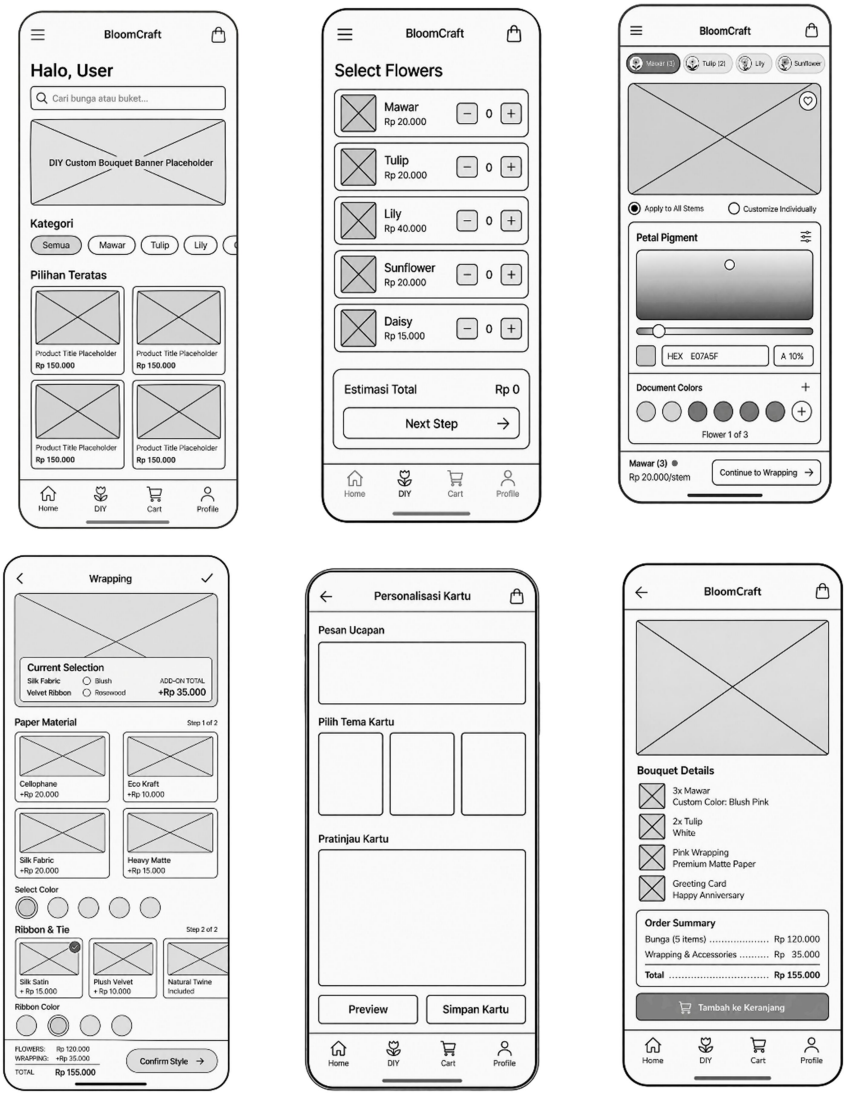


Figure 4. BloomCraft Wireframes

Prototype

Following the completion of the low-fidelity wireframes, a high-fidelity prototype was developed in Figma by transforming the initial interface structure into a detailed visual design. Six representative screens were selected to illustrate the core bouquet customization process. The prototype applies a soft pastel color palette inspired by floral themes, consistent typography, bouquet images, icons, cards, and standardized buttons to establish a coherent visual identity for BloomCraft. The information hierarchy was also refined to emphasize customization options, estimated prices, and primary actions while maintaining consistent navigation across the application.

The Home Screen presents bouquet categories, featured bouquet products, and access to the DIY customization feature. The Flower Selection Screen enables users to select flower types and quantities while viewing the estimated cost. The Flower Color Customization Screen provides a visual preview and color options for the selected flowers. The Wrapping Selection

Screen allows users to choose wrapping materials, colors, and ribbons. The Greeting Card Screen provides message personalization, theme selection, and a card preview. Finally, the Bouquet Preview Screen displays the completed bouquet, selected customization details, and order summary before the bouquet is added to the cart.

Consistent layouts, navigation elements, button styles, and visual components were maintained across the six selected screens to provide a clear and continuous customization experience. The high-fidelity prototype represents the detailed interface design prepared for evaluation during the usability testing stage. The complete prototype designs are presented in Fig. 5.

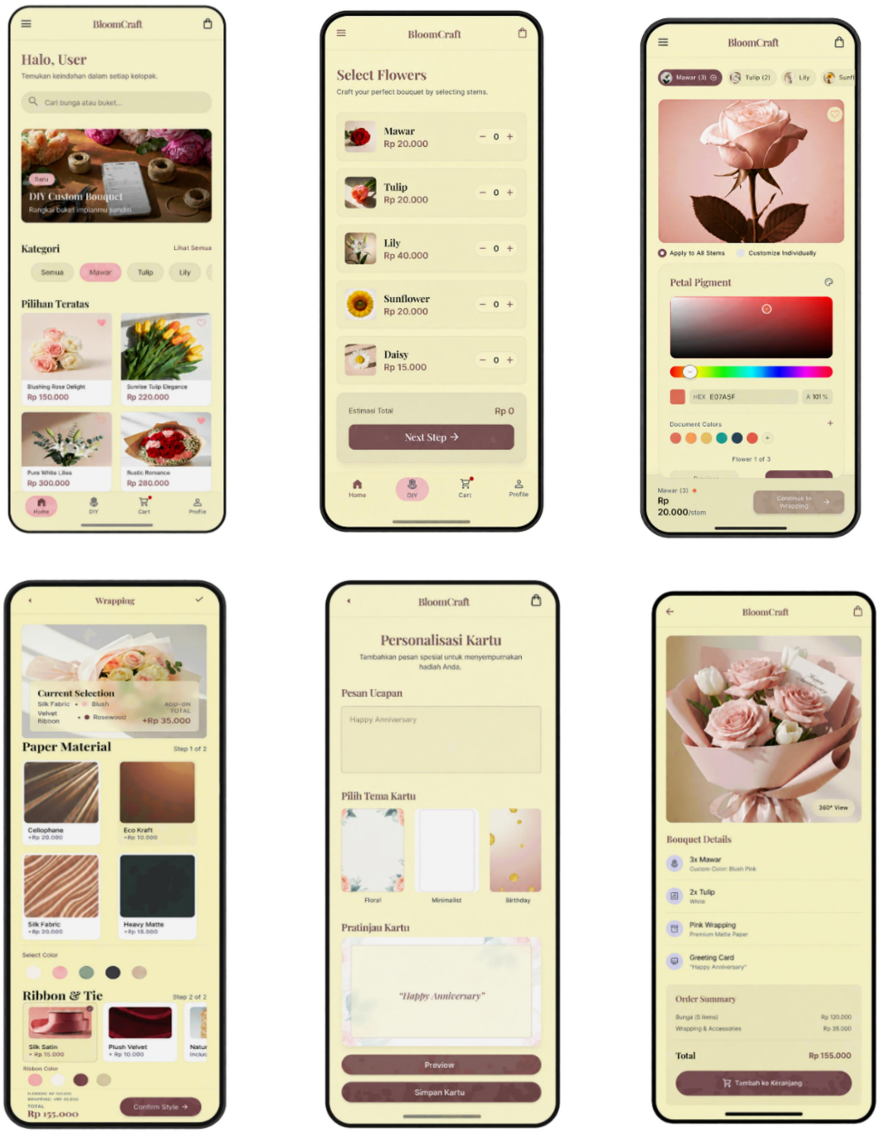


Figure 5. BloomCraft High-Fidelity Prototype

Test

During the Test stage, the high-fidelity BloomCraft prototype was evaluated by 11 valid respondents. The evaluation used task-based usability testing consisting of seven scenarios covering the main bouquet customization process. After completing the tasks, respondents answered a post-test questionnaire containing ten five-point Likert-scale statements, three overall evaluation questions, and optional open-ended questions. The task completion results are presented in Table 4.

Table 4. Task Completion Results (N = 11)

No.	Task Scenario	Completed Without Difficulty, n (%)	Completed With Difficulty, n (%)	Completion Rate
1	Open the bouquet customization menu	10 (90.9%)	1 (9.1%)	100%
2	Select three roses and two tulips	10 (90.9%)	1 (9.1%)	100%
3	Select a wrapping color or type	9 (81.8%)	2 (18.2%)	100%
4	Add a greeting card or accessory	9 (81.8%)	2 (18.2%)	100%
5	View bouquet changes through the preview feature	9 (81.8%)	2 (18.2%)	100%
6	Identify changes in the estimated price	10 (90.9%)	1 (9.1%)	100%
7	Continue to the order summary screen	11 (100%)	0 (0%)	100%
	Overall Task Executions (n = 77)	**68 (88.3%)**	**9 (11.7%)**	**100%**

As shown in Table 4, all 11 respondents successfully completed the seven tasks, resulting in a task completion rate of 100%. Of the 77 task executions, 68 (88.3%) were completed without difficulty, while nine (11.7%) were completed with difficulty.

Following the task completion assessment, respondents evaluated ten aspects of the prototype using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The evaluated aspects included menu and icon clarity, navigation flow, ease of using the customization features, usefulness of the bouquet preview, clarity of the estimated price and order summary, visibility of text and buttons, and consistency of the colors and layout. The mean scores of the prototype evaluation are presented in Table 5.

Table 5. Prototype Evaluation Results (n = 11)

No.	Prototype Evaluation Aspect	Mean Score	Positive Responses, n (%)
1	Menus and icons are easy to understand	4.64	10 (90.9%)
2	The screen-to-screen navigation flow is easy to follow	4.55	10 (90.9%)
3	The flower selection feature is easy to use	4.91	11 (100%)
4	The wrapping selection feature is easy to use	4.91	11 (100%)
5	The greeting card or accessory feature is easy to use	4.91	11 (100%)
6	The preview helps visualize the final bouquet	4.82	10 (90.9%)
7	The estimated price is easy to find and understand	4.82	11 (100%)
8	The order summary presents information clearly	4.64	10 (90.9%)
9	The text and button sizes are easy to see	4.82	11 (100%)
10	The colors and layout are visually consistent	4.73	11 (100%)
	Overall	**4.77**	**106/110 (96.4%)**

As shown in Table 5, the ten prototype evaluation aspects achieved an overall mean score of 4.77 out of 5. A total of 106 out of 110 ratings (96.4%) were categorized as positive responses, consisting of "Agree" and "Strongly Agree," while no negative responses were recorded. The flower selection, wrapping selection, and greeting card or accessory features obtained the highest mean scores of 4.91. The screen-to-screen navigation flow received the lowest mean score of 4.55, although it remained within the positive evaluation range.

The overall ease of use received a mean score of 4.45 out of 5. The suitability of the customization features for user needs and respondents' willingness to use the application after development both obtained mean scores of 4.91. These results indicate that the prototype was considered easy to use, relevant to user needs, and sufficiently attractive for future use.

The open-ended responses showed that eight respondents did not experience any difficult tasks, while two respondents identified flower selection and one respondent identified the greeting card or accessory task as the most difficult. A minor issue was also identified regarding the "Next Flower" button on the final flower customization screen. Based on this feedback, the button was revised to provide an appropriate transition to the next stage of the customization process. One respondent also suggested adding an inspiration gallery containing bouquet designs shared by users. This suggestion was outside the scope of the current prototype and was recorded as a potential consideration for future development.

The testing results demonstrate that the BloomCraft high-fidelity prototype supported the effective completion of the bouquet customization process. All 11 respondents successfully completed the seven assigned tasks, resulting in a task completion rate of 100%. Of the 77 task

executions, 68 (88.3%) were completed without difficulty, while nine (11.7%) were completed with difficulty. The prototype evaluation also achieved an overall mean score of 4.77 out of 5, with 96.4% positive responses. The flower selection, wrapping selection, and greeting card or accessory features received the highest mean scores of 4.91. These results indicate that the main customization features were understandable and could be successfully operated by the respondents. The high task-completion rate and positive evaluation are consistent with previous prototype studies that used user testing to assess whether principal mobile application activities could be completed successfully (Agustin et al., 2023; Darmawan et al., 2022).

The findings also indicate that the prototype addressed the primary user needs identified during the Empathize stage, particularly the ability to select bouquet components independently, visualize the customized bouquet, and obtain transparent price information. The positive evaluations of the flower selection, bouquet preview, estimated price, and order summary suggest that integrating these features into a continuous customization flow can reduce uncertainty when users design a bouquet. This finding is also consistent with studies indicating that user-oriented and structured e-commerce interfaces can support effective product selection and organize previously fragmented ordering interactions (Aulia et al., 2025; G. Kurniawan et al., 2023). The screen-to-screen navigation flow received the lowest mean score of 4.55 among the evaluated aspects, although it remained positively evaluated. This finding suggests that the navigation was generally understandable but still provided opportunities for refinement to make the transitions between customization stages clearer. Given the limited screen area of mobile applications, this result also emphasizes the importance of clear information hierarchy and consistent navigation (Sandesara et al., 2022). Overall, the results reinforce the importance of iterative prototyping and user evaluation within the Design Thinking process (Saddyah & Saragih, 2024).

Compared with previous studies, the present study offers a more integrated customization flow. Earlier research applied Design Thinking to product customization in a cake-sales application and examined flower-bouquet ordering with an emphasis on catalogs, payments, order tracking, and notifications (Hidayati et al., 2025; Mutia et al., 2025). In contrast, BloomCraft integrates flower type and quantity selection, flower-color customization, wrapping and ribbon options, greeting cards or accessories, bouquet preview, automatic price estimation, and an order summary within a single interaction sequence. The positive task-completion and prototype-evaluation results suggest that this integration responded to the uncertainties identified during the Empathize stage, particularly those related to component selection, visualization, and price transparency. Therefore, the contribution of this study lies not only in producing a high-fidelity interface but also in translating empirical user needs into a continuous customization flow that was evaluated through task-based scenarios.

The open-ended feedback provided an additional basis for improving the prototype. A minor navigation issue was identified regarding the "Next Flower" button on the flower customization screen. Based on this feedback, the button was revised to ensure that its function was consistent with the intended navigation flow between the flower customization stages. This revision also reflects the importance of immediate visual and informational feedback in helping users understand the next step of a product-configuration process (Yi et al., 2022). This finding is consistent with previous research indicating that usability testing can identify interface elements requiring further refinement based on user feedback (A. I. Kurniawan et al., 2025). One respondent also suggested adding an inspiration gallery where users could explore bouquet designs shared by other users. Although this feature was outside the scope of the current

prototype, the suggestion was recorded as a potential consideration for future development. Nevertheless, this study was limited to 11 respondents and evaluated a high-fidelity prototype rather than a fully implemented mobile application. Future research should therefore involve a larger and more diverse group of respondents and evaluate the completed application on actual mobile devices to obtain more comprehensive usability results.

CONCLUSION

This study aimed to design the user interface and user experience of the BloomCraft mobile application using Figma and the Design Thinking approach. The resulting high-fidelity prototype provides a continuous bouquet customization process that enables users to select flower types and quantities, customize flower colors, choose wrapping and ribbons, add a greeting card or accessory, preview the customized bouquet, and review the estimated price and order summary. The evaluation involving 11 respondents resulted in a task completion rate of 100%, with 88.3% of the task executions completed without difficulty. The prototype also achieved an overall mean evaluation score of 4.77 out of 5 and received 96.4% positive responses. These findings indicate that the BloomCraft prototype was understandable, supported the successful completion of the main customization tasks, and addressed the primary user needs identified during the Empathize stage.

This study was limited by the relatively small number of respondents and the evaluation of a high-fidelity prototype rather than a fully implemented mobile application. In future research, the BloomCraft prototype can be developed into a fully functional mobile application and tested with a larger number of users on actual mobile devices to obtain more comprehensive evaluation results.

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