Requirements for SpendLess

This requirements document is used to explain the main functionality behind SpendLess.

The exact looks and colors of a specific UI element can be seen on the mockups. The app has a single theme but no light or dark theme.

Note that this serves to give you an overall impression of what the app should be able to do. Feel free to decide how you implement specific things (e.g., how you display a specific loading progress or how you specify error messages).

You can find the mockups for SpendLess here:
https://www.figma.com/design/ftCIcpiLxrMhckuzDmYQWL/SpendLess?node-id=401-937&p=f

Furthermore, you can download the FIG file for local editing here:

SpendLess.fig

The App Idea

SpendLess is a finance tracking app with a focus on security. The aim is to keep track of the user's income and expenses while also securing the data in terms of accessing the app and storing data.

App Variants

The mockups include two app variants: an MVP and an extended version. The extended version-specific requirements are written in orange. Depending on your available time, you can build either variant. Green requirements add usability but are optional and will not be considered for the challenge submissions.

Icons

All icons for the app can be Material design icons or taken from the mockups as SVG (in case an equivalent Material icon doesn't exist)

Technical Requirements

- All red banners should be dismissed after 2 seconds

- The app has a *PIN Prompt Screen,* which can be shown to the user when their local session has expired.

  - A session starts once the user's PIN is correctly provided. The following are valid ways of starting a new session:

    - Login via the *Login Screen*

    - Successful registration

    - Providing the correct PIN on the *PIN Prompt Screen*

  - A session lasts for 5 minutes by default (editable via app settings)

    - Within this timeframe, **they can launch and use the app freely**

    - Once the session expires, the app should only show the *PIN Prompt Screen* when the user performs one of the following **Authenticated Actions:**

      - Launch the app (cold start)

      - Return the app to the foreground (warm start)

      - Taps the "Show all" button on the *Dashboard Screen*

      - Taps the "+" FAB on the *Dashboard Screen*

      - Taps the gear icon on the *Dashboard Screen*

      - Taps the "Create" button on the *Create Transaction Screen*

      - Taps the export icon on the *All Transactions Screen*

      - Taps the "Export" button on the *Export Data Sheet*

      - Taps the "Save" button on the Setting's *Preferences Screen* or the *Security Screen*

- All transaction data that is saved locally must be encrypted

Login Screen

- An account consists of a username and PIN

- Account information is only stored locally

- The PIN has to be encrypted before persisting locally

- The PIN text field must be 5 digits long

- Username requirements:

  - Must be at least 3 characters

  - Must not exceed 14 characters

  - Only alphanumeric and digits are allowed in any combination.

  - No space characters are allowed

  - Valid usernames: "user123", "A1B2C3", "JohnDoe"

- User must be able to complete login only by using the keyboard

  - Username text field must be focused when this screen is shown

  - User must be able to use the keyboard action button to move to the PIN text field

  - User must then be able to use the keyboard action button to trigger login

- Username text field must be focused when this screen is shown

- Upon an invalid username and PIN combo, show a red banner in the same style as shown on the Registration Screen with text: "Username or PIN is incorrect"

- The "New to SpendLess" text button takes the user to the *Registration Flow*
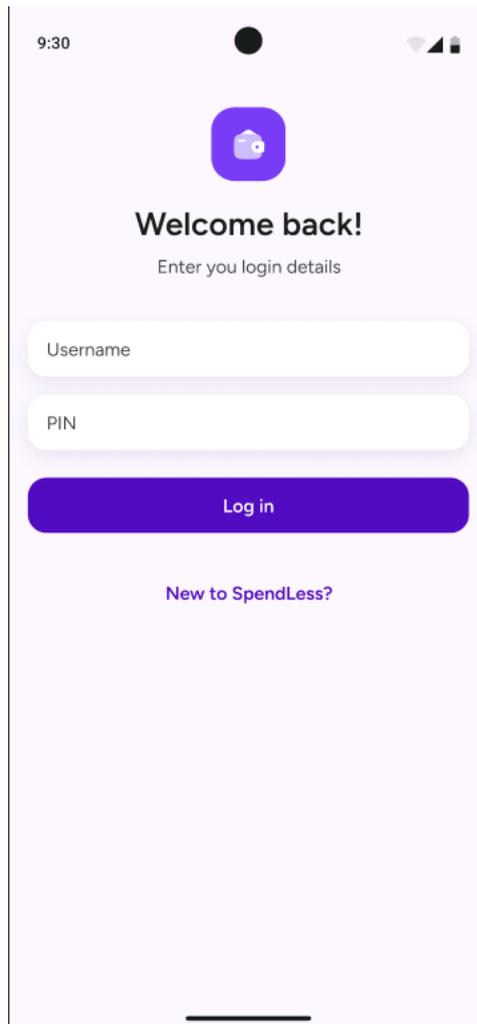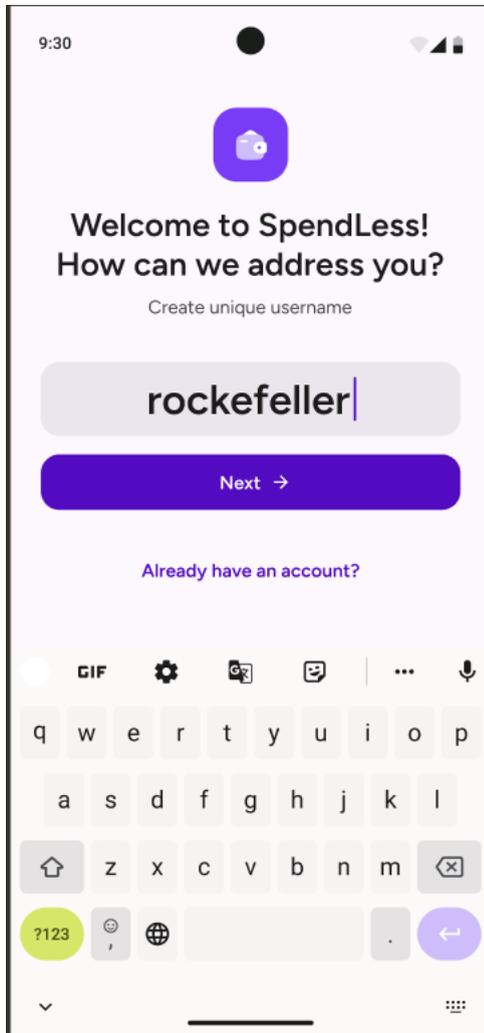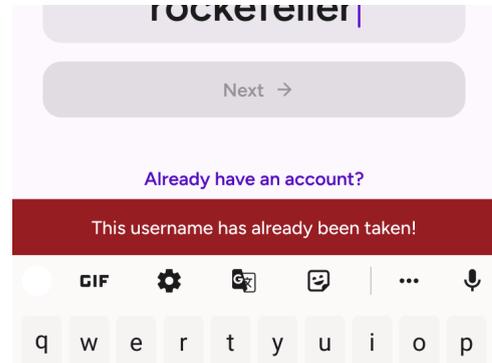
Login Screen

Registration Screen

- "Next" button is enabled once the username textfield contains at least one character

- Only alphanumeric characters and digits are allowed for the username

- Duplicate usernames are not allowed

  - When "Next" is tapped with a username that already exists:

    - show a red banner with some text stating the username has been taken already

      - The banner must not be overlayed by the system keyboard

    - Disable the "Next" button

  - Re-enable the button once the value in the text field changes

- "Already have an account?" text takes the user to the *Login Screen*


Registration Screen

Red Error Banner

Create PIN Screens

- Back arrow button navigates back to the *Registration Screen*
- 5 dots represent the user's PIN
  - A colored dot indicates an entered digit
- User can input their PIN via the 10 digit buttons and remove a digit (the rightmost colored dot) with the delete button
- Once 5 digits have been entered (all dots are colored) navigation must trigger to the *Repeat PIN screen*
- Repeat PIN Screen

- Same concept as the *Create PIN Screen*

- The navigate back button takes user back to the *Create PIN Screen*

- User must re-enter their PIN on this screen

- When 5 digits have been entered, automatically compare this PIN an the previously entered PIN.
  - If they don't match:
    - Show a red banner at the bottom of the screen with the text: "PINs don't match. Try again"
    - Clear all the colored dots
  - If they do match:
   - Navigate to the *Onboarding Screen*
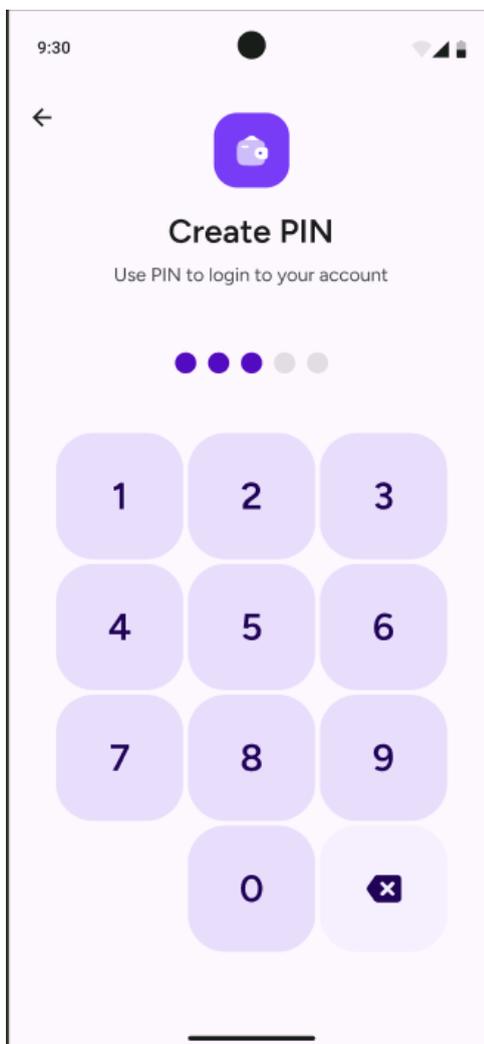
Screen 1 - Create PIN
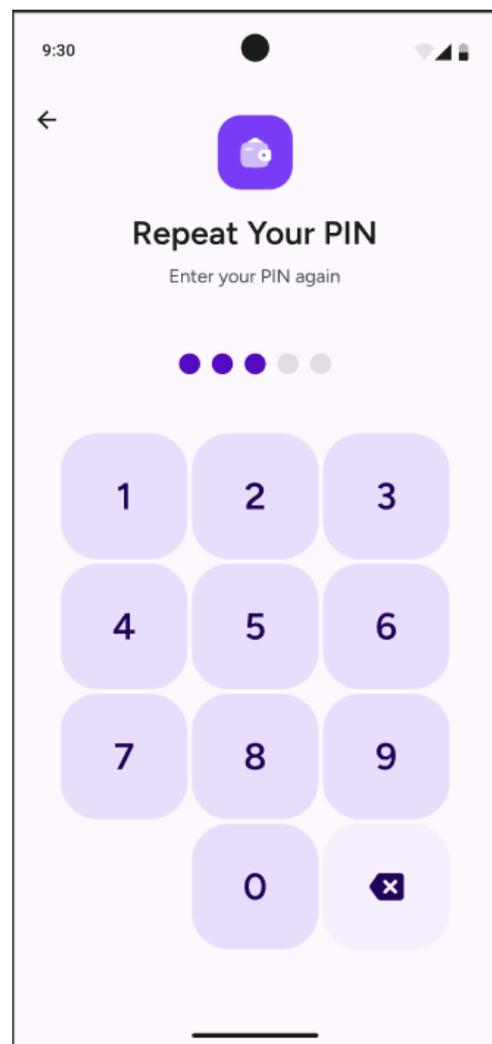
Screen 2 - Repeat PIN

Onboarding Preferences Screen

- The back arrow button takes the user back to the *Create PIN Screen*

- User can choose some preferences on how to format currency values in the app:

  - The default values are left up to the developer

  - Expenses format is either indicated by round brackets or a minus prefix

  - The currency symbol the app uses

    - The app won't convert currencies, this setting is purely visual and only affects the symbol shown in the app

  - The decimal format can be either a comma or a dot

  - The thousands separator can be either a space, a comma, or a dot

- The example currency text updates to match the current preferences selected

- CTA (Call to action) button at the bottom of the screen:

  - Disable button when user has the same separator selected for both the thousands and decimal separator

  - On tap:

    - Create the new user account with the username and PIN (the PIN must first be encrypted)

    - Save the user's preferences

    - Navigate to the *Dashboard Screen*

    - Once navigated, the current back stack must be cleared so that the user exits the app if they use the system back button on the *Dashboard Screen*
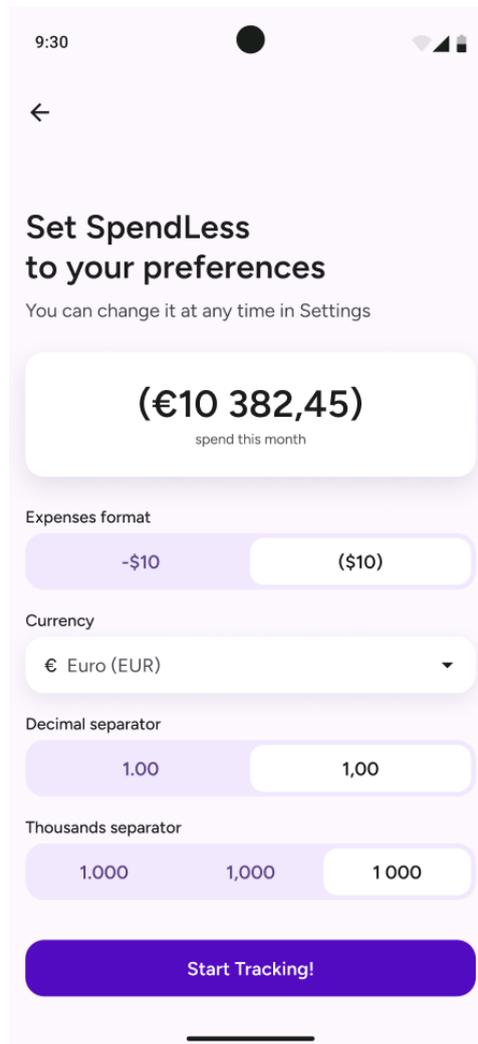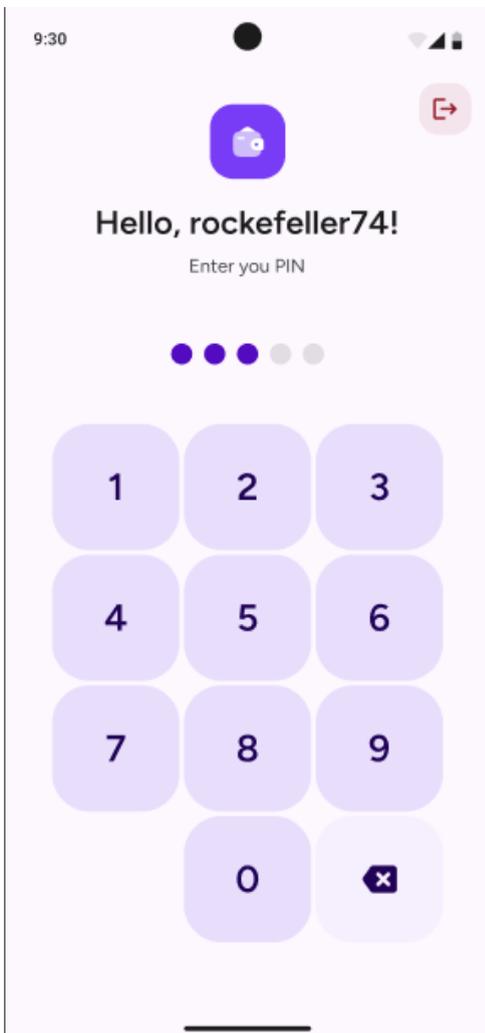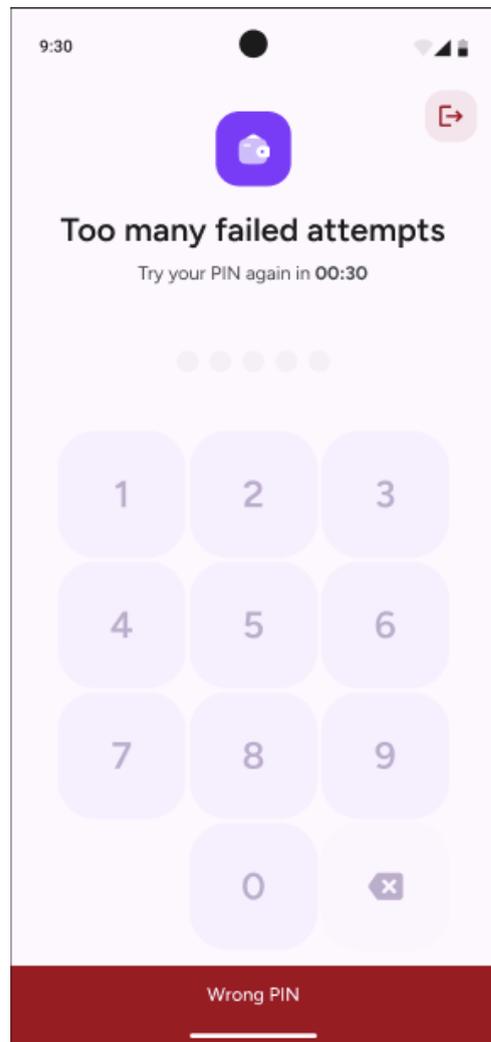
Onboarding Preferences Screen

PIN Prompt Screen

- Automatically shown when the user's session has expired and the user engages with the app (see explanation in the <u>Technical Requirements</u> section)

- Show a greeting text that includes the username of the account

- Once PIN was inserted incorrectly 3 (editable in settings) times, the screen should enter a locked state:

  - The digit buttons are disabled

  - Greeting text changes to: "Too many failed attempts"

  - Show text that the user can try again and show the current countdown of when they can retry (duration is editable in settings)

- Logout button at the top right corner is always enabled

- On Logout button tap:

    - Log the current user out and invalidate the session

    - Navigate to the *Login Screen*

    - Clear the back stack so that when the user taps the system back button while on the *Login Screen*, the app will exit

- When the user inputs the wrong PIN:

    - Show a red banner with text: "Wrong PIN"

    - Clear the colored dots

- When the correct PIN is provided

    - Refresh the session

    - Show the destination or perform the action that the user intended to go to or perform.

        - The implementation is left up to the developer. The only requirement is that when a session has expired, the *PIN Prompt Screen* is shown when the user performs an **authenticated action** (see the Technical Requirements section)

- A biometric button is included if enabled from the *Security Screen*

    - If disabled in the *Security Screen*, the button should be disabled

    - If tapped the system should prompt the user for their biometrics

        - If biometrics does not succeed, then follow the same logic as if the user provided the wrong PIN

        - If the biometrics is successful, treat it as if the user provided the correct PIN

PIN Prompt Screen


PIN Prompt Screen - Locked out
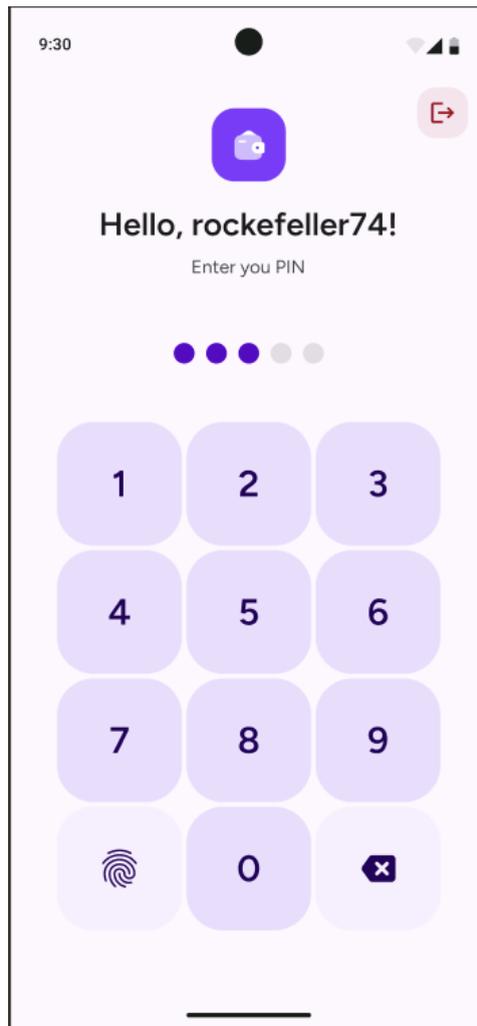
PIN Prompt Screen - Biometrics

Dashboard Screen

- The landing screen for a logged in user

- All transactions amounts are formatted according to the user's preferences

- Username of the logged in user is shown at the top left corner

- A gear icon is at the top right corner that takes the user to the *Settings Screen* when tapped

- An export icon button is also visible at the top right of the screen that opens the *Export Data Sheet* when tapped

- "Show all" text that navigates to the *All Transactions* screen

- Account balance is shown prominently at the top center of the screen

- Some account statistics are shown

- Expense category with the largest total spent of all time
    - If there is no transactions yet, then don't show this UI element
- Largest transaction
    - The receiver name (who the money was sent to)
    - The amount
    - The date of the transaction
    - If there are no expense transactions yet, then only show a single text: "Your largest transaction will appear here"
- Total spent the previous week
    - **Not** the total spent in the last 7 days
    - This UI element is always shown and defaults to an amount of "$0" (replace dollar sign with user's currency symbol preference)
- A list of the latest transactions with clickable text "Show all" that opens the *All Transactions Screen*
    - Transactions are grouped by their date with the latest date displayed at the top
    - Each group is titled with the date formatted as "2 February 2025"
        - Contextual text applies for the following and replaces the date text:
            - Today
            - Yesterday
    - List headers are sticky
    - The list is scrollable within white background and the "Latest Transactions" title and "Show all" text remain visible
    - If no transactions exist then show the 💸 emoji with text "No transactions to show"
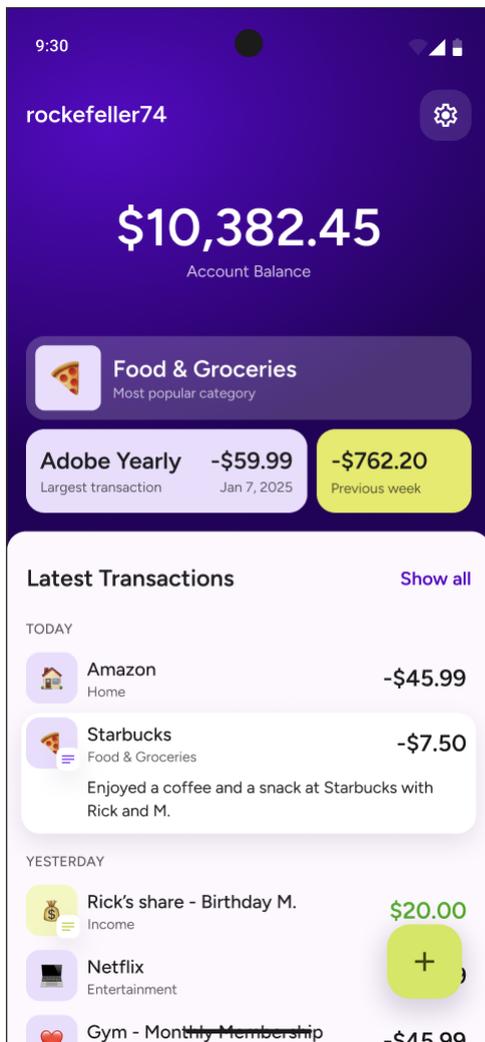
Dashboard Screen - MVP
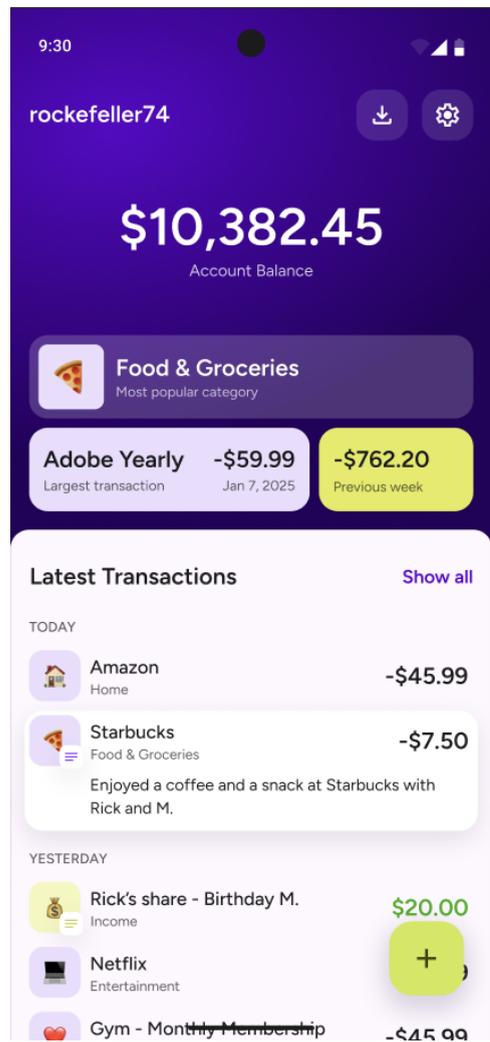
Dashboard Screen - Extended
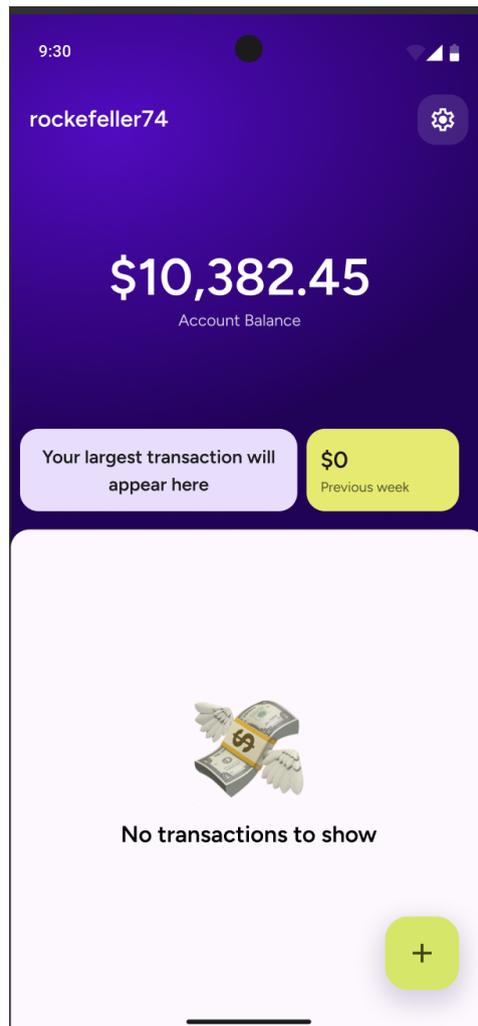
Dashboard Screen - No Transactions

Transactions Screen

- List all transactions, sorted by date descending (latest transaction at the top)

- The list includes sticky headers that group transactions by their date

- If no transactions exist then show the 💸 emoji with text "No transactions to show"

- On FAB tap, open *Create Transaction Sheet*

- When a list item has a note attached to it, it is expandable on tap

 - An expanded transaction can be collapsed again by tapping it
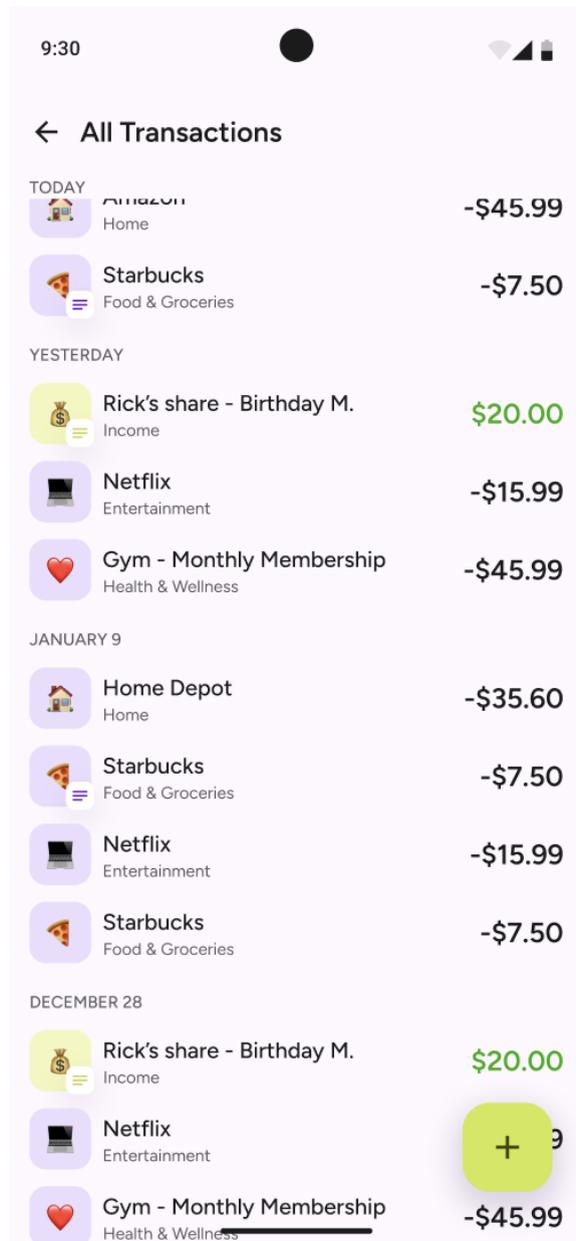
All Transactions Screen
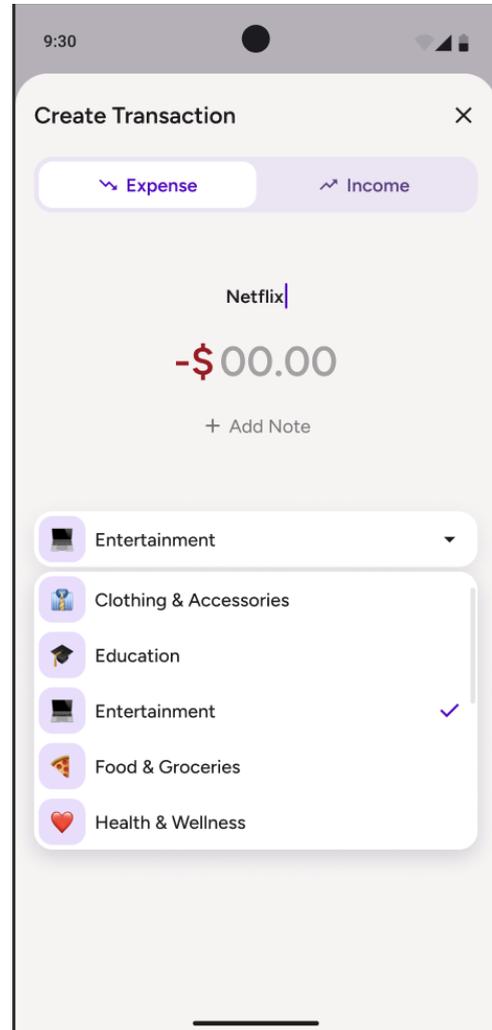
Create Transaction Sheet

- Full-screen sheet to create a new expense or income transaction

- Either Expense of Income can be selectable with the slider selection UI component

- Upon showing the screen, the alphanumeric keyboard is visible by default so that the user can type in the receiver/sender

- The receiver (for expense) or sender's (for income) name must be provided

  - The text must be between 3 - 14 characters (inclusive) long

- - The text may only contain alphanumeric characters

    - Trim any leading and trailing spaces

    - The label text is "Receiver" for expenses or "Sender" for income

- The amount of the transaction

    - Red currency symbol with either a red minus or red brackets depending on the user's preferences setting

    - By default the amount is 00.00 (the separator is based on the user's preferences

        - The default value text is a gray color

- An optional note can be added

    - The label text is "+ Add Note"

    - The text is limited to 100 characters

    - The text must be center-aligned

- Dropdown is visible when an Expense is selected

    - Choose the expense category from the dropdown

- Dropdown is always visible to select the recurring frequency of the transaction.

    - The options include:

    - Does not repeat (default)

    - Daily

    - Weekly on Monday

        - The current day of the week is shown

    - Monthly on the 14th

        - The current day of the month is shown

        - When a date of 31st is used, then some months don't have that many dates. In that scenario, use the last day of that month.

    - Yearly on the Feb 14th

   - The current date of the year

- When a date of 31st is used, then some months don't have that many dates. In that scenario, use the last day of that month.

- The "Create" button is only enabled when an amount is entered and when a valid sender/receiver is entered
  - On tap, it encrypts the transaction data and saves it
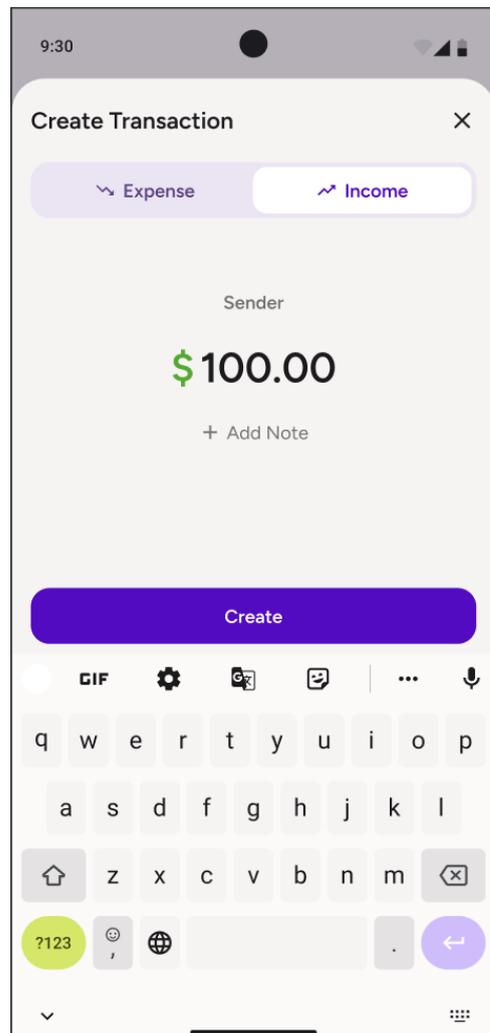 - Close sheet afterwards
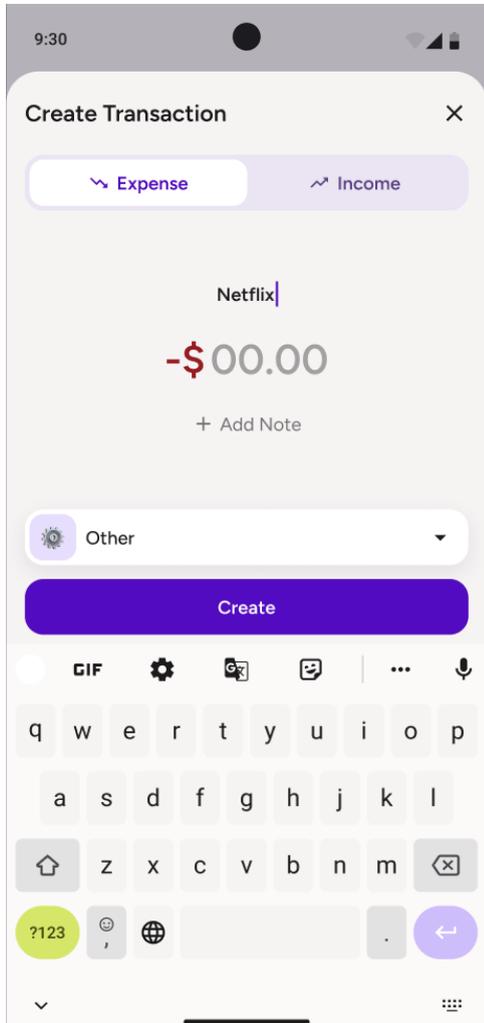
Create Transaction Sheet - MVP

Create Transaction Sheet Expense Categories
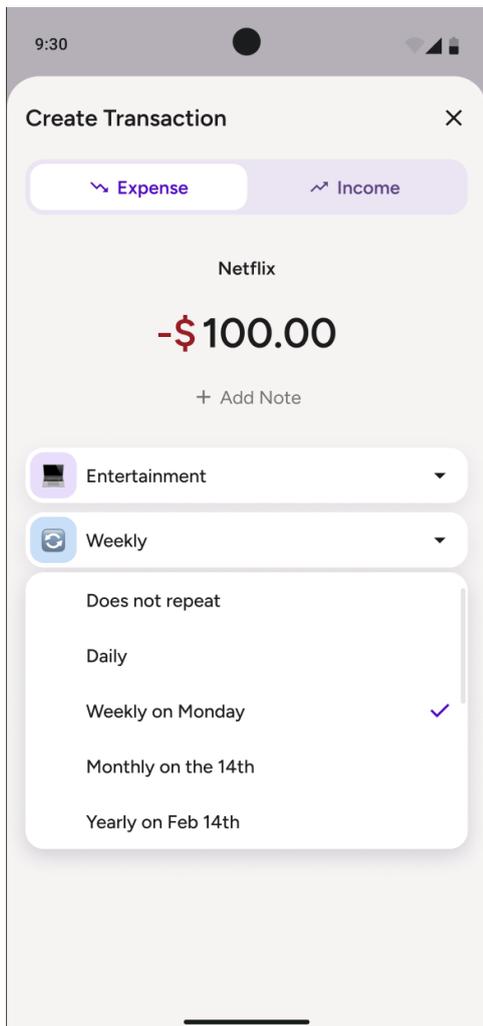
Create Transaction Sheet Repeating Interval - Extended

Create Transaction Sheet Income

Export Data Sheet

- Simple sheet to export transaction data to CSV file
- Single dropdown to select date range of transactions to be exported
  - A checkmark indicates the selected option
  - Options include:
  - All data
  - Last three months (default)
 - Last month
  - Current month

- Specific Month
    - A new list of options are available on tap. The list shows the current and past months and their respective years:
        - February 2025 (← Current Month for example)
        - January 2025
        - December 2024
    - Once selected, then that text (e.g. "December 2024") inside the dropdown must appear as the selection: "December 2024"
- "Export" button tapped:
    - Save the created file to the user's Downloads directory
- Dropdown to select the format to export the data
    - If this dropdown is included, the text underneath the sheet header "Export transactions to CSV format" must be removed
    - CSV (default)
    - PDF
    - The layout of the PDF should list the transactions by date in descending order and group them by date
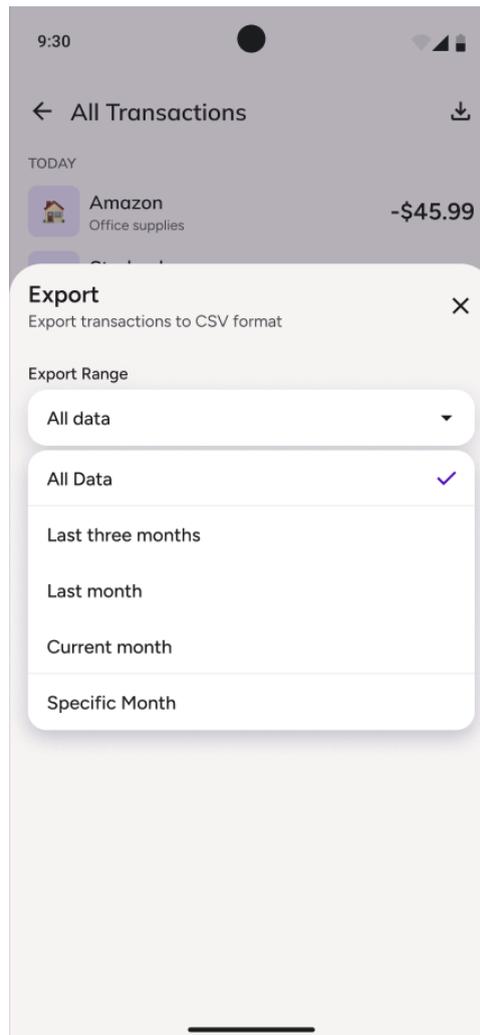
Export Data Sheet - Extended

Settings Screen

- Simple screen with 3 tappable options
  - Preferences → navigate to the *Settings - Preferences Screen*
  - Security → navigate to the *Settings - Security Screen*
  - Log out → clear the user's session and log them out.
   - Navigate to the *Login Screen* and clear the backstack
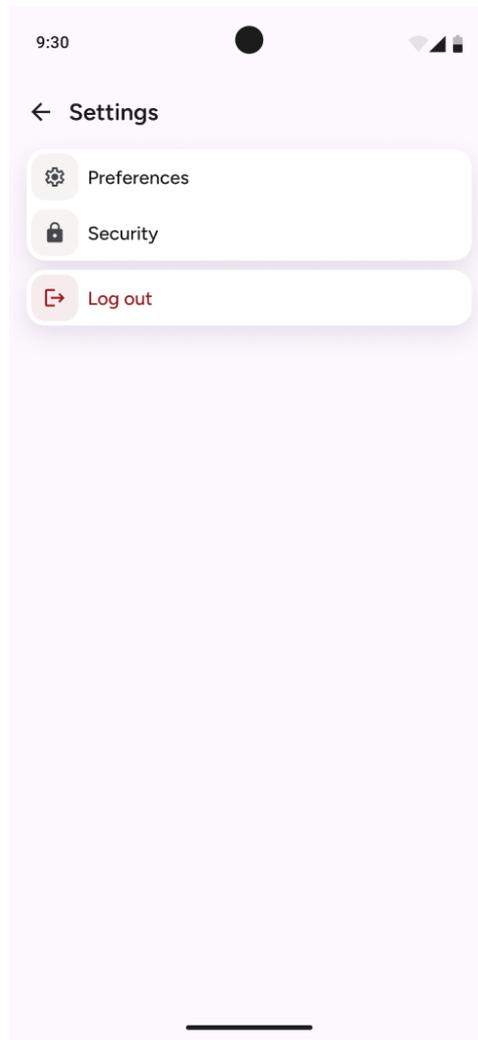
Settings Screen

Settings - Preferences Screen

- Display an example of the user's current formatting choice

  - This will update as the user makes changes to the below preferences

- UI component to choose how expenses are formatted

- Dropdown to choose the currency symbol used

  - ***Note: changing the symbol does not convert currency, it is purely visual.*** If the user has a transaction of $1000, then changing the currency to Euros will change the amount to €1000

  - All symbols are placed at the start of the transaction amount

  - The options include (the default symbol is left up to your preference):

    - $ - US Dollar (USD)

- € – Euro (EUR)

- £ – British Pound Sterling (GBP)

- ¥ – Japanese Yen (JPY)

- CHF – Swiss Franc (CHF)

- C$ – Canadian Dollar (CAD)

- A$ – Australian Dollar (AUD)

- ¥ – Chinese Yuan Renminbi (CNY)

- ₹ – Indian Rupee (INR)

- R – South African Rand (ZAR)

- UI component to change the decimal separator used

- UI component to change the thousands separator used

- CTA "Save" button

  - Disable button when user has the same separator selected for both the thousands and decimal separator

  - On tap, persist the user's selection and pop the screen back the *Settings Screen*

- Back arrow

  - Pop screen

 - Any changes made are not saved
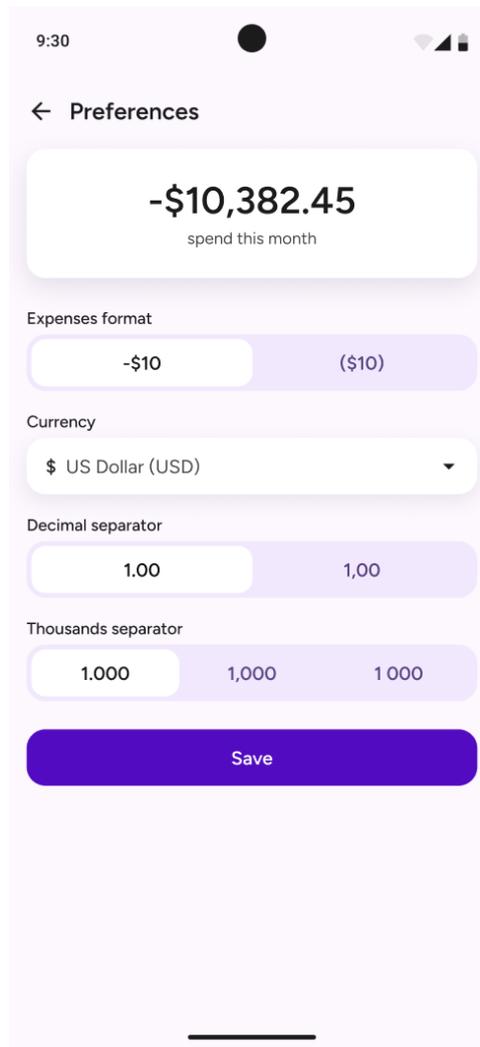
Settings Preferences Screen

Settings – Security Screen

- UI component to choose the duration of a session

    - Default is 5 minutes

- Dropdown to choose the locked out duration (PIN entered incorrectly 3 times)

    - Default is 30 seconds

- UI component to toggle biometrics whether biometrics is enable on the *PIN Prompt Screen*

    - This option is only available if the device supports biometrics

- Back arrow

    - Pop screen

- Any changes made are not saved
- CTA "Save" button
  - On tap, show any system dialogs required (if any) to enable the biometric prompts
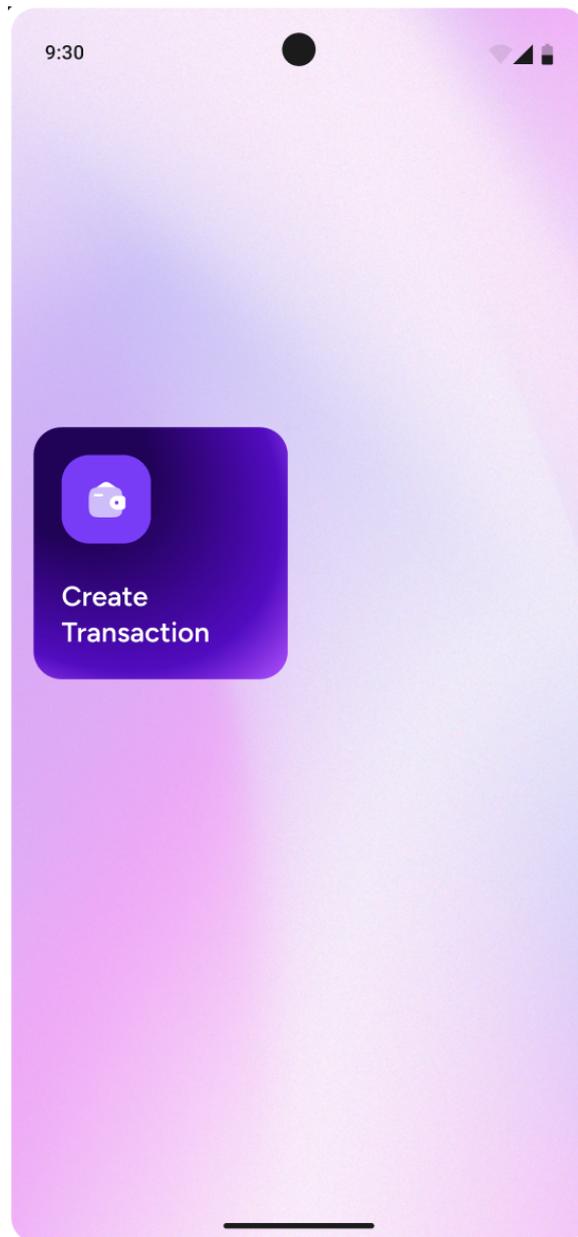 - Persist user preferences and pop screen back to *Settings Screen*
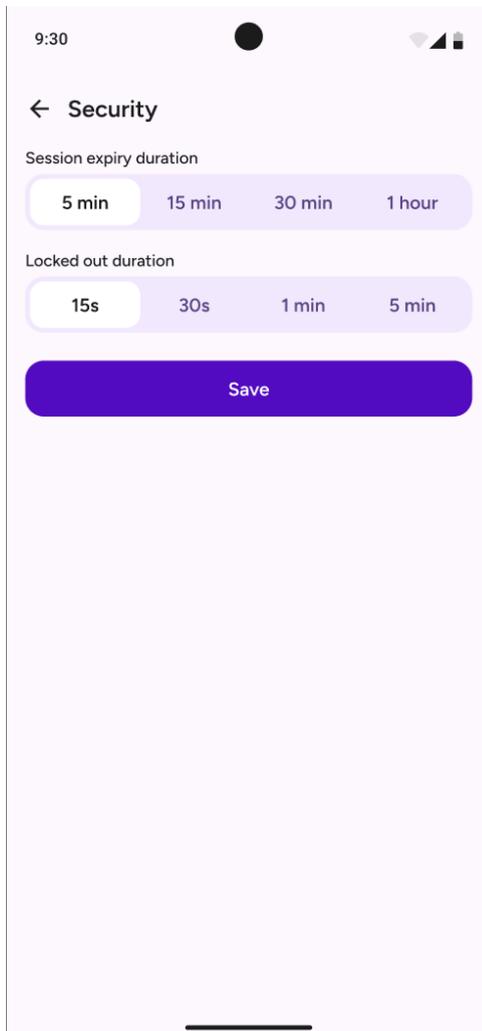
Settings Security Screen - MVP
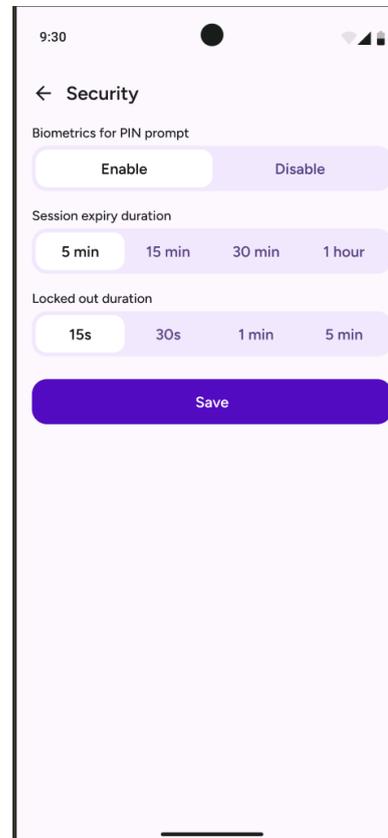
Settings Security Screen - Extended

Widget - Create Transaction

- On tap open the *New Transaction Screen*

Create Transaction Widget