



# Innovation and prototyping

DS4800

# Objective and Scope of the Study



This report summarize a comprehensive overview of the recent user testing conducted for the Shopping Buddy app, aimed at evaluating its usability, feature set, and overall user satisfaction. Our goal of the study was to identify areas of improvement and gather actionable insights to enhance the app's functionality and user experience.

- Direct to user need
- Identifying an error
- The testing focus on insight functionalities
- The possibility to discover new features

Product selection :

# Shopping buddy application

## Primary Goal

Helps users control and optimize grocery spending efficiently.

## Functionality

Create and manage shopping lists with integrated budget controls

## User experience

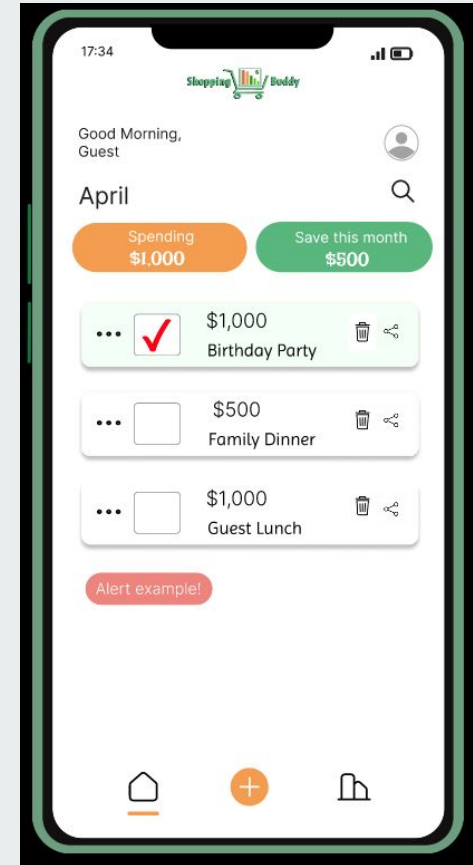
Simple, intuitive interface for both Android and iOS platforms.

## Key Features

**Real-Time Sharing:** Users can share lists with family and see updates in real time.

**Comprehensive Budgeting:** Combines list creation with budget tracking and expense management.

**Actionable Insights:** Provides budget analysis, personalized recommendations, and alerts.



# Executive summary



## Methodology

- Mixed methods using interviews, observations, and surveys.
- 5 individuals involved in testing.
- University room, 13:00 to 13:50.

## Conclusion:

Findings confirm the app's overall usability while pinpointing areas for improvement. The data drives our next steps, ensuring Shopping Buddy provides the best possible user experience

## 80%

4 out of 5 participants.  
Demonstrates that the app's design is intuitive and user-friendly.

## 100%

User enjoyment enjoying the testing experience, highlighting the app's design and ease of use

## 60%

3 participants expressed their intention to continue using the app, praising its effectiveness in simplifying shopping and budgeting processes.

## 20%

1 participant (20%) was able to complete certain tasks, but need a fully guideline, due to misunderstanding the concept of interactive prototyping

## Complaints

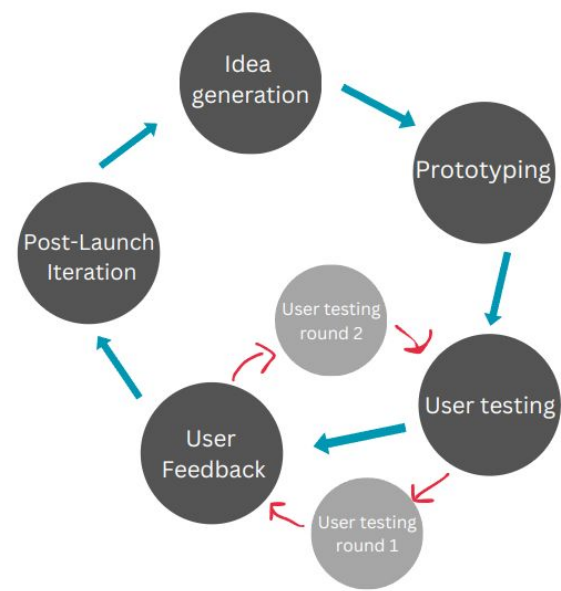
No significant issues noted. Suggestions for Improvement on search and customization features and Incorporate more interactive elements in prototyping.

## Continued Usage:

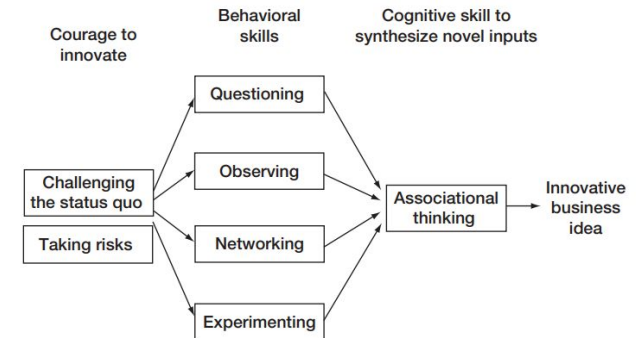
We will prioritize navigation refinements and increased feature responsiveness.

# Methodology

1. Generate and evaluate ideas for a product
2. Create a prototype of the product
3. Test the prototype with users to gather feedback
4. Recommendation for future improvement from feedback



## The innovator's DNA model for generating innovative ideas



# Background



## problem

**Spending Oversight:** Shoppers often exceed budgets using traditional apps due to poor visibility of real-time expenses.

**Market Gap:** There is a clear need for an app that simultaneously manages shopping lists and budgets, providing users with immediate insights into their expenditures.

## Solution:

- Integrated Shopping & Budgeting: Combines shopping lists with budget management in one easy interface.
- Real-Time Budget Tracking: Shows costs as items are added to help stay on budget.
- Smarter Decisions: Offers instant spending updates for better shopping choices.

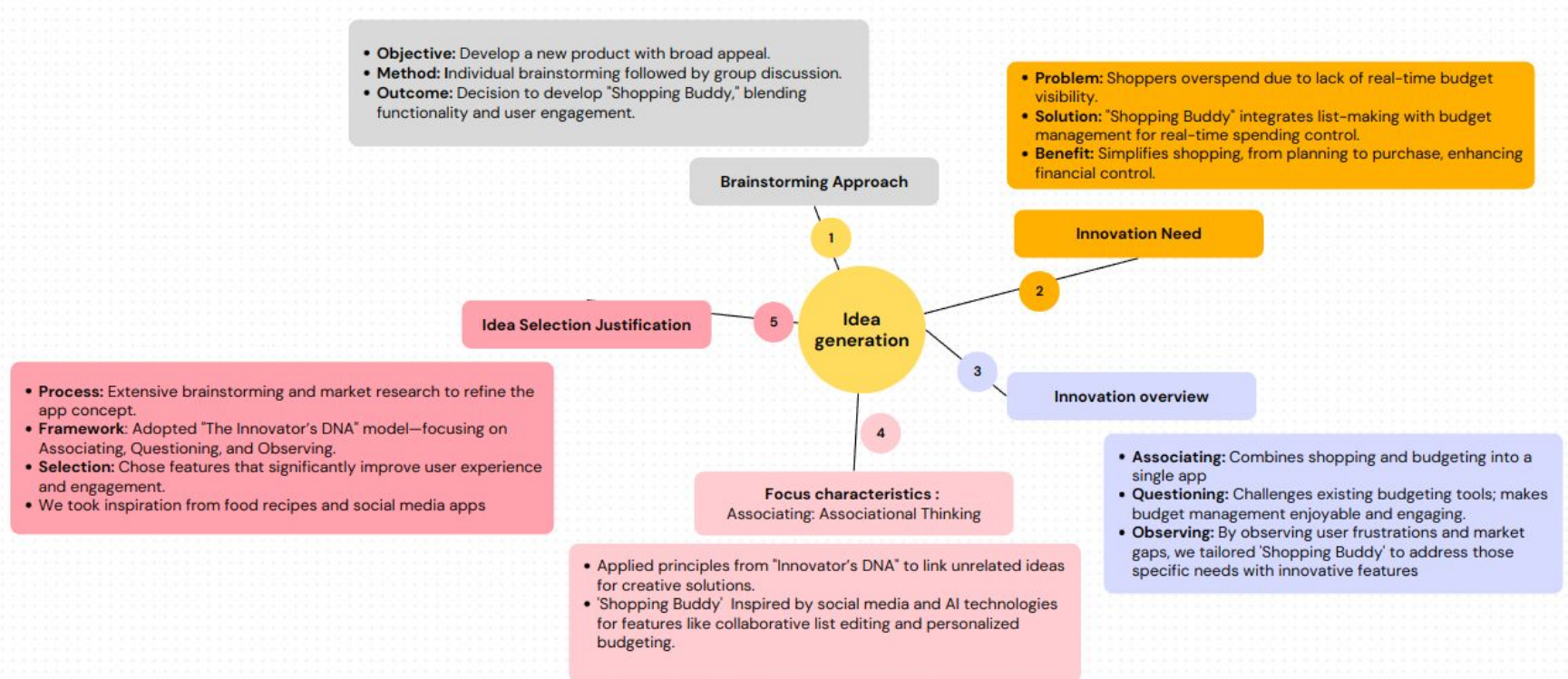


# Idea generation

Utilize '**Associational Thinking**' from the Innovator's DNA to foster creative solutions.

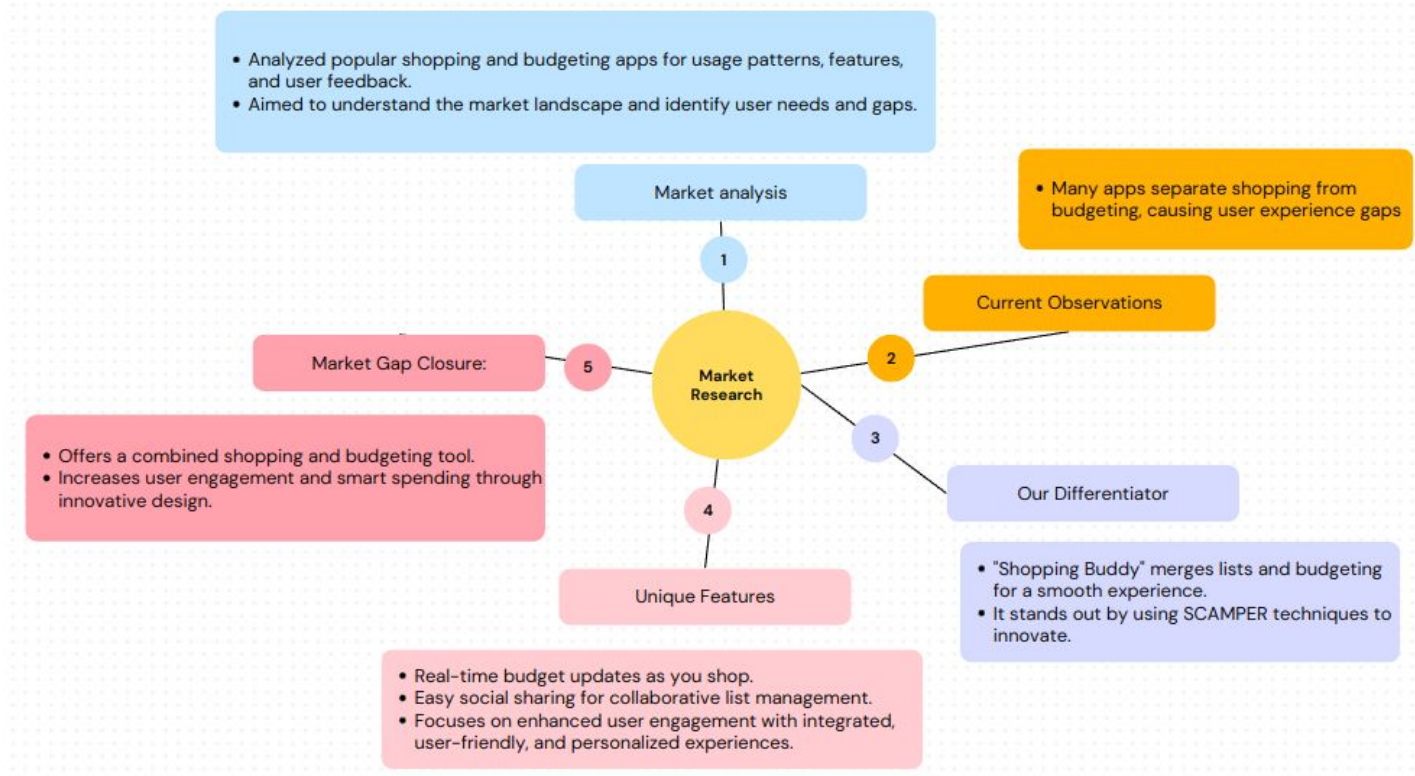
We link different ideas to create our innovative product.

# 1. Idea generation





# Market Research



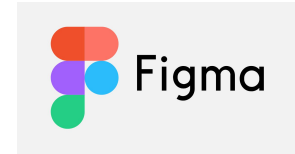


# Prototyping

Prototyping aligns with **Experimenting** from the Innovator's DNA.

We turn ideas into real, testable prototypes and make improvements along the way, allowing us to refine and test solutions.

## 2. Prototyping

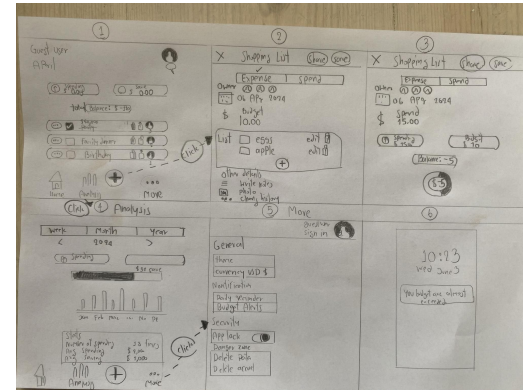


### Developing the Prototype:

- We discussed the use of other prototype solutions like low-fidelity paper based prototype.
- Began with hand-drawn sketches to outline the app's core features: budget tracking, list sharing, real-time collaboration.
- Transitioned to Figma for digital design iteration, focusing on user-centric design for accessibility and engagement.
- Employed Figma as the main tool for prototyping further into the project.

### Final tool

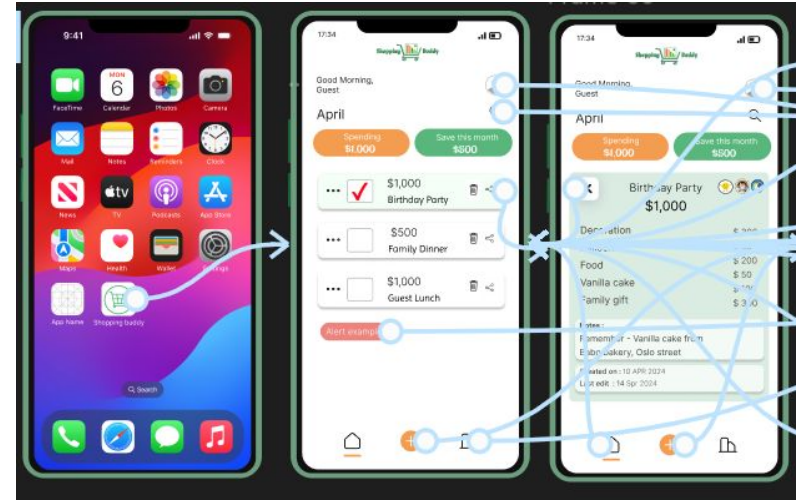
- **Figma:** We used the Collaborative Design tool, Figma for experiment, to create our first product idea in prototype form. Experiment with layout, color schemes, and user interactions.



# Presentation of the Prototype:

- Interactive mock-ups and walkthroughs guide the user experience.
- User feedback from these sessions drives continuous improvement.

To view our interactive design, please click here to open Figma ["Open"](#)



## Conclusion :

Final prototype presented through interactive mock-ups.

Comprehensive user testing to refine and validate the app's functionality.



# User testing

Involves **Observation** from the Innovator's DNA.

We watch how users interact with our prototype and listen to their feedback.

# 3. User testing

## 1. Testing Goals:

- Gather specific feedback for the app.
- Identify user needs and potential errors.
- Uncover opportunities for new features.

## 2. Participant Selection:

- 5 users aged 18+, using either Android or iOS.
- Scheduled for April 9th, focused session from 13:00 to 13:50.

## 3. Testing Setup:

- Interactive Figma prototypes prepared.
- Real-world scenarios and SUS questionnaires used for insights. Initial question :
- **Structured notes** : Round 1 Observations on 9th April
- Open -ended question:
- Questionnaires

### System Usability Scale (SUS)

Strongly Disagree Strongly Agree

I think that I would like to use this product frequently.

I found the product unnecessarily complex.

I thought this product was easy to use.

I think that I would need the support of a technical person to be able to use this product.

I found the various functions in this product were well integrated.

I thought there was too much inconsistency in this product.

I would imagine that most people would learn to use this product very quickly.

I found this product very awkward to use.

I felt very confident using this product.

I needed to learn a lot of things before I could get going with this product.

Created with the SUS PDF Generator

### INFORMATION LETTER

Høgskolen Kristiania

Hello,

We are a group currently undertaking a bachelor's degree in Data Science and Frontend- and Mobile Development. The study aims to expand our understanding of information systems and how they relate to businesses, individuals, strategies, and the development of new applications and platforms.

For our assignment, we were tasked to create a new product that we wanted to realize. The product we have created is a shopping list + budgeting application we named Shopping Buddy. This application lets users create and manage their shopping lists while also keeping track of their budgets. With features like budget notifications, price tracking, and budget alerts, our app is designed to assist users make wise purchase decisions and stay within their budgets over time.

We need participants to test our prototype on Figma and provide us feedback. Your input will help us improve our Shopping buddy application.

We are interested in the outcome of the user interface and how it is used in a controlled environment, and to make sure it is user-friendly.

If you choose to participate, you will be asked to test the user interface and provide us feedback. All personal details will be kept confidential. All personal details will be kept confidential. All personal details will be kept confidential.

Per johnsen@kristiania.no or Alexander Bøe.

Page 1 of 1

### CONSENT FORM

Participants are to fill out the form on their own.

Please check the relevant box

	YES	NO
Have you read the information letter about the study?	<input type="checkbox"/>	<input type="checkbox"/>
Have you had the opportunity to ask questions and discuss the study?	<input type="checkbox"/>	<input type="checkbox"/>
Have you received satisfactory answers to your questions?	<input type="checkbox"/>	<input type="checkbox"/>
Who have you spoken with?	.....	
Have you understood that your name will not be given or referred to in the study report?	<input type="checkbox"/>	<input type="checkbox"/>
Do you understand that you are free to withdraw from the study?		
At any time	<input type="checkbox"/>	<input type="checkbox"/>
Without having to give any reason for withdrawing	<input type="checkbox"/>	<input type="checkbox"/>
Do you agree to participate in this study?	<input type="checkbox"/>	<input type="checkbox"/>
Signature of study participant.....		
Date.....		
Name in block letters.....		

Page 1 of 1

# Day of testing

## 1. Perform the test :

### a. Checklist for a test day

### b. Schedule time for a session

### c. Perform the test

- Welcome Participant, Set up a comfortable environment for natural feedback.
- Initial Interview
- Conduct Tasks with Covered end-to-end app functionalities with tasks and questions.
- Final Interview
- Wrap Up

## 2. Outcomes:

- SUS scores indicate high usability satisfaction.
- Qualitative data revealed insights for enhancing user interaction.

## 3. Next Steps:

- Analyze feedback for improvements.
- Prepare for a second round of testing based on refinements.

Done	Check point
	Prepare the table and chair for the team and participants, ensuring comfortable and accessibility.
	Consider the room that facilitates the flexibility for participants and the testing team, cleanliness, comfort and correct setup.
	Checking functionality of the equipment.
	Have all necessary documents prepared, including consent form, test script, questionnaire, task script, and ensuring that Figma prototyping is ready to use.
	Place the poster with "User testing at the door" to inform and prevent interruptions.

	Time	Content
12:50 - 13:00	10 min	Participant arrive prior 5 - 10 minutes to settle
13:00 - 13:05	5 min	Brief introduction and collect signed consent forms.
13:05 - 13:15	10 min	Conduct the initial interview to understand the participants's background and set stage for the test.
13.15 - 13.35	15-20 min	Give user through the user test task using the script
13.35 - 13.40	5 min	Perform the final interview, collect the insights and reflections on the experience
13.40 - 13.45	5 min	Participants fill out questionnaires form
13.45 - 13.50	5 min	Thank the participant for an effort and follow them out.

# Example of Questions and response

Round 1 Observations on 9th April

## Initial question

Shopping habits?

Managing Budgets?

If used app to manage

Task	Part. A	Part. B	Part. C	Part.D	Part.E	Observation and further recommendation
Can you tell me about your current shopping habits?	Rely on pocket money and gifts. Therefore not able to go shopping	Weekly for groceries and for special event such as BDays	A few times a week, but mostly online	Two or three times a week.	Shop almost everyday.	Develop features that match different types of user use, from daly user to the one who uses occasionally.
How do you currently manage your shopping lists and budgeting for groceries or other items?	Does not need to manage budget as she is not a big spender, but may do in the future when moving out or when starting uni	Does not do any budgeting, go by receipt and bank account withdrawals to check for purchases	Does not manage budgeting.	I don't have a tedious management system, I just know roughly how much I'm supposed to spend within a month.	I don't really manage a list. I just think of what to buy at the grocery store right away.	Introduce them with easy budgeting and expensive tracking tools to help them manage their finances better.
Have you used any apps previously to track your shopping list budget ? If yes, what did you like and don't like about them?	No	No	No	No	No	All participants suggest that they never used previously to track their shopping list or budget. The suggestion would be to focus on creating an app that provides clear value, such as saving time and money, which encourages the user who has never used such apps before.



# Example of Questions

Round 1 Observations on 9th April

## Observing Questions

Could you please start by opening the Shopping buddy app on your device?	Please show me how you would access the analysis or report section to see your overall shopping activity and budget for April.
Can you create a new shopping list ?	Could you navigate to the app settings menu?
Imagine you've just finished purchasing items. How would you go about updating the list with the actual amount you spent for each item?	Lastly, let's set up an alert within the app. Can you take me through the steps to do this? Afterward, please show me how you would react if you got that alert on your phone.* If you receive an alert notification from the app, how would you respond to it?
Now, could you demonstrate how you would use the app's search feature to find the shopping list you just created ?	Suppose you want to share a list with a friend or family member, how would you go about it? Could you walk me through the process of searching for a username and sharing?

Task	Part. A	Part. B	Part. C	Part.D	Part.E	Difficulty level (A/B)	Observation	Further recommendation
Open the shopping buddy app on Android or IOS devices.	Did this feast	Found the app and opened it right away	User opened the app right away	User open the app right away	Users notice the app icon and open it right away.	Easy	Most users could immediately find and open the app without difficulty. However, a few users experience navigation issues upon first opening the app.	Introduce a short interactive tutorial for first-time users to create familiarity with the app layout.
Create a shopping list and add a budget to it under the 'Expenses' section.	Spent 30 second exploring the home screen before finding "+" to add new list	Was looking for a "week" or a calendar to add for "that day" to buy it, but understood the use of the "+" when user saw it	Was more focused on the middle part of the screen and took some time to find the "+"	Immediately found the "+" button. Expressing no difficulty.	Found the "+" button to create a new list immediately.	High / Medium	While many users found the "+" button easily, others took longer, with some initially confused about its purpose.	Increase the visibility of the "+" button and consider adding labels or tooltips to clarify its function.
After purchasing items, update your list by entering the actual amount spent in the 'Spend' section of each item.	Did it easily, but started to edit the "before spending" and was disappointed that she was not able to actually edit the price	Clicked on the birthday party in "home" for this task, and wasn't able to edit from there.  Icon was easy to understand when on right page	Was confused about the before and after purchase and how to use it. Tried to edit the price on the "before purchase"	User spend sometimes to react about where to click	User took sometimes to go through the screen then click on "+" button	High/ Medium	Users found it challenging to understand the functionality for entering and editing expenses, with some expecting more flexibility in editing per purchase	Allow adjustment to estimated expenses and improve clarity around the functionality with better labeling and on-screen instructions.

# Example of Questions

Round 1 Observations on 9th April

## Final questions

Clarity of budget tracking.

Ease of sharing shopping lists.

Experience with adding budgets.

Task	Part. A	Part. B	Part. C	Part.D	Part.E	Observation
You just share a shopping list. How straightforward was the sharing process? Could you tell me more about how you feel?	I would like to be able to share the list from the main page shopping list too when tapping on the profile pics. I would also like to search and share lists from the main search bar. Aside from that, it was easy to understand	The share icon should be different.  There is no need for titles as "soon" as i already know who i add	Pretty easy to understand.	It is quite difficult to notice the icon for sharing the shopping list with others. I wouldn't have known about this function without someone guiding me.	I notice the collaborative icon to share lists and really appreciate it. For example, if I'm organizing a birthday party and need help buying supplies, others can use the link to see and contribute to the list, allowing me to track the overall expenses easily.	We notice that some users prefer Sharing functionalities directly from the homepage and through the search bar. Users like the collaboration sharing feature for events and group activities.
How did you find the process of adding a budget in the app?	Pretty straightforward and easy to understand, slight confusion on what the numbers represented	Easy and straightforward once familiarized	Easy to understand when adding in the new list.	The features are easy to notice and simple to add.	I find it easy to add before and after spending details.	-Users find adding a budget straightforward but maybe confused by what certain numbers represent. - The process of adding budgets is clear once users are familiar with it.
Can you describe your experience with the search functionality?	Easy to use, but wish I could search for list shared with me in the main search bar	Nothing to add, just a regular search function	The point for search bar wasn't valid for only 3 lists, (wanted more examples)	It is okay. The features are easy to notice and the list is easy to search.	Searching for the list is convenient.	Users expect to search for shared lists in the main search function and want more examples to understand how to use it. Generally users found that the search function is perceived as easy to use and convenient.

# Example of Questions

## SUS Form - questionnaires

Statistics	P1	P2	P3	P4	P5	Observations
Personal Information	Young teen	Father of 4	Mother of 3			
sex	F	M	F	F	M	
Age	18	63	54	26	26	
Use mobile phones	Yes	Yes	Yes	Yes	Yes	
Survey of SUS						
I think that I would like to use this product frequently.	2	4	1	2	3	The score shows the different feelings about the frequent use, suggesting that the product might not be universally appealing or essential for daily tasks.
I found the product unnecessarily complex.	1	4	2	2	3	The responses are very different, indicating that the perspective of complexity is based on the user's background. Younger people found the product simpler, while others, particularly older users, found it more complex.
I thought this product was easy to use.	3	4	4	5	4	In general, the user found the product easy to use, with the majority rating this positively.
I think that I would need the support of a technical person to be able to use this product.	1	1	1	1	2	Most found that they don't need technical support to use the product, which suggests that the product is user friendly.
I found the various functions in this product were well integrated.	4	3	2	4	3	Scores were mixed, this indicates the disconnected features are interactive or are presented.
I thought there was too much inconsistency in this product.	2	3	2	2	2	Several participants feel that the product had inconsistencies, this refers to the user interface or the way functions are executed.
I would imagine that most people would learn to use this product very quickly.	4	4	3	5	3	Most users agree that the product could be learned quickly, which is positive for new user adoption.
I found this product very awkward to use.	3	1	5	1	2	There were mixed opinions about how the user felt about the app, which is positive for new users.
I felt very confident using this product.	3	4	2	4	4	The majority score shows that users are confident to use the app, which means that once they are familiar with using the app, they feel comfortable using it.
I needed to learn a lot of things before I could get going with this product.	2	2	5	2	3	Majority believe that the apps are easy to use, while some believe that they might have to learn a bit more.



# Feedback after user testing

## 4. Summarize User feedback first round user testing

### Result: SUS AVG Scores

Survey of SUS						Avg.
I think that I would like to use this product frequently.	2	4	1	2	3	2,40
I found the product unnecessarily complex.	1	4	2	2	3	2,40
I thought this product was easy to use.	3	4	4	5	4	4,00
I think that I would need the support of a technical person to be able to use this product.	1	1	1	1	2	1,20
I found the various functions in this product were well integrated.	4	3	2	4	3	3,20
I thought there was too much inconsistency in this product.	2	3	2	2	2	2,20
I would imagine that most people would learn to use this product very quickly.	4	4	3	5	3	3,80
I found this product very awkward to use.	3	1	5	1	2	1,40
I felt very confident using this product.	3	4	2	4	4	3,40
I needed to learn a lot of things before I could get going with this product.	2	2	5	2	3	2,80

# How we approach Issue from user feedback and solution

Aspect	Feedback Highlights	Issue Identified	Recommendation	Action Plan
Usability & Feature Utilization	Confusion due to unrelatable examples in the app.	Lack of diverse example lists.	Include common scenarios like weekly grocery shopping.	Update example lists in app.
Customization & Personalization	Requests for personalized messaging in list sharing.	Inadequate messaging customization.	Allow sharing specific list items with messages.	Develop message customization features.
List Management & Alerts	Confusion about list representations and alerts.	Unclear alert system and list editing.	Improve list management and redesign alert interface.	Refine UI to clarify alerts and list editing.
Visibility & Accessibility	Difficulty locating key features.	Key features not prominent.	Enhance visibility of crucial app functions.	Adjust design for feature prominence.
Prototype Adjustments	Alert system not reflective of actual use.	Unrealistic alert system in prototype.	Modify prototype for natural discovery of alerts.	Update prototype to simulate real use cases.
Sharing & Collaboration	Need for a more intuitive sharing process.	Inefficient sharing design and functionality.	Redesign sharing features for ease of use.	Implement user-friendly sharing interface.
Interface Design	Design well-received, but readability issues for some.	Text size and color not optimized for all.	Adjust text size settings and color contrasts.	Update app settings for accessibility options.
Search Functionality	Inability to search for lists by user names.	Limited search capabilities.	Expand search to include user names and lists.	Upgrade search feature for better collaboration.
Financial Management	Lack of visual tools for budget editing.	No interactive budget management tools.	Implement sliders and input fields for budgeting.	Develop visual budget editing tools.
Technical Performance	Enhancing features may impact app performance.	Infrastructure may not support new features.	Ensure backend can handle updates.	Optimize technical infrastructure.
User Satisfaction	Sharing features not meeting expectations.	Sharing function lacks simplicity.	Redesign sharing process for better satisfaction.	Review and refine sharing mechanism



# Future work Suggest for improvement

# Future work suggest for improvement

■ <b>Suggest Iterative Testing for the Shopping Buddy App</b>	
Perform Iterative Testing Goals	<ul style="list-style-type: none"><li>● Use feedback to improve features and user experience.</li></ul>
Testing & Refinement Steps	<ol style="list-style-type: none"><li>1. Improve list management and alerts.</li><li>2. Get more feedback from a wider range of users.</li><li>3. Refine the app based on A/B testing results.</li><li>4. Make final tweaks for better user satisfaction.</li></ol>
Tools & Methods	<ol style="list-style-type: none"><li>1. Figma for design changes. Iterative refinement to meet user needs and market demands.</li><li>2. Record user tests for detailed analysis.</li><li>3. Google Docs for team notes.</li></ol>
Expected Outcomes	<ul style="list-style-type: none"><li>● Higher user satisfaction.</li><li>● Less risk of issues at launch.</li><li>● Quick adaptation to user needs and trends.</li></ul>
Measuring Success	<ul style="list-style-type: none"><li>● Increased positive feedback.</li><li>● Recognition for innovative features.</li></ul>



# Conclusion



## Innovation Inspired

- Inspired by "The Innovator's DNA."
- Learned user needs through testing.

## Prototype & User Testing

- Interactive prototype facilitated valuable user feedback.
- Findings will shape further development for enhanced satisfaction.

## Vision and Expectations

- Designed for an excellent shopping experience.
- Excited about its potential to change shopping habits.

## User Feedback impact

- Adjustments based on testing insights.
- Aim to enhance user satisfaction continuously.

## Future Goals:

- Plan to integrate payment features.
- Committed to improving and expanding post-launch.

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