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TriMoney – An app to simplify and gamify money for Gen Z

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Project Github repository
Project Google Drive

Abstract. TriMoney is an app designed to make money management easier and more conscious for users, featuring an appealing UI with functionalities to avoid falling into bad habits and money anxiety. The report will describe the Need Finding, Storyboarding, Prototyping, Evaluation and Production phases.
The project is released publicly under the MIT License on GitHub as a Flutterflow project.

Keywords: Figma · Flutterflow · Money management · Money transfer · Budgeting

1 Introduction

Analyzing user behaviour, employing advanced interface design methodologies, and incorporating iterative feedback mechanisms, were important to enhance user experience, build trust, and promote financial literacy and inclusion. This report highlights the steps taken in designing an efficient money-management app for people wanting various useful features, often distributed in several apps, as found by preliminary studies described in the paragraphs below.

2 Need Finding

2.1 Need Finding: Interviews

Need Finding is crucial in design thinking, focused on identifying users' genuine needs. Through structured interviews, designers uncover latent needs, ensuring solutions address real-world problems.

The interviews were conducted in two phases:

1. Phase 01:
   - Interview participants included both parents and members of Gen Z, with tailored questions for each group. Interviews were conducted in person, and responses were recorded using a Google Form to facilitate systematic data collection and analysis. The focus of the questions was to gain insights into Gen Z's money management practices and parents' approaches to financial support for their children.
   - The gathered information was entered into a Google Form to facilitate easier numerical analysis. All the data were subsequently compiled into an Excel sheet. Here is the link for the Excel sheet.
2. Phase 02:
   - Interview participants exclusively focused on Generation Z and also employing ChatGPT and Gemini to create interview personas. These interviews were conducted in person with a flexible approach to note-taking, avoiding a rigid structure. The questions were refined to validate identified needs, serving as a critical step in preparing for the subsequent questionnaire development.

Need Finding: Interviewing with ChatGPT and Gemini

- After a series of prompts requesting ChatGPT to create personas for interviews, the resulting personas were utilized for the interviews. Questions were presented to ChatGPT in a flowchart-like format. The responses received were consistent with those obtained from real individuals; however, since the personas were localized within the USA, certain examples provided were specific to that context, such as the use of particular applications.
- The following links provide access to the chats prompted by both ChatGPT and Gemini

2.2 Need Finding: Found Needs

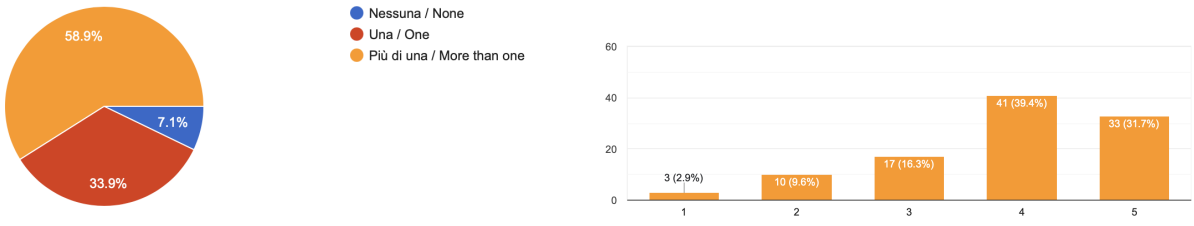
After thoroughly studying the questions and the answers obtained from the interviews, several key financial management needs were identified. These needs highlight the importance of providing users with effective tools to manage their finances, address money-related anxieties, and improve the visibility and control of their spending and budgeting.

1. A way to counter the fact that NFC payments make spending less noticeable.
2. Handling money-related anxiety for Gen Z.
3. Visual and clear ways to visualize income and expenses.
4. A way to divide the budget and set priorities.
5. An application that lets you handle all your money.
6. An easy and intuitive way to transfer money.

2.3 Need Finding: Questionnaire

The questionnaire, designed to confirm existing needs identified from interviews and uncover new ones, was administered to a sample of over 30 participants, yielding nearly 120 responses. It examines individuals' financial management practices and preferences concerning money-managing apps and contactless payments. Topics include app usage patterns, perceptions of contactless payments' impact on spending habits, preferences for intuitive expense categorization and fast money transfers, attitudes towards budgeting, interest in budget division, and the value of personalized financial insights based on spending behaviors and goals. Participants also provide insights into reasons for not using banking apps and their sentiments regarding saving habits, financial anxieties, and cash usage. This survey aims to provide comprehensive insights into consumer behavior to inform strategies for enhancing financial tools and user experiences.

To review the questionnaire, please follow this link.



(a) Usage of Money-Managing Application

(b) Preference for Intuitive Financial Visualization

Fig. 1: Financial Management Preferences Based on Survey Results

Need Finding: Questionnaire with ChatGPT

- To expand the range of personas answering the questionnaire, we requested ChatGPT to create three additional instances of each persona used during the interviews, resulting in a total of 18 personas.
- These are the links for Persona Creation, Interviews, Instances and Questionnaire .
- The following link contains a full summary of Persona Creation, Interviews, Instances, and Questionnaire with ChatGPT, including the links that are already provided.

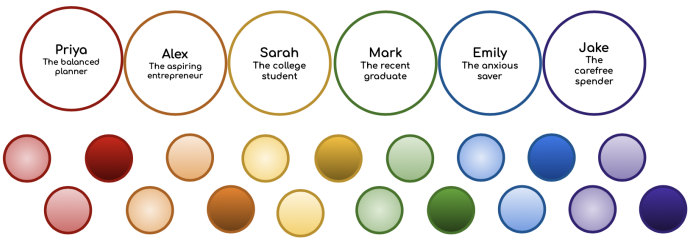


Fig. 2: ChatGPT Personas

2.4 Need Finding: Task Identification

Task Identification in Need Finding is a focused process aimed at identifying specific tasks and activities that users engage in, ensuring a comprehensive understanding of their needs.

– Upon analysis of the needs, various ideas were generated by examining competitor apps. The judgement was based on Hype and Revolut, among others.

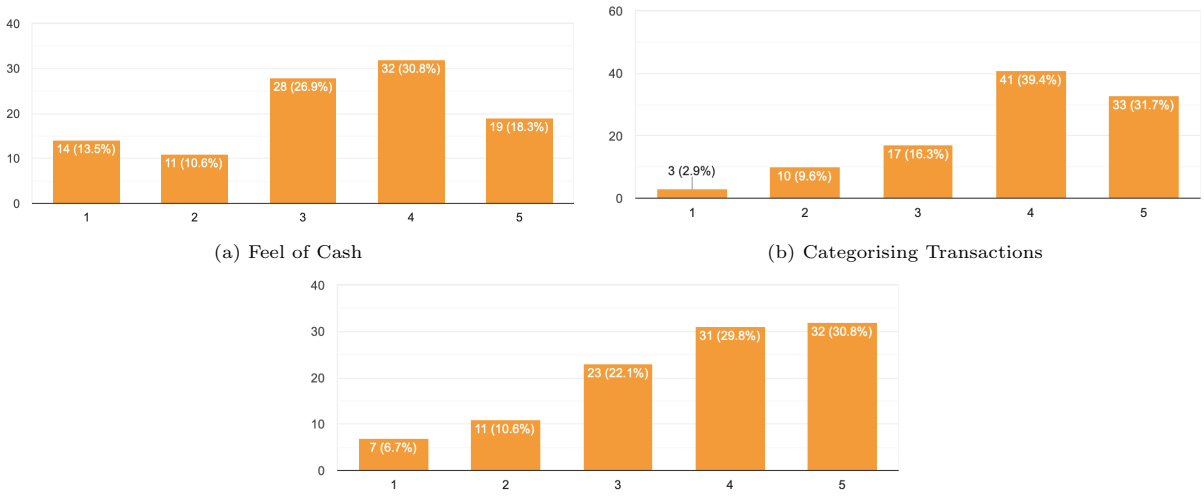
  Users expressed a strong desire for contactless payment methods that replicate the familiarity of cash transactions, emphasizing the importance of psychological comfort in digital payments. Additionally, there is a clear demand for intuitive methods to monitor and categorize financial transactions, with nearly 90% of participants expressing interest in enhanced transparency and organizational features. Simplified and efficient peer-to-peer money transfers, budget segmentation capabilities, and personalized financial recommendations also emerged as significant user priorities. These findings underscore the importance of developing intuitive, efficient, and personalized financial tools that effectively address diverse user needs.

  1. Money spending alert and reminders
  2. AI expense advisor
  3. Projects (as seen in Hype)
  4. Virtual adjustable wallet
  5. Gamification approach
  6. Budget division and categorization
  7. AI Gift advisor
  8. Recurring bank transfer for shared subscriptions (as seen on PayPal)
  9. and so on

– The **Main Tasks** were selected based on an analysis of the data collected from the questionnaire.

  Respondents provided varied feedback on the usefulness of contactless payments feeling like paying in cash, with a notable concentration of responses falling between 3 and 4 on a scale of 1 to 5, indicating moderate to high utility. There was significant support for a more intuitive method to monitor and categorize money transactions, with a majority expressing a strong preference for such features, particularly rating it as 5 ("I would really like that"). Additionally, respondents overwhelmingly favored an intuitive money transfer interface similar to Whatsapp, rating it as 5 ("Very intuitive"), suggesting a clear direction for interface design. Furthermore, a large majority of participants expressed a need to divide their budgets into multiple categories or sections for different purposes or objectives, highlighting the importance of incorporating robust budget segmentation features. These findings underscore our strategic focus on enhancing user experience, improving usability, and meeting diverse user needs effectively. Summary of Task Finding .

  1. Make the feel of paying contactless the same as paying in cash.
  2. Categorise incoming and Outgoing Transactions
  3. WhatsApp-like interface for exchanging money.



(a) Feel of Cash

(b) Categorising Transactions

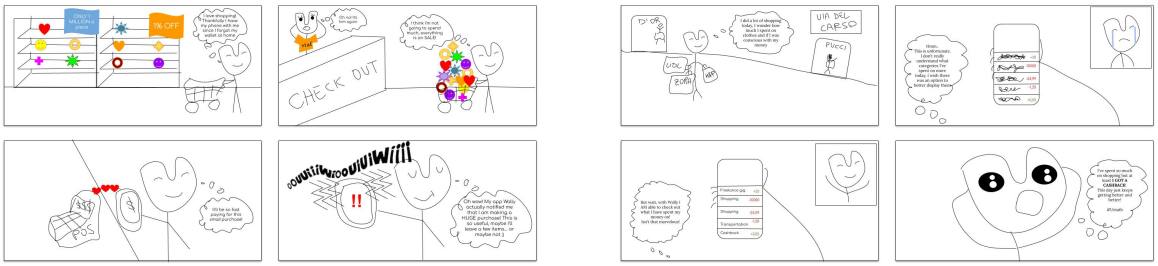
(c) WhatsApp Like Interface

Fig. 3: Data Analysis Main Tasks

3 Storyboarding

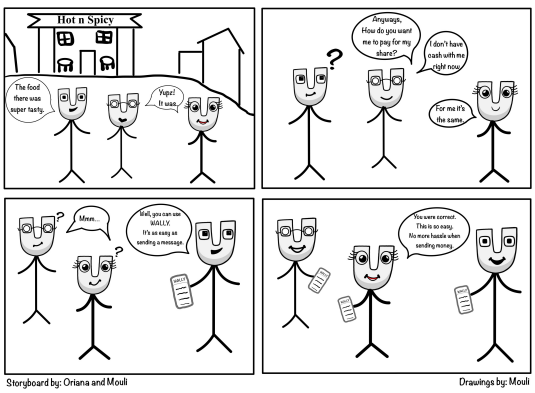
In the realm of mobile app development, effective design and user experience are pivotal. Storyboarding serves as a foundational tool in this process, visually outlining app interactions and flow. This report explores the storyboard methodology, emphasizing its role in refining user interfaces and ensuring intuitive navigation. Through detailed visualization and iterative feedback, storyboards facilitate the translation of conceptual ideas into user-centric designs, contributing significantly to app development.

Notably, the final task originally identified for the app was removed at the request of the professor.



(a) Feel of Cash with Contactless

(b) Categorising Expenses



(c) WhatsApp like Interface

Fig. 4: Storyboards

4 Prototyping

Before the prototyping phase, a thorough evaluation of the methods discussed in the lectures was conducted. The group was divided into three pairs, with each pair assigned a specific task. It is important to recognize that if the initial concept proves to be flawed, it is more effective to discard it and begin anew. It was done with paper, an iPad and Google Slides.

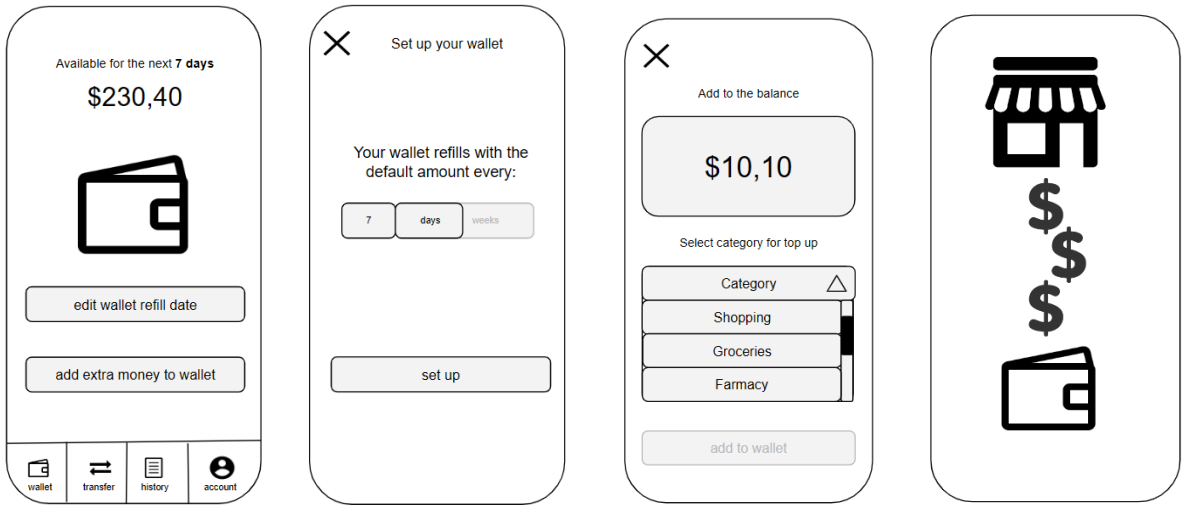
4.1 Initial steps

1. Incremental Approach: all the different functions are added to the prototype one at a time
2. Paper Prototyping: each team will do fast paper prototyping of the task assigned to them.
3. Internal Evaluation: sharing the prototypes with the whole group, trying to see how they could be improved
   - IF something could be better: Go back to Paper Prototyping
   - ELSE: Go forward
4. External Evaluation (3 users):
   (a) Think Aloud: recording the interviewee
   (b) Past-Task Walkthrough
      - IF something could be better: Go back to Paper Prototyping
      - ELSE: Go forward
5. Figm-it: make the paper prototype on Figma

4.2 Paper prototyping

After identifying the needs and storyboarding, paper prototyping simulated each task more realistically.

Feel of Cash with contactless Full Prototype Link here



(a) Wallet Homepage (b) Wallet top-up time (c) wallet top-up amount (d) Top-up Animation

Fig. 5: Prototyping of the Virtual Wallet feature

WhatsApp-like Interface Full Prototype Link here

(a) Homepage & chats (b) Add new contact (c) Individual normal chat (d) Individual money transfer

Fig. 6: Prototyping of the WhatsApp-like Interface

Categorizing expenses Full Prototype Link here

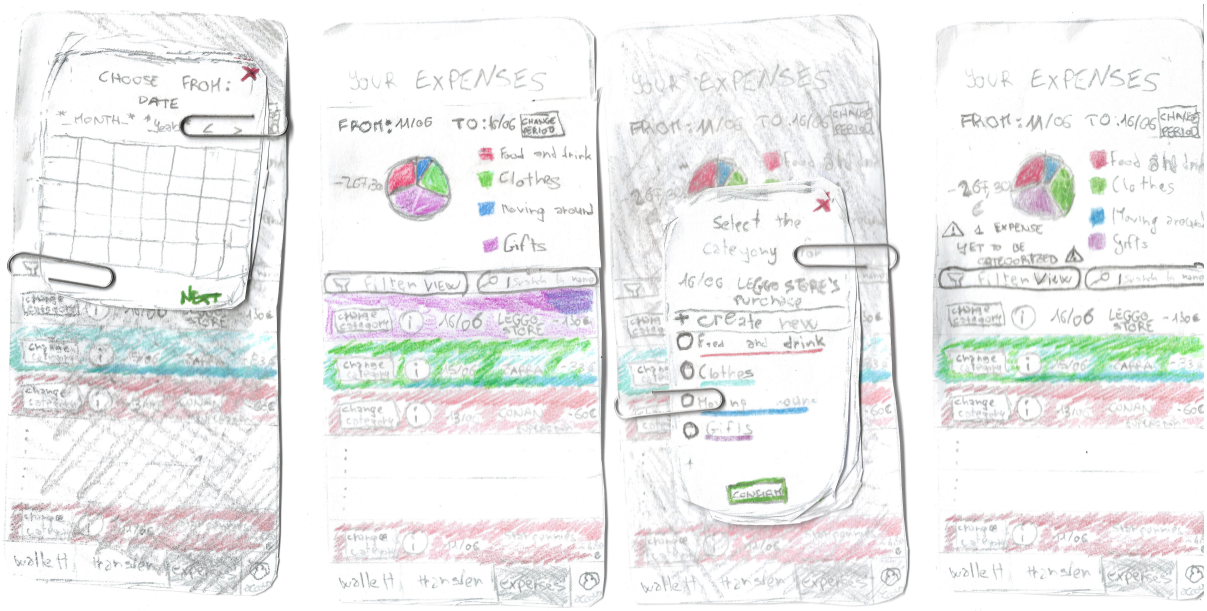
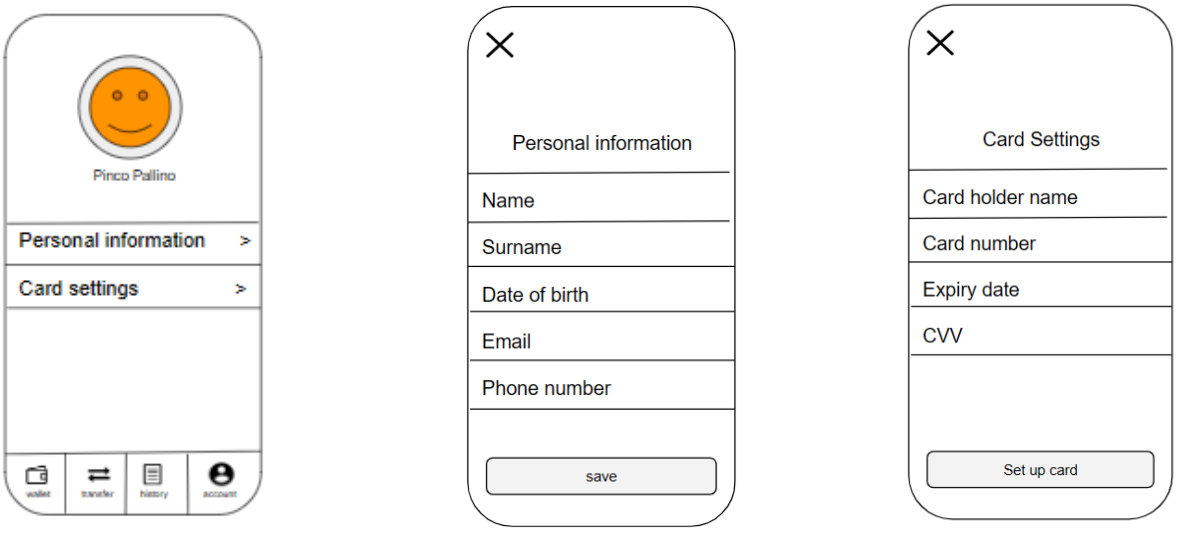


Fig. 7: Prototyping of the categorization feature

Account Settings Full Prototype Link here



(a) Settings home (b) Personal data (c) Payment method(s)

Fig. 8: Prototyping of the Account Settings page

5 Evaluation

User evaluation was carried out using the Think Aloud method, for approximately three recorded evaluation sessions per feature, organized in folders for easy access.

The response to the paper prototypes was positive enough to start prototyping in Figma and prepare for the second review.

Every recording can be found following this link.

6 Figma Prototyping

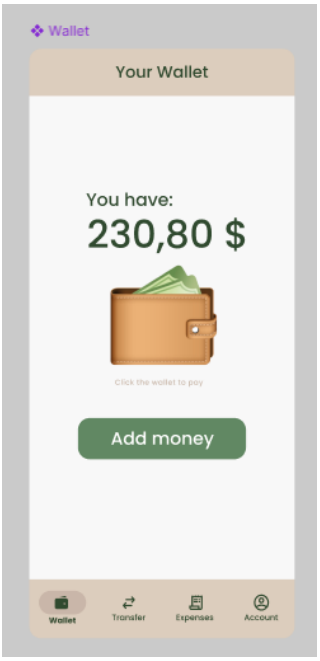
The Figma prototype was done based on the Hype and Revolut banking apps. The full prototype can be found at this link.

The collective decision was to change some features concerning the paper prototype, as they were deemed redundant, unnecessary, or ununderstandable by the users. A few snapshots with relevant features and a prototype graph will be attached in the following page.

Fig. 9: Schema of the Figma prototype

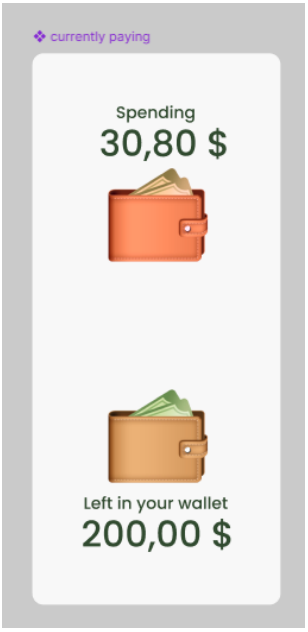
6.1 Feel of Cash prototype critiques

- The addition of a "category" to justify the money addition was deemed useless and constricting.
- The frequency of wallet top-up went against the principles of the app, i.e. automate the spending *less*.



(a) Home page

(b) Putting money from bank account to wallet



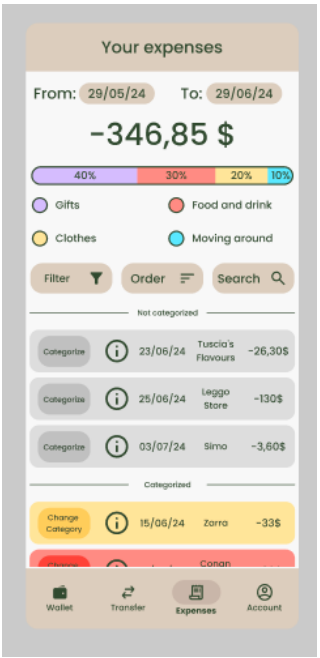
(c) Animation

Fig. 10: Relevant Figma screens of Feel of Cash task

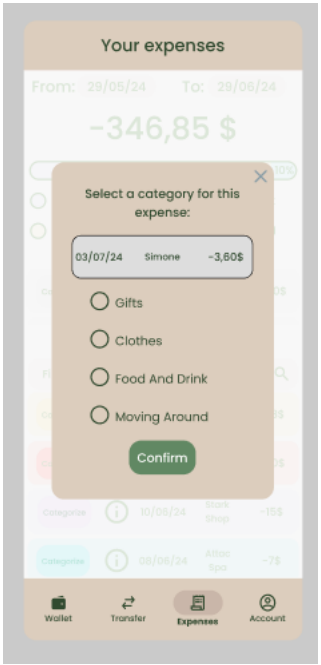
6.2 Categorize Expenses critiques

This was arguably one of the most difficult features to prototype, given its mutable aesthetic and functionality.

- **The uneven coloring of the first version was disorienting for the user**
  - This was solved by deciding on solid colors for the UI
- **Pie chart is too big**
  - This was solved by using a bar plot instead of a pie chart, making the screen feel less crowded



(a) Home page



(b) Categorization

Fig. 11: Relevant Figma screens of Categorization task

7 App Development

During the second revision, a few suggestions were made for changes:

1. Some modals were found too aggressive
2. The categorized and uncategorized expenses were messy and not intuitive because of the screen division between the two
3. The wallet feature was not detailed enough, and therefore it was difficult for new users to understand it
4. The keyboard in Figma is not interactive
5. It only supported a single payment method

After thorough examination of these critiques, the decision was to start developing the app in Flutterflow, a software to create UIs and apps with the use of Google Firebase backend.

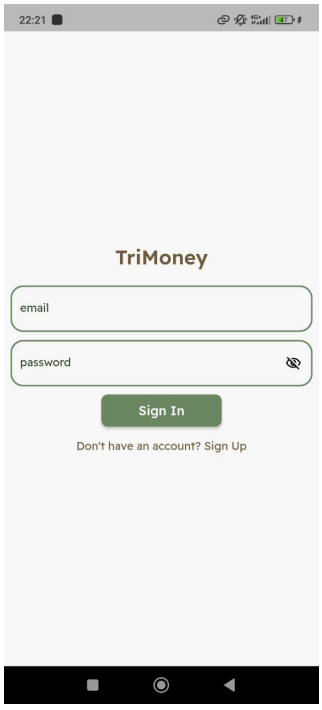
A mixture of its no-code and custom (classic) code was used to develop the app. The APK of the app can be found here.

7.1 Changelog

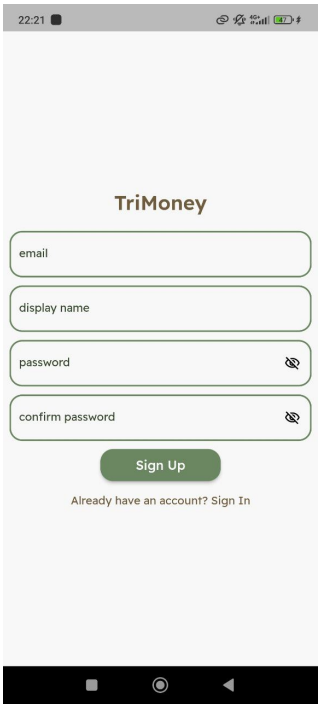
Compared to the Figma prototype shown in the second review, the app is more responsive.

Major updates include:

Login and Account creation page This was made to have an **active user** throughout the application to interact with the backend better.



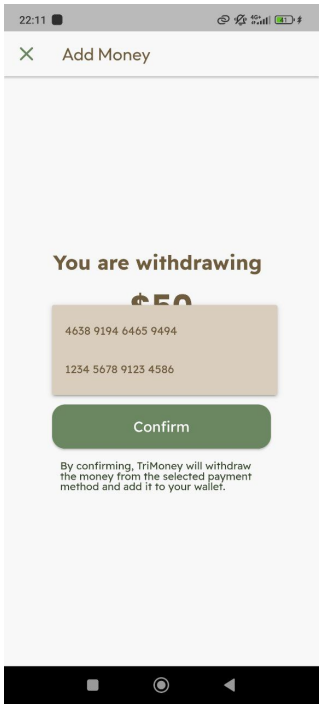
(a) Login page



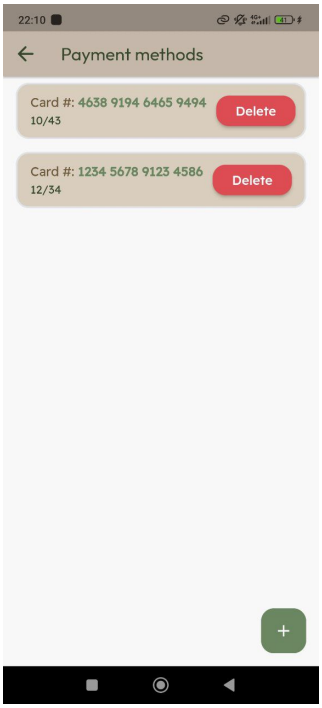
(b) Account creation page

Fig. 12: Login and Account creation

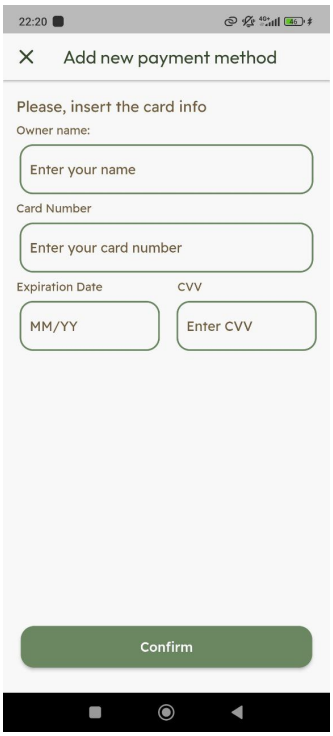
Multiple payment methods This was made per explicit request during the review.



(a) Multiple payment methods from account settings



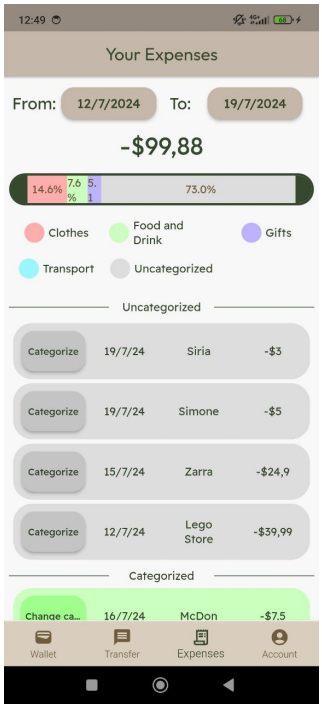
(b) Multiple payment methods from wallet top-up page



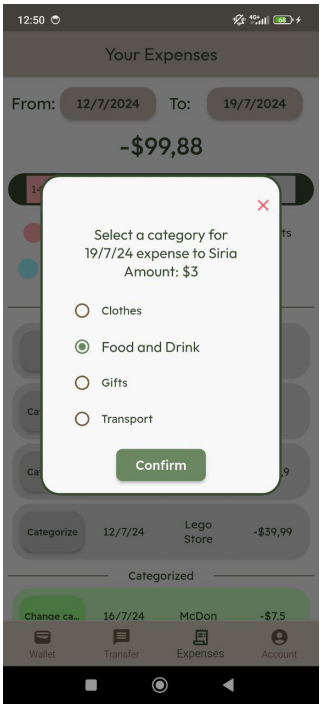
(c) Payment method addition

Fig. 13: Multiple payment methods

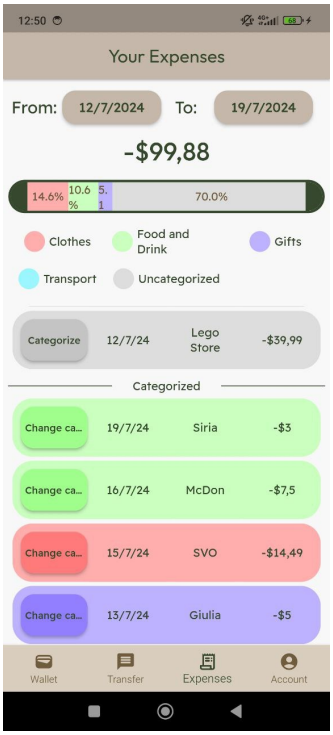
Reordered Expense categorization This was made per explicit request during the review.



(a) Home page



(b) Categorization of first uncategorized expense



(c) Recategorized the expense under food and drink

Fig. 14: New expense categorization

Deleted the possibility to create contacts The group figured that this feature was too complicated and useless for the scope of the exam and the context of the app. This is because adding contacts without the certainty that they're using the app is pointless. Several test accounts were made and are available to chat with.

8 Known Issues

As of now, these are the main known issues of TriMoney:

- The switch between the standard and numerical keyboard in chats is not seamless and sometimes requires reloading of the chat or at least the keyboard
- The categories for expenses are fixed, therefore it's not possible to add others