Milestone 2: Ideation and Low-Fidelity Prototyping

Group# 25

Part (a): Group Brainstorming

To begin the design phase for our Roommate Task Organizer, our group held a one-hour brainstorming session where each member sketched multiple design ideas. Our goal was to explore as many different directions as possible before narrowing them down. We focused on variety, meaning that each idea had to be different in layout, interaction style, or feature set. We structured our session into three stages:

- First, everyone sketched independently to capture their own creative ideas.
- Next, we met to share and discuss all sketches, identifying which features best solved the user problems found in Milestone 1, such as poor coordination, forgotten chores, and fairness issues.
- Finally, we grouped related ideas together, compared layouts, and highlighted which ones had the most potential for further development.

What we came up with

Our brainstorming produced a wide mix of sketches showing how our app could look and function. We aimed for a balance of practicality and creativity while keeping the interface simple and fair for users. A few examples included:

- **Home and Dashboard Designs**: Several sketches showed different home screens: some featured a clean to-do list, while others displayed roommate progress or fairness scores. A few sketches included a personal board summarizing a user's own chores and expenses. These designs reflect our must-have requirement for clarity, fairness, and accountability.
- **Calendar and Reminders**: We designed calendars that show upcoming chores, rent due dates, and recurring tasks, along with notifications screens or pop ups. These ideas meet our usability and functional needs for clear scheduling and automated reminders.
- **Expense Tracking**: Some sketches focused on logging and splitting shared purchases, displaying balances such as "You owe Sarah $5." This directly ties to our data and functional requirements for transparency and ease at splitting expenses.
- **Gamification and Creative Ideas**: Some designs added playful elements like streaks, challenges, or points for completed tasks. Others experimented with creative layouts, including a floor-plan view of the house, a mosaic style dashboard, and even a city map representing different parts of the app. These address our "could-have" features by adding engagement and personalization.

Overall, our brainstorming covered a broad range of approaches while staying true to user needs identified in Milestone 1. The sketches helped us visualize how fairness, organization, and simplicity could come together in one system.

### *Relating back to User Requirements*

During the session, we made sure every idea connected back to the requirements we defined earlier. Functional goals like task assignment, reminders, and expense tracking appeared across most sketches. Usability and user-context needs like simple mobile access and quick navigation were also kept in mind while designing. Students told us they wanted fairness, reminders, and something easy to use, so our ideas focused on those needs:

- The functional ideas like task creation, reminders, and expense tracking addresses user's main pain points and requirements.
- The data ideas like saving receipts and showing task history support transparency and accountability.
- The usability ideas such as simple layouts or quick actions match how students like to use apps on their phones which are easy to use and fast with lesser steps for simple tasks.
- The context of use was also clear: people will likely check chores or reminders on the go, not on a desktop.

Overall, our brainstorming helped us move from a general idea to specific directions for design. It gave us a mix of creative and practical solutions that we can now refine into clearer concepts for our polished sketches.

Part (b): Idea Polishing

First Sketch
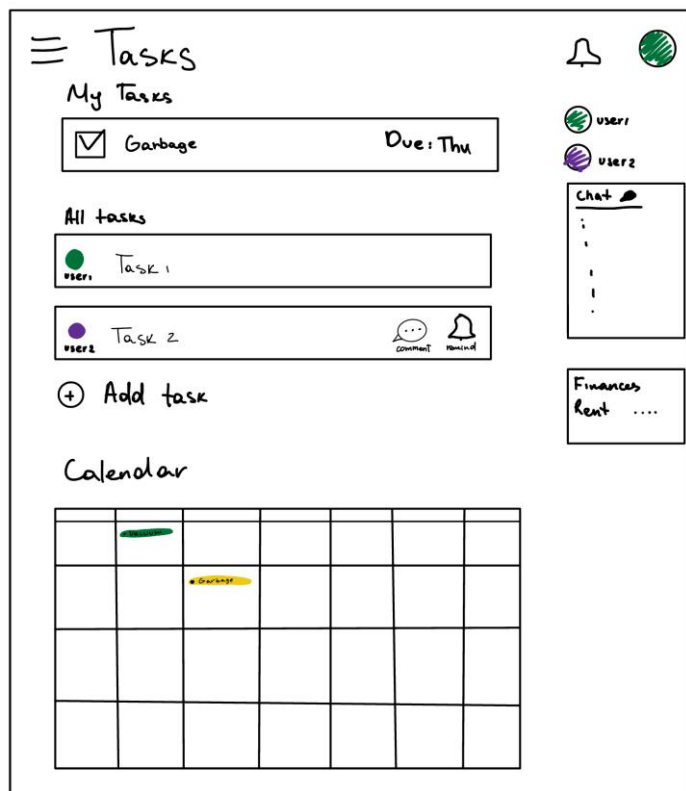
Description: This sketch illustrates the main Tasks screen, which is just one part of the full Roommate Task Organizer app, accessible via the menu icon in the top-left corner. At the top, My Tasks displays only the chores assigned to the current user, such as "Garbage Due: Thu," with a checkbox to mark them complete. Below, the All Tasks section provides group visibility, showing every task along with its assigned roommate (e.g., User 1 has Task 1, User 2 has Task 2). Each task includes icons for commenting and setting reminders. The Add Task button is large and easily accessible, while the Calendar section at the bottom allows users to view deadlines briefly and schedule group events beyond chores. On the right, a sidebar serves as a quick status panel, displaying roommates, a dedicated chat for focused communication, and links to Finances, Rent, and other group modules.

Justification: This design works well for our users because it focuses on clarity, fairness, and ease of use which are the main needs found in our research. Students often forget chores or mix them up, so visible lists and a calendar help keep everyone accountable. The chat and reminder features reduce tension by allowing communication without direct confrontation. It also meets key design requirements from Milestone 1, like being simple, mobile-friendly, and transparent for shared living.

<u>Second sketch</u>

Description: This screen is the Split Expenses page. At the top, a small bar says "You owe $25" so everyone can see their balance right away. Below, there is a simple list of past purchases with the date, what was bought, who paid, and the amount. To add a new expense, tap the big + button. A small form pops up where you type the description (e.g., "grocery"), the amount (e.g., $40), pick who paid, and confirm who it's split with (the group). Then you close the form, and the new line appears in the list, and the "You owe" number updates.

Justification: This design keeps money stuff clear and quick. The "You owe" bar gives instant feedback, so users don't have to do math. Each list row shows the key facts in one line (item, payer, amount), which is easy to scan and avoids confusion. The + button and a short form makes adding a receipt fast. Writing who paid and who it's split with supports fairness and transparency. The simple layout helps learnability (new users can figure it out in seconds) and efficiency (few steps to log a purchase). Overall, it meets the functional requirement to track and split shared costs, supports data requirement to store expenses with payer information, and matches usability goals like effectiveness (does the job), efficiency (few steps), and clarity (easy to read).
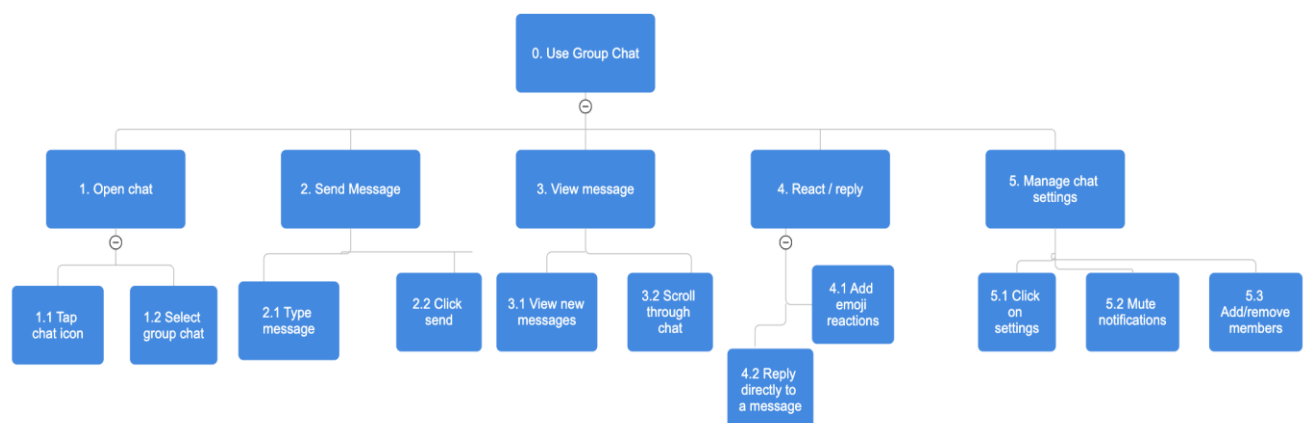
Third sketch
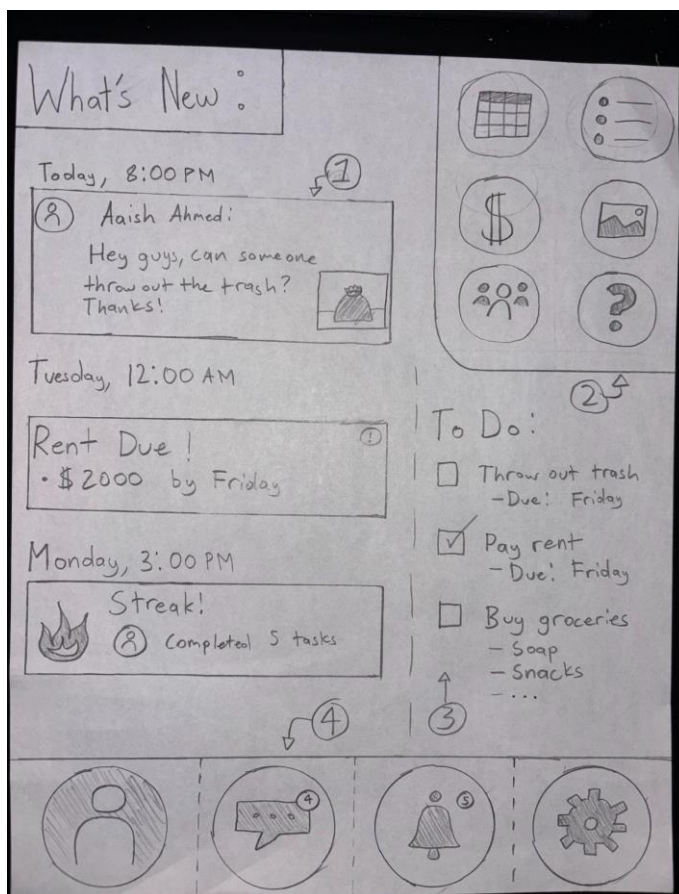
Description: This sketch demonstrates the homepage for the Roommate Task Organizer app. It helps the user navigate to all the various pages that they will need to use in a quick and easy manner, while providing real time updates and notifications so that they can stay up to date with their roommates. It features a feed-like interface (1) that provides updates for the user that range from messages to expenses and tasks that need to be completed. On the top right (2), there is a separated menu that features a variety of app icons that the user may need to access, ranging from a calendar full of tasks to help and support if needed. Right below that (3) is the to do list, which is always visible so that the user can maintain track of what tasks they have coming up and need to complete. This auto updates when new tasks are created or old ones are completed. Finally, at the bottom (4), we have a quick access bar for the user's profile, settings, messages and notifications. These are easily accessible when holding the phone, allowing for quick transitions to and from these pages.
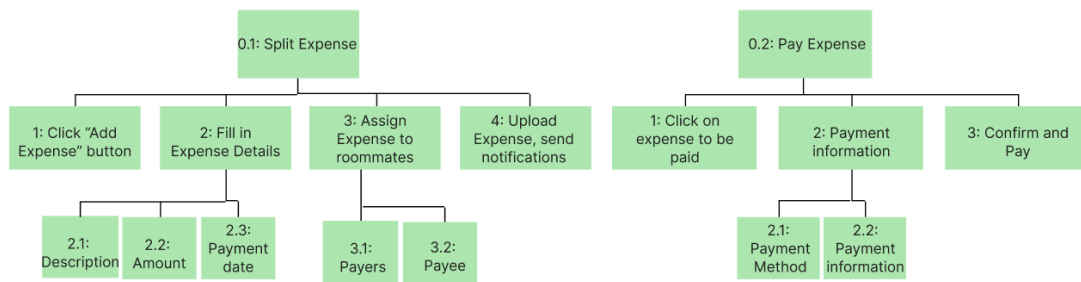
Justification: The feed like system (1) is great for the target users as they are most likely to be university students who are accustomed to social media applications. This follows a similar format that they would be used to, and so they would have an easy time understanding it. It features the date and time of the "post", the subject, and what needs to be completed, all within a singular unit. The application menu (2) is an efficient way of accessing various menus from a mobile app, as the icons provide clear indications of what button leads to where and wouldn't be too hard to press compared to a long menu bar that desktop pages would use. The To-Do list (3) being easily visible always ensures the user has a hard time missing tasks and is simple to read. The applications in the quick access bar (4) were chosen as they are important and/or frequently accessed pages and so having them in the reach of the thumb near the bottom would make it much easier on the user for navigating the app.
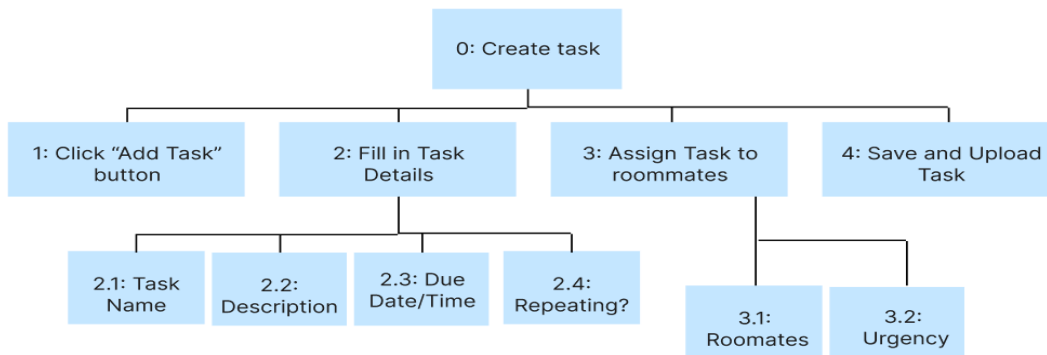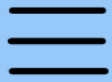
Part (C): Hierarchal Task Graphs

Task 1: Group chat

Task 2: Splitting Expenses

Task 3: Split Expense / Pay Expense

0.1: Split Expense

- 1: Click "Add Expense" button
- 2: Fill in Expense Details
  - 2.1: Description
  - 2.2: Amount
  - 2.3: Payment date
- 3: Assign Expense to roommates
  - 3.1: Payers
  - 3.2: Payee
- 4: Upload Expense, send notifications

0.2: Pay Expense

- 1: Click on expense to be paid
- 2: Payment information
  - 2.1: Payment Method
  - 2.2: Payment information
- 3: Confirm and Pay

Task 3: Creating Task

0: Create task

- 1: Click "Add Task" button
- 2: Fill in Task Details
  - 2.1: Task Name
  - 2.2: Description
  - 2.3: Due Date/Time
  - 2.4: Repeating?
- 3: Assign Task to roommates
  - 3.1: Roomates
  - 3.2: Urgency
- 4: Save and Upload Task

Part (D): Low Fidelity Prototype

Tasks

Sam

To Do

| Take Out Garbage | ✓ |
| Pickup Mail | ✓ |

Tony

Ayah

All Tasks

Pay Hydro Bill

Deep Clean Living Room

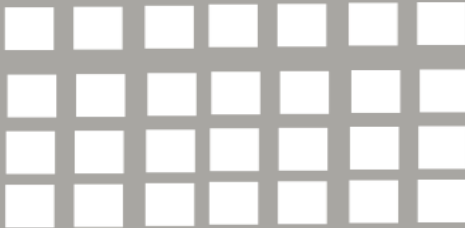⊕ Add Task   ⊙ Add Task

🗑 Delete Task

Chat 💬

Ayah   Start Chat...

Tony   Start Chat...

Calendar 📅

Finances $

Rent: $650

Groceries: $365

Utilities: $150

This provides an overview of the low-fidelity paper prototype for the Roommate Task Organizer. The prototype demonstrates key features such as task management, reminders, and financial tracking, tailored to help university students efficiently manage shared household responsibilities. This document outlines the functionalities of the system, the design implementation, and the feedback gathered from initial testing.

Introduction

The Roommate Task Organizer is a system designed to help university and college students living with roommates manage household tasks and shared expenses. It includes features such as task creation, assignment, reminders, expense tracking, and communication between roommates.

Prototype Features

The prototype focuses on the following key features:

1. Task Management

Feature: Task creation, assignment, and tracking.

• Implementation: Users can create tasks like "Take Out Garbage" and assign them to roommates. Tasks are displayed in a clear list with due dates and an option to delete tasks.

• Task Interaction: Each task has a reminder icon to notify users of pending tasks. This ensures accountability and helps users stay on top of their responsibilities.

• Visual Elements: Task names are clearly listed with the assignee's name next to each task. Task status is represented with visual cues such as checkboxes or a color-coded indicator.

2.Task Notifications

Feature: Automatic reminders for upcoming tasks.

• Implementation: Each task has a notification icon that can be set to trigger reminders before the due date. This feature ensures that roommates are aware of their responsibilities in advance.

• Design Choice: The reminder icons are intuitive and easy to spot, helping users quickly identify tasks that require their attention.

3.Expense Tracking

Feature: Shared expenses such as rent and utilities.

• Implementation: A dedicated section displays expenses, such as rent, groceries, and utilities. Each expense is labelled and recorded for easy tracking.

• Design Choice: The simple layout of the finances section ensures users can quickly see shared costs without needing complex features.

- Future Enhancements: For future versions, the system will include the option to upload receipts and split costs more dynamically.

4.Chat Functionality

Feature: In-app communication for roommates.

- Implementation: The "Chat" section allows roommates to start conversations directly within the app. This helps streamline communication about household matters without leaving the platform.

- Design Choice: The chat interface is minimalistic, with clear "Start Chat" buttons and simple layouts to encourage quick messaging.

5.Task Deletion

Feature: Removing tasks once completed or cancelled.

- Implementation: A "Delete Task" button is available next to each task, allowing users to remove tasks that are no longer needed.

- Design Choice: A confirmation message could be added in future iterations to prevent accidental deletions.

6. Calendar Integration

Feature: Visualizing tasks and deadlines in a calendar view.

- Implementation: Tasks are displayed in a calendar format, showing the due dates for tasks. This makes it easy for roommates to track their responsibilities over time.

- Design Choice: A simple calendar format is used to prevent visual clutter while providing essential task details.

Conclusion

The low-fidelity prototype of the Roommate Task Organizer successfully demonstrates the core features of the system, including task management, reminders, expense tracking, and communication tools. The design is intuitive and easy to use, addressing the primary needs of university students living with roommates. The next step will be to gather user feedback and refine the prototype based on their input.

Part (E): Informal Evaluation

We used the ASK method - short informal interviews to gather feedback on our paper sketches of the Roommate Task Organizer app. We met with our current and past roommates, showed them the drawings, and asked how they would complete tasks like adding chores, splitting bills, or using the chat. We encouraged them to share what felt easy to understand, what seemed confusing, and what they would change.

Participants appreciated the minimalistic designs for being easy to manage and non-overstimulating. However, the minimalism slightly negatively impacted clarity and learnability. Suggestions focused on adding structure, not clutter:

- Reduce Ambiguity: Add labels under icons and use colour/spacing (Proximity) to visually separate sections.
- Improve System Feedback: Include notifications for updates (addressing the Usability Goal of Safety).
- Optimize Flow: Simplify complex screens further to reduce cognitive load.

This feedback validates the core aesthetic while providing specific, actionable steps to enhance usability without sacrificing simplicity.

Appendix

This sketch shows one of the features of our application which will help users keep track of any upcoming tasks.

CALENDER

<MARCH 2025>

S	M	T	W	TH	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Rent due ← 1

Garbage day

monthly cleaning

Your laundry

Home page
Expenses Notifications
My Account
calender

Here is also an example of how our toolbar can look like.

notifications

HOME

TO-DO:

☑ Garbage on curb
☑ kitchen cleaning
☐ Laundry day

+ ADD TASK

Trash

When the users opens our app, they will be able to see their tasks and upcoming events on the homepage itself. we ~~have~~ want to keep the app very simple and avoid any complex systems.

ASSIGN CHORES

Assign chore

Chore:

Organize Pantry

Assign to:

○ me

○ Sarah

○ Alex

○ Ella

[Ok]

This sketch shows a feature of assigning chores to one or all members of the house.

home page

SPLIT EXPENSES

Household Expenses

Alex owes you	$30
You owe Sarah	$5

● Detergent — Paid by me

● Toilet paper — Paid by Alex

● Grocery — Paid by me

● Broom — Paid by Sara

⊕

Add expense

Through this feature, roommates can split household expenses and the user can add expense by clicking on the ⊕ icon and a pop up will appear. User can also see the expenses added by other roommates.

SPLIT EXPENSES ⌂

add expenses here:
Enter description:

| Paper towel |

Enter Amount:

| $20 |

Paid by:

| Alex , Sarah, Ella, Me |

we also want to add a split expenses feature to our Roommate task organizer so that the roommates can easily do that for household supplies, grocery etc.

NOTIFICATIONS ⌂

8min Ago
Garbage @ 8pm Today !

2 Days Ago
Alex finished laundry

8h ago
Grocery shopping @ 4pm !

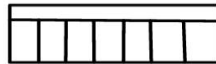This shows the rough sketch of how the notifications page will look like.
The user will be able to see all the recent notifications in the app.

9:30

Thursday, Sept 19
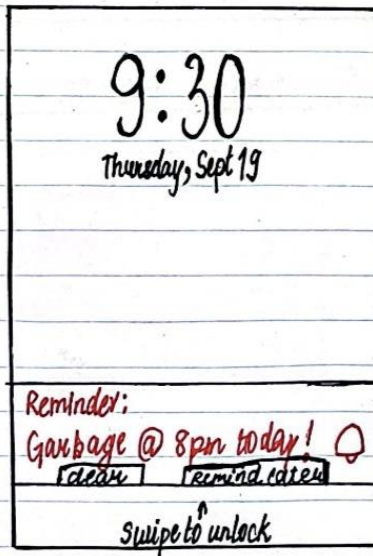
This sketch shows how the user will get notifications before any task is due.

Reminder:
Garbage @ 8pm today! 🔔

| clear | Remind later |

swipe to unlock

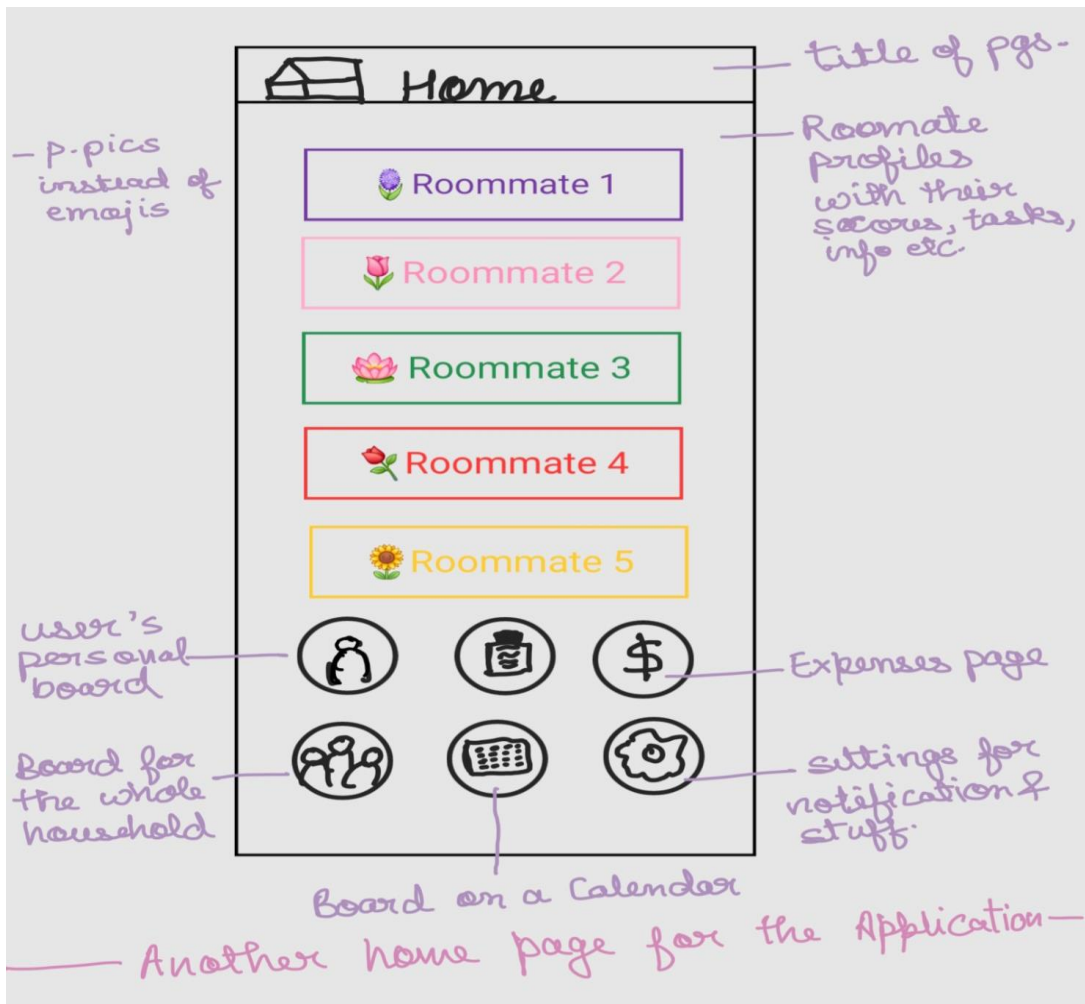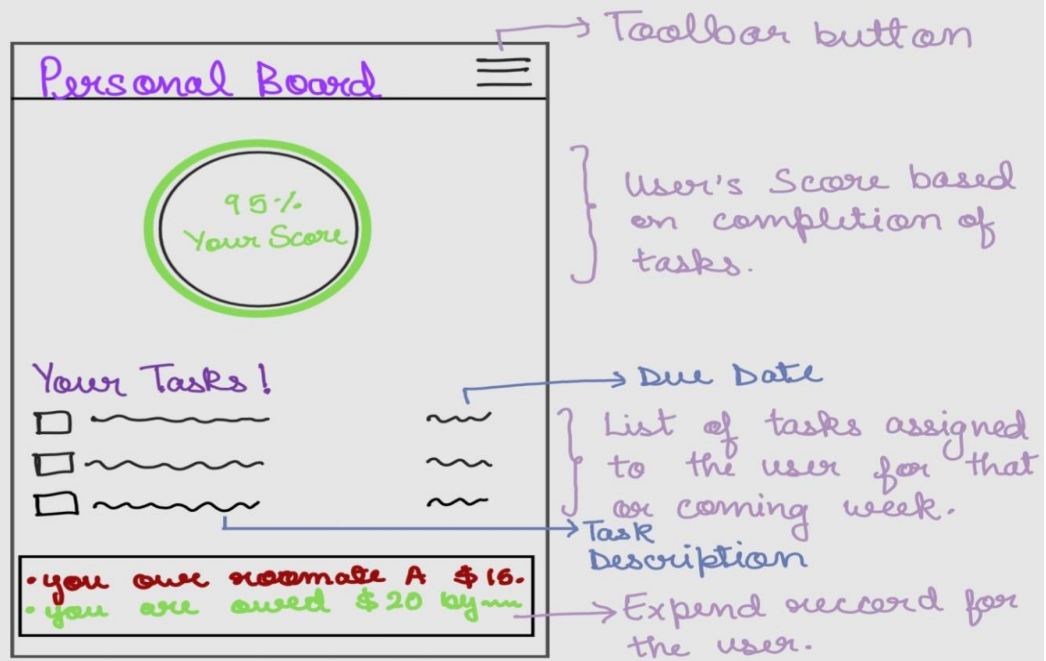|		
Announcements	Calendar	Messages
Roommate Profiles	My Profile	Bills & Rent
Settings	Tasks	Supplies & Maintenance

This is like Mosaic style grid dashboard

☰ Tasks

My Tasks

● user1	Task 1

All tasks

● user1	Task 1

● user2	Task 2	🔔 remind

⊕ Add task

Calendar

🔔 ● (user1)

● user1
● user2

Chat ✎
·
·
·
·

Finances
Rent ....

Floor 2

Room x   Room y   Bathroom

shows cleaning schedule

Floor 1

Living Room

Once you click it shows calendar and chat

Kitchen
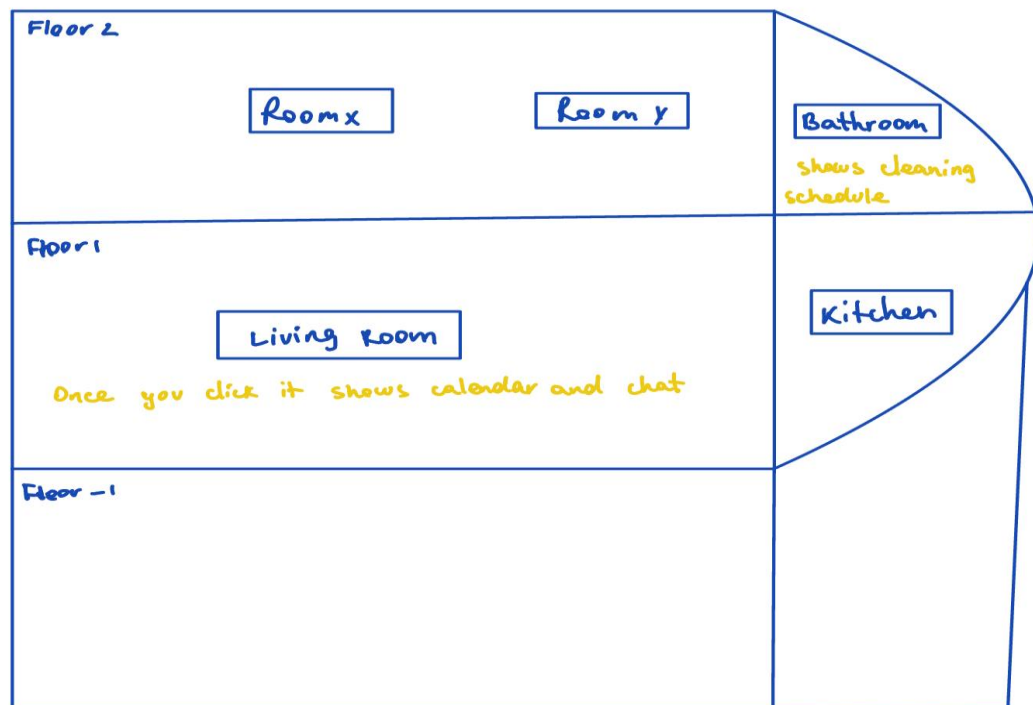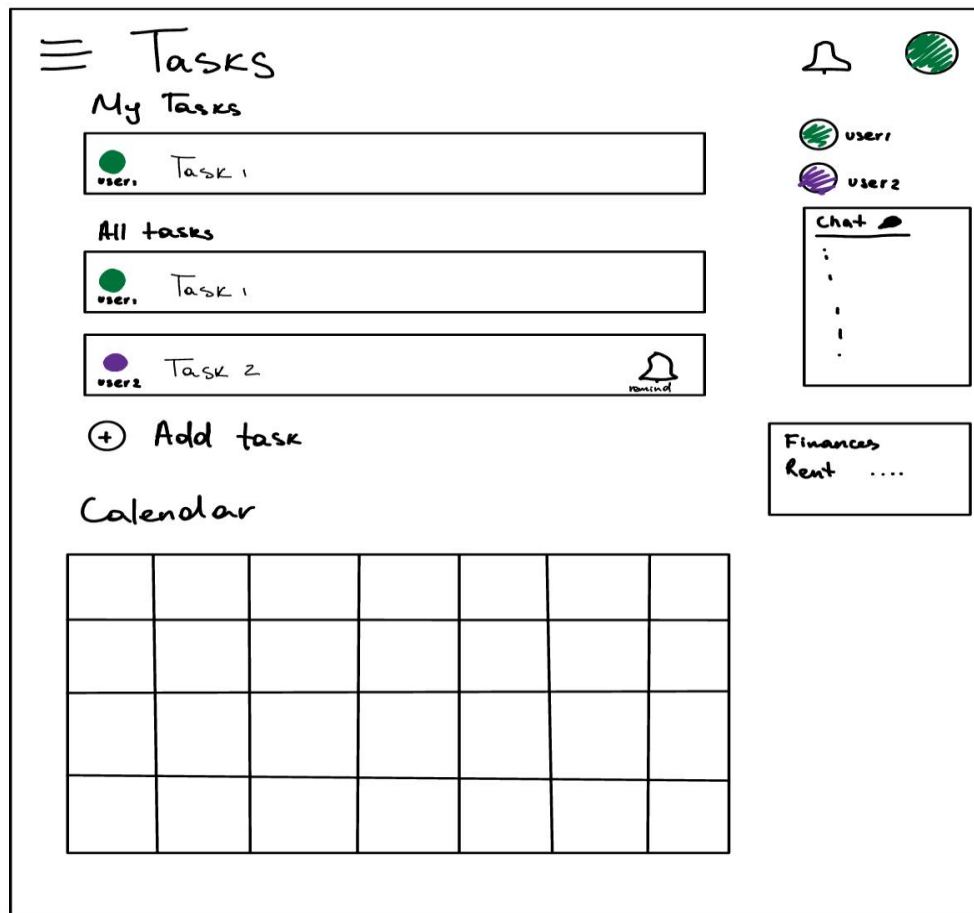
Floor -1

Floor plan of the house, clickable rooms

Home

🌷 Roommate 1

🌷 Roommate 2

🌸 Roommate 3

🌹 Roommate 4

🌻 Roommate 5

— title of pgs.

— Roomate profiles with their scores, tasks, info etc.

— p.pics instead of emojis

user's personal board

Board for the whole household

— Expenses page

— settings for notification & stuff.

Board on a Calendar

— Another home page for the Application —

* Scores would be based on completing tasks on the due dates or delaying.

🏠 Home

HOUSE Name

Roommate1 %/o	Roommate2 %/o
Roommate3 %/o	Roommate4 %/o

→ Like an Overview
→ Roomates with their scores* for transperancy.

Your Tasks

☐ take out trash — TOM
☐ clean dishes — 8 Oct
☐ Bathroom Cleaning — 15 Oct

List of tasks assigned to the user.

🏠 | 📋 | $ | 💬 | 👤

} bottom taskbar

Home → Tasks → Expenses → Chats → MyAccount

— Home Page of the Application —

Personal Board ☰

→ Toolbar button

95%
Your Score

} User's Score based on completion of tasks.

Your Tasks!

☐ ～～～～～～   ～～   → Due Date
☐ ～～～～～～   ～～   } List of tasks assigned to the user for that or coming week.
☐ ～～～～～～   ～～   → Task Description

• you owe roommate A $15.
• you are owed $20 by～～   → Expend record for the user.

Home Page Sketch that displays user-specific information only.
—— Another Example of a Home Page for —— the Application.

Settings ⚙

Personal info.   → editing option

settings
settings   } Various other kinds of Settings including notific & alerts.
settings
settings
settings
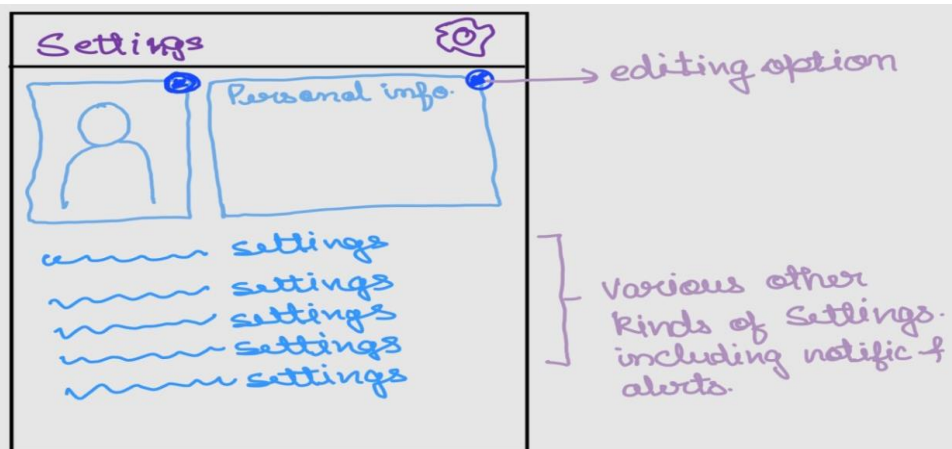
—— settings page or pop-up sketch ——

✳ Calendar Example:

Dates

June

photo icons

Instead of a boring reminder or events calendar in our phones, we can have the user's and their roommate's profile photos or emoji's in place of their due tasks!!!

≡

Home → User-specific home-page.

Overview → Page for roommate profiles / information and list of all the tasks in the house.

Tasks → List of all the upcoming tasks along with the person responsible & due date.

Expenses → Shared expenses, receipts etc.

→ Settings

——— Sketch of side tool bar ———

→ Add task option

Tasks ⊕

Overdue

☐ Dishes Clean
   Roommate 1   2 Oct
☐ Living Room Clean
   Roommate 1 & 2   4 Oct

This Week

☐ Trash duty
   Roommate 3 & 4   7 Oct

☐ Clean Bathroom
   Roommate 4   10 Oct

☐ ~~~~
   ~~~~

Next Week

☐ ~~~~   ~

🏠 ≣ $ 💬 👤   } — bottom tool Bar

A combined list of all the household tasks with the people it is assigned to and due dates.
This list is not user specific but an overview of all the tasks for transparency.

— Tasks Overview Page of the Application —

Homepage

223 Main St.   Aaish. A

🔔 (3)

- ~~~~~~~~~
- ~~~~~~~~~
- ~~~~~~~~~

💲 2,000 Due

Pay with:
_____
_____

⊕
✏️
⌃
⌄

☑ 24~~: ~~~
☐ 3 ~~: ~~~
☐ 10 ~~: ~~~ ~~~

Streaks:

⚙️   🖼️

What's New:

~~~

👤 ~~~~~~
~~~~~~~
~~~~~
~~~~~
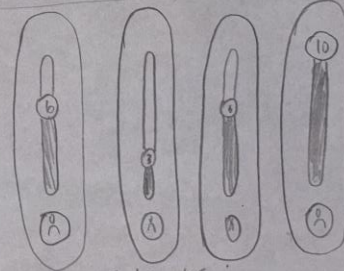
~~~ ~~~

RENT DUE SOON
$2000
~~~~~~
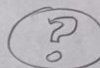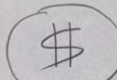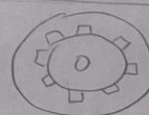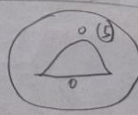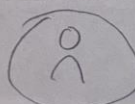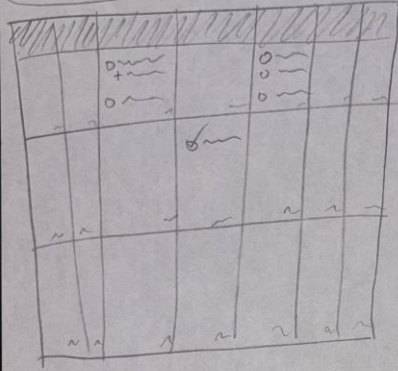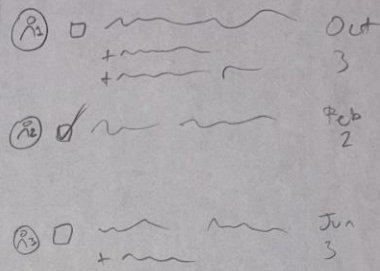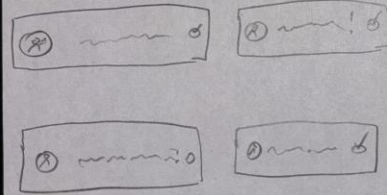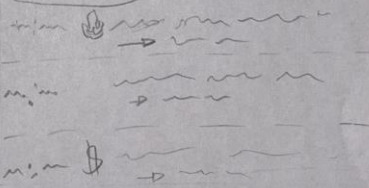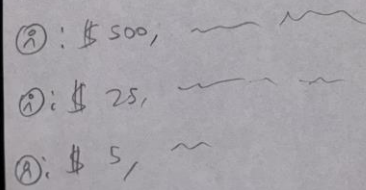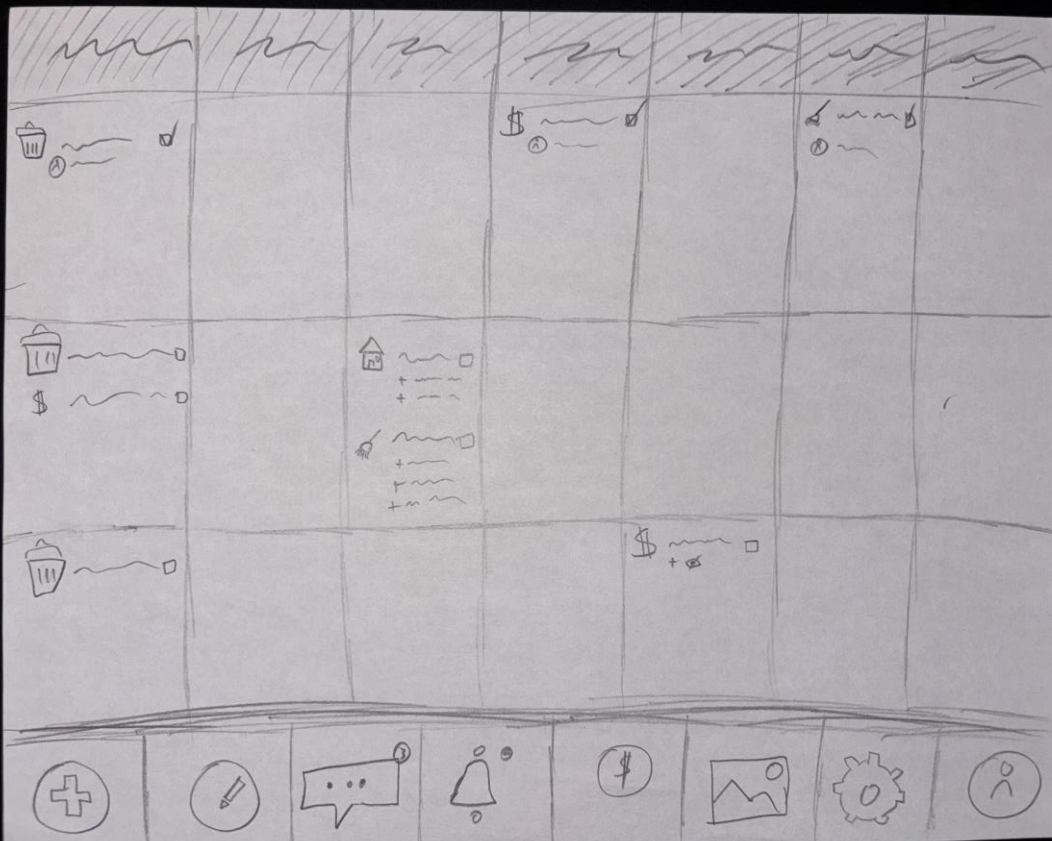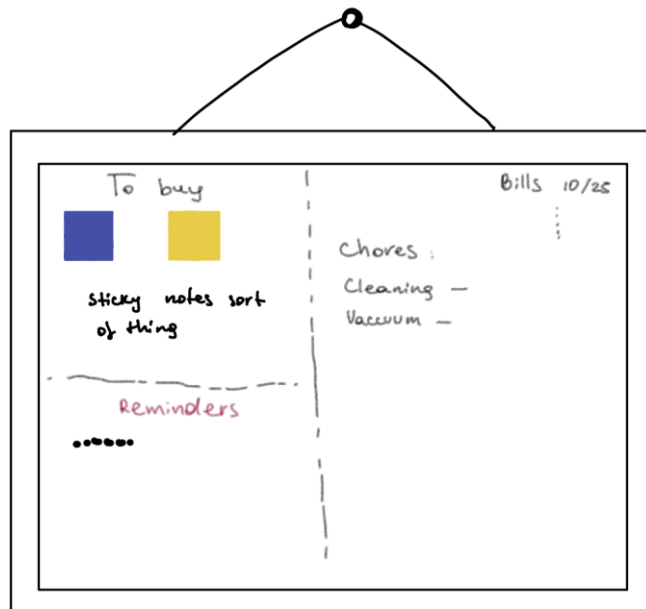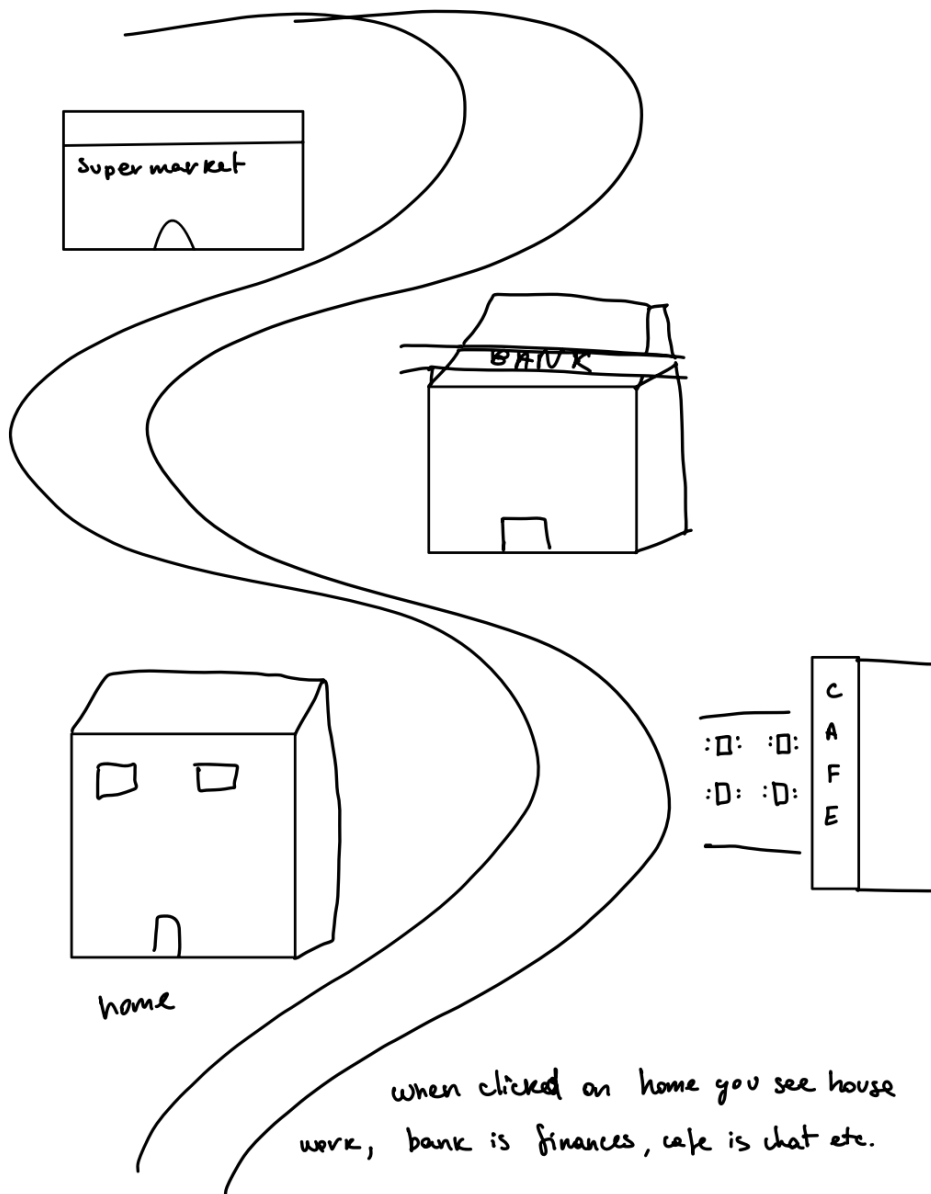
~~~ ~~~

STREAK!
🔥 👤 ~~~~ ~~~

📅   📋
💲   🖼️
👥   ❓

To Do:

☐ ~~~~~~~
   -Due: ~ ~~~
☐ ~~~~~~~
   -Due: ~~~
☐ ~~~~~~~
   -Due: ~~ _

👤   💬   🔔   ⚙️

Calender:

Tasks:

| | | | Oct 3 |
| Feb 2 |
| Jun 3 |

Messages:

Notifications:

Finances:

(⊙): $500, ∼∼ ∼∼
(⊙): $25, ∼∼ ∼∼
(⊙): $5, ∼∼

| Settings | Customize |
| Help | Account |

Top sketch (left panel):

No more notifications

Top sketch (right panel):

Calender X

Tasks

Oct 1st

+ Add   Edit   Delete

Bottom sketch:

500

CHALLENGES!

	Reward	Time Left
	50	3 Days
	100	
$	500	

6   7   + New Wallpaper
              +

: 5   : 1
: 10

This is like a digital bulletin board

To buy

Bills 10/25

Chores :
Cleaning —
Vacuum —

sticky notes sort
of thing

Reminders
......

Supermarket

BANK

CAFE
:□: :□:
:□: :□:

home

when clicked on home you see house
work, bank is finances, cafe is chat etc.
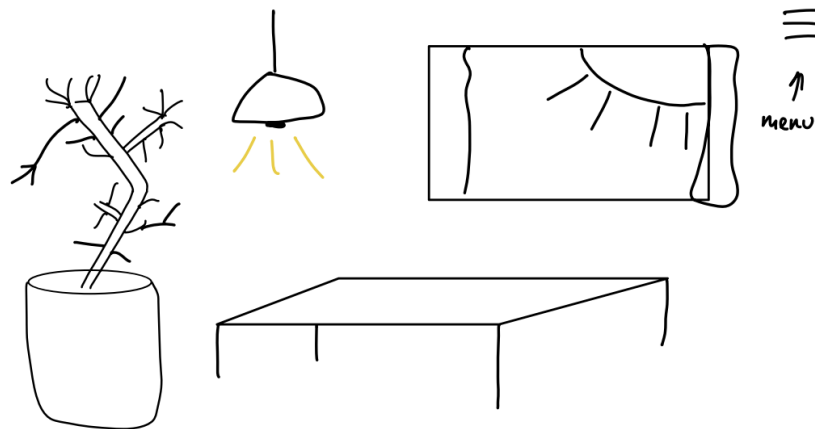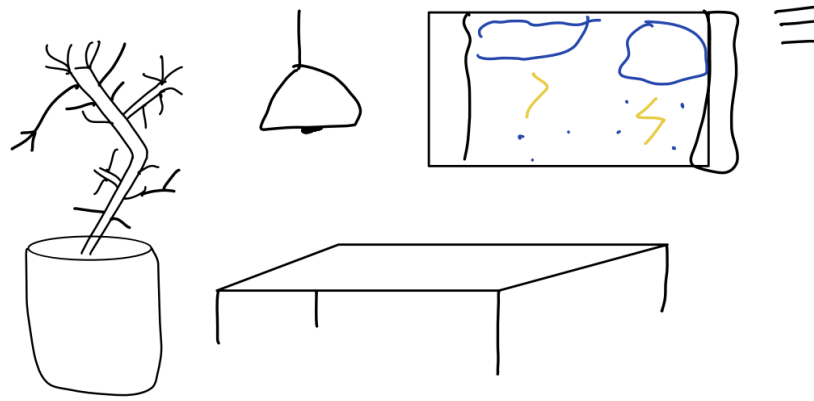
interface is bad and gloomy when tasks aren't done vs.
sunny and light when on track.

Interview notes:
#1 — Pros : minimalistic, like the chat feature
   — Cons : too much on one screen.

#2
   Second person liked most of our designs.
Suggests that its a mobile app not web app
So eliminate web gitrons ?
Good simple designs, colors arent overstimulating

#3
   Likes the chat and reminders. Again mobile >
web.