Budget Bunny

Project Specifications Document

Revision History

Revision	Date	Author(s)	Description
0.1	04/10/2016	Kiefer Yap	Created the document
0.1.1	05/11/2016	Kiefer Yap	Added Add New Account Screens
0.1.2	05/29/2016	Kiefer Yap	Added View Account Screens
0.1.3	06/08/2016	Kiefer Yap	Added Edit Account Screens
0.1.4	06/10/2016	Kiefer Yap	Added Delete Account Screens
0.1.5	06/15/2016	Kiefer Yap	Added Core Data Section
0.1.6	06/17/2016	Kiefer Yap	Added Use Case Diagram Section
0.1.7	06/21/2016	Kiefer Yap	Added Design Specifications Section

Contents

1 Support Specifications

This document is empty at first, but will grow as project features are implemented. Screenshots and specific use cases will be specified during the implementation phase. The localization word list is located in the project's database dump, in the /BudgetBunny/Scripts/output/budget_bunny.sql file.

1.1 Hardware

iOS Devices: iPhone and iPad

Device Capabilities: None

1.2 Software

iOS Version: iOS 8.1 to 9.3.2

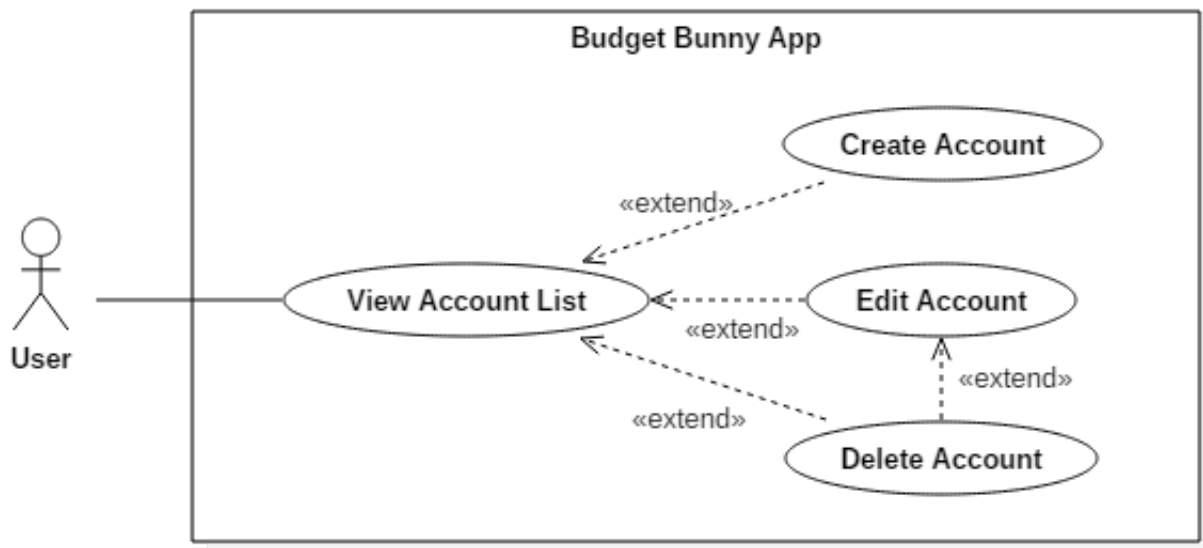**Device Orientations:** Landscape, Portrait, Landscape (Inverted)

Language Support: English, Japanese, Chinese

1.3 Development Environment

XCode Version: XCode 7.3.1

2 Use Cases

2.1 Use Case Diagram

2.2 Use Case Description

Unless otherwise stated, the primary actor for all use cases is the user of the application, which shall simply be called, "User". Note: the Usage Frequency portion is inaccurate for now. Once the usage data has been gathered and collated, the Usage Frequencies of each use case will be updated.

Use Case ID: ACC-0001

- **Title:** Create Account

- **Description:** The user creates a new account, supplying its name, currency, and initial amount. All fields are required. The user may also set the newly created account as default.

- **Precondition:** The number of accounts in the core data is not more than 20, which is the maximum number of accounts.

- **Postcondition:** The account is added into the core data.

- **Main Success Scenario:** The user enters the name in alphanumeric characters, and the initial amount in numeric characters, both within the limits of the text field's length. The user then chooses the account's currency, and taps the Done button, saving the newly created account into the core data.

- **Extensions:**
  • All fields are required. When at least one field is not filled, an error alert will appear.
  • Both the account name and the initial amount text fields have a limit in their length. When the user hits the limit and keys in a new character, the text field will not respond.
  • On a related note, when the user pastes text into the text field with a length longer than the given limit, it will not respond as well.
  • No two account names must be the same. An alert will be shown if the name already exists in the core data.

- **Usage Frequency:** N/A

Use Case ID: ACC-0002

- **Title:** View Account List

- **Description:** The user views a list of all their accounts.

- **Precondition:** There is at least one account in the core data available for viewing.

- **Postcondition:** The state and number of accounts before and after viewing stays the same.

- **Main Success Scenario:** The user is able to view all their accounts.

- **Extensions:**
  - When the user swipes a non-default account cell to the left, two buttons appear, enabling the user to either mark the account as default, or delete the account.
  - Default accounts cannot be deleted, nor can they be set as default again. When the user swipes a default account cell to the left, one button appears, enabling the user to edit the account. Ultimately, this means that there is always at least one account available for viewing.
  - All table cells can be tapped. Once tapped, the user proceeds to the Edit Account Screen.
  - If there are no accounts available for viewing, then the table will not be visible, containing a block of placeholder text in its place. This scenario is technically not possible, because upon installation of the app, placeholder accounts will be automatically created.

- **Usage Frequency:** N/A

Use Case ID: ACC-0003-1

- **Title:** Edit Account

- **Description:** The user can edit the account's name, current amount, or the currency.

- **Precondition:** There is at least one account in the core data available for editing.

- **Postcondition:** The user has updated the account that they wanted to edit.

- **Main Success Scenario:** The user edits all the fields in the account – the name, current amount, and the currency and taps save, updating the core data with the changes.

- **Extensions:**
  - If the account is not a default account, the user can set the account as default, or they can delete the account.
  - All conditions in ACC-0001 apply here. Specifically, all fields are required, all fields have a character limit, and no two account names must be the same.

- **Usage Frequency:** N/A

Use Case ID: ACC-0003-2

- **Title:** Delete Account

- **Description:** The user will delete the account, removing it from the core data.

- **Precondition:** There is at least one non-default account which is available for deletion.

- **Postcondition:** The non-default account is deleted, leaving one less account in the core data.

- **Main Success Scenario:** The delete button can be located in either the Edit Account or the View Account List. Once tapped, an alert will be displayed, warning them that the action is destructive and cannot be undone. The user then taps the delete button, confirming the deletion.

- **Extensions:** Once the confirmation alert is displayed, the user may tap the darkened area of the screen, or the cancel button to cancel the deletion.

- **Usage Frequency:** N/A

3 Database Schema

3.1 Core Data Diagram
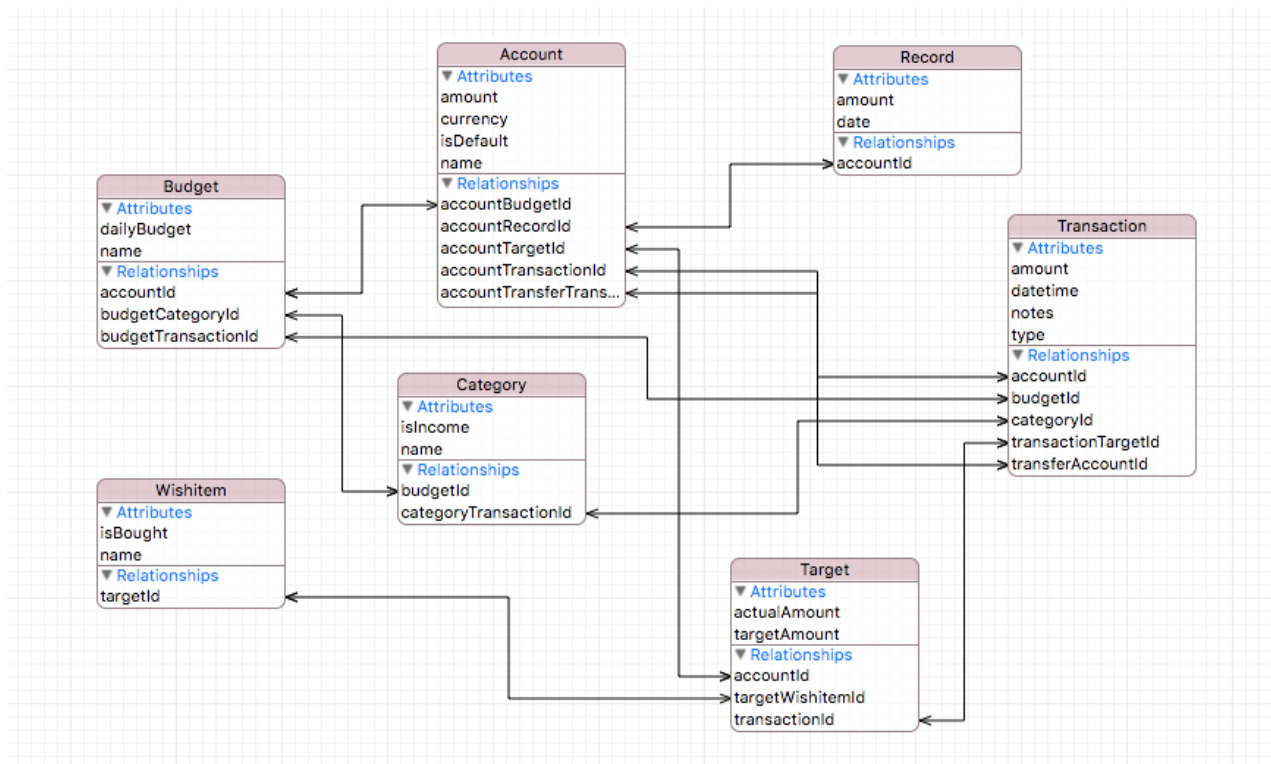
3.2 Model Attributes

3.2.1 Account

- **amount** (*double*): Contains the current amount present in the account.
- **currency** (*string*): Contains the country identifier for the currency used in the account.
- **isDefault** (*boolean*): If this value is true, then the account is the default account to use for everyday transactions.
- **name** (*string*): The name of the account.

3.3 Model Relationships

3.3.1 Account

- **accountBudgetId** (*links with the Budget table*): Description to follow once implemented.
- **accountRecordId** (*links with the Record table*): Description to follow once implemented.
- **accountTargetId** (*links with the Target table*): Description to follow once implemented.
- **accountTransactionId** (*links with the Transaction table*): Description to follow once implemented.
- **accountTransferTransactionId** (*links with the Transaction table*): Description to follow once implemented.

4 Application Screens

4.1 Adding a New Account

The Add New Account screen enables users to add a new account by specifying the account's name, currency used and starting balance. The user can also specify whether or not to use this account as the default account to use for everyday transactions.
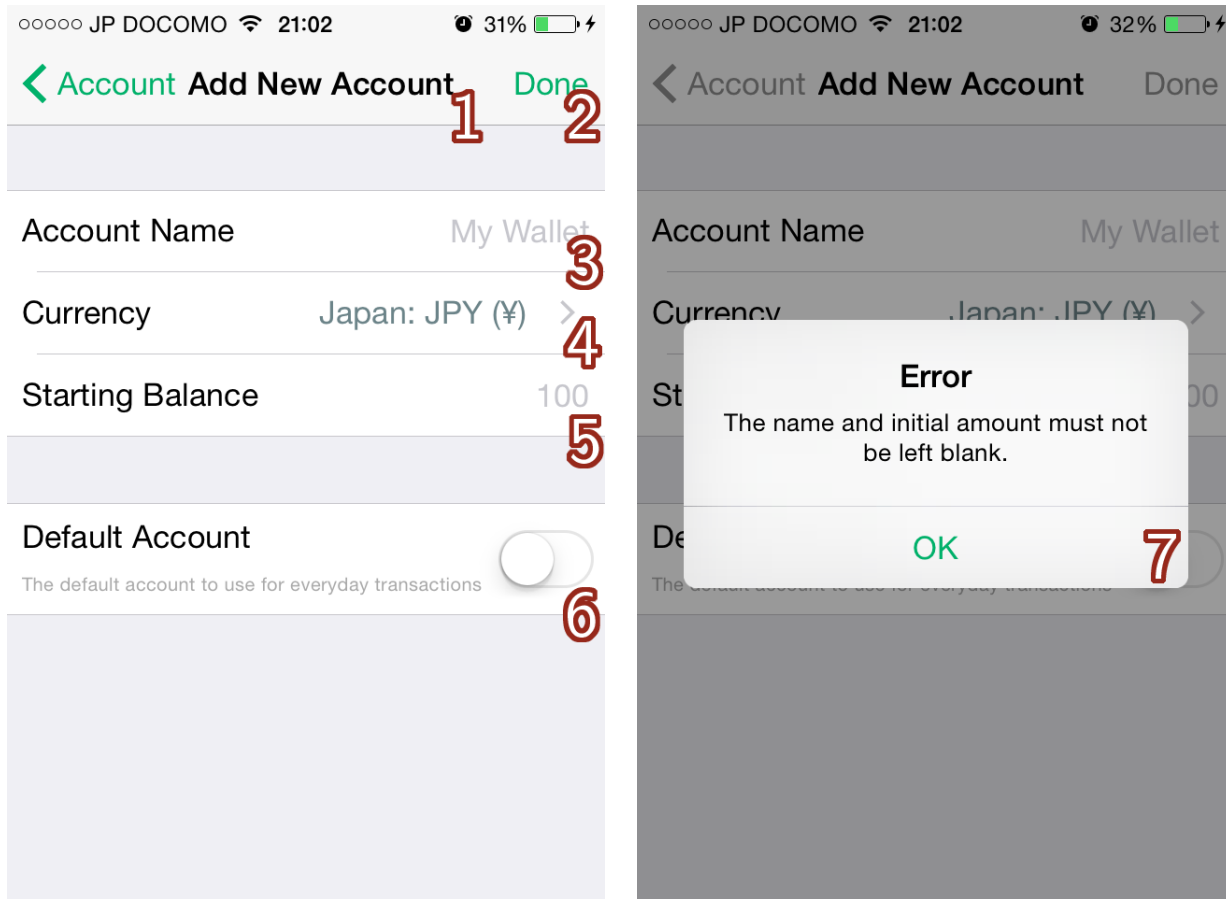
4.1.1 Application Screenshots

(a) Add New Account Screen   (b) Error Scenario

Figure 1: Add New Account Screenshots

Screen Component	Type	Description
1. Screen Title	Label Title	Localization Key: MENULABEL_ADD_ACCOUNT
2. Done Button	Button	When tapped, the app performs form validation and saves all the account information – the account name, currency, starting balance, and whether or not to use the account as default – into the database. For more details on the form validation, please see the Error Scenarios section. Localization Key: BUTTON_DONE
3. Account Name Cell	Table Cell	This table cell consists of two UI elements: A label and a textfield. Tap anywhere in the cell and the textfield will be placed in focus, bringing up a QWERTY keyboard. Tap anywhere outside the cell to dismiss the keyboard. The textfield has a character limit of 25 characters. Localization Keys: LABEL_NAME, TEXTFIELD_NAME_PLACEHOLDER
4. Currency Cell	Table Cell	This table cell consists of two UI Label elements. When this table cell is tapped, the cell will be briefly filled with a light green background, then fade out as the screen transitions to the Currency Selection screen. The default currency depends on the user's device locale. Localization Key: LABEL_CURRENCY

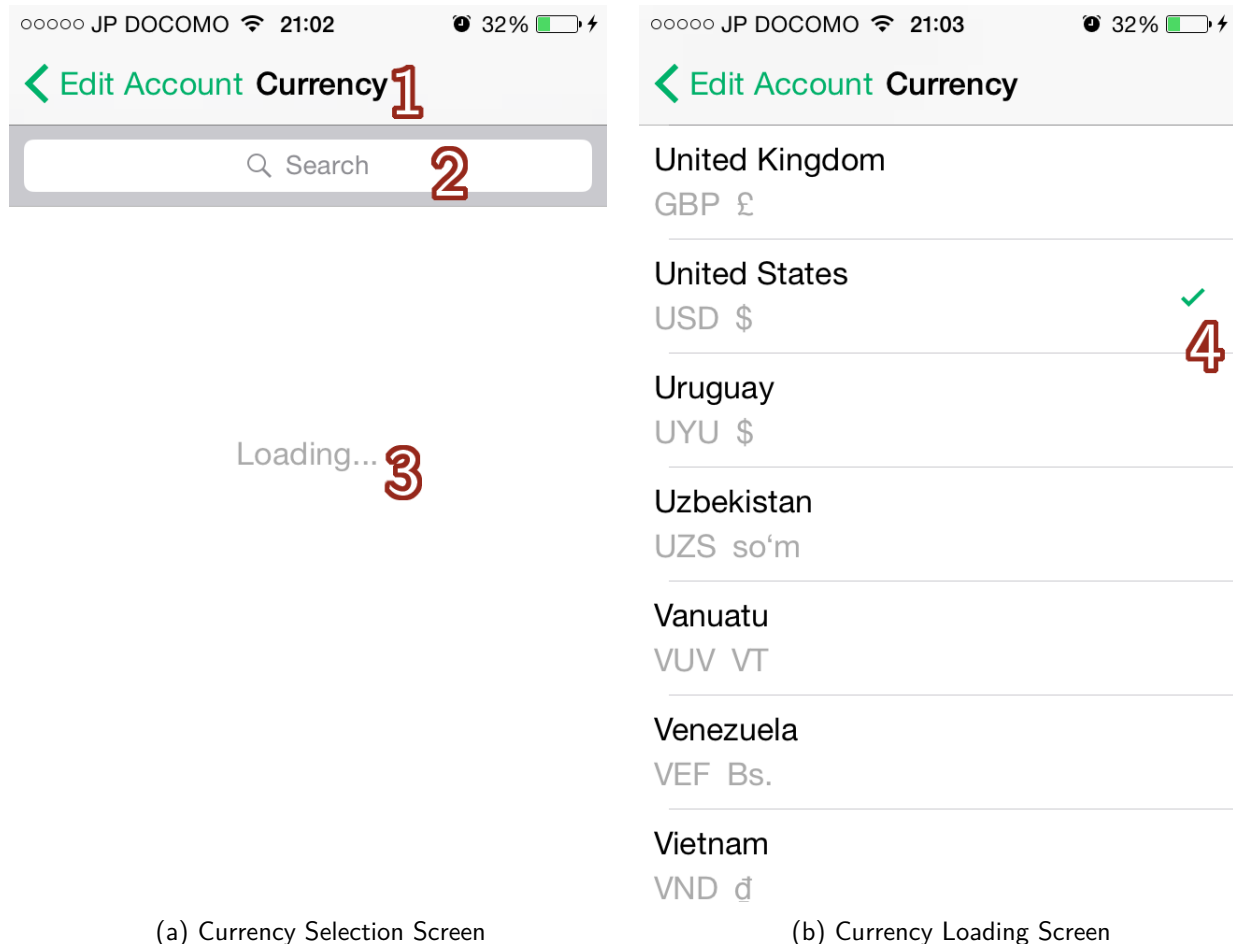| Screen Component	Type	Description
5. Starting Balance Cell	Table Cell	This table cell consists of two UI elements: A label and a textfield. Tap anywhere in the cell and the textfield will be placed in focus, bringing up a keyboard that is numeric with a decimal point. Tap anywhere outside the cell to dismiss the keyboard. The textfield has a character limit of 15 characters. Localization Keys: LABEL_STARTING_BALANCE, TEXTFIELD_STARTING_BALANCE_ PLACEHOLDER
6. Default Account Cell	Table Cell	This table cell consists of three UI elements: two labels and a switch. The switch is turned off by default. Tap anywhere in the cell and the switch will be toggled. There can only be one default account at any time. Localization Keys: LABEL_IS_DEFAULT_ACCOUNT, LABEL_IS_DEFAULT_ACCOUNT_ DESCRIPTION
7. Error Alert	Alert Controller	This alert controller has two labels. The alert is displayed when either the account name or the initial amount has not been filled, and the user taps "Done". Localization Keys: ERRORLABEL_ERROR_TITLE, ERRORLABEL_NAME_CURRENCY_ NOT_EMPTY

4.1.2 Error Scenarios

Title	Description
Duplicate Account Name	This error is triggered when the Done button is pressed and a similar account name already exists in the Core Data. Localization Key: ERRORLABEL_ DUPLICATE_ACCOUNT_NAME
Required Fields Unfilled	This error is triggered when the Done button is pressed and the account name or the amount has not been filled. Localization Key: ERRORLABEL_NAME_CURRENCY_ NOT_EMPTY
Multiple Decimals	This check confirms that decimals can only be inputted once. It only exists in textfields that have numeric input. If a decimal is in the input, and the user keys in another decimal point, the textfield will not respond. There will be no error alert displayed. If the user pastes text that has two decimal points, then the textfield will not respond as well. Once again, there will be no error alert displayed.
Maximum Length	This check confirms that the length of the input text is less than or equal to a given number. It is present in all textfields. Once the maximum length is reached, the user will no longer be able to input any new character. No error alert is displayed. If the user pastes text that is longer than the maximum length, it will fail to paste and no error alert is displayed.

4.2 Currency Selection

The currency selection screen enables users to search and select a currency to use for their new account. The user can search for the country's name, the currency name, or the currency symbol through the search bar. Once the user is satisfied with their selection, they can tap the Back button to return to the Add New Account screen, where they will see their newly selected currency in the Currency Cell (Item #4 of the Application Screenshots section).

4.2.1 Application Screenshots

(a) Currency Selection Screen   (b) Currency Loading Screen

Figure 2: Currency Selection Screenshots

Screen Component	Type	Description
1. Screen Title	Label Title	Localization Key: MENULABEL_CURRENCY_PICKER
2. Search Field	Search Bar	When tapped, a QWERTY keyboard is displayed, and the search textfield is given focus. At the same time, the width of the textfield shortens, giving way to the Cancel button which, when tapped, dismisses the keyboard and returns it to the state shown in the screenshot. Note that because the search bar is placed at the header of the table, it will move together as the user scrolls and it is not fixed on the top of the screen.
3. Loading Screen	Label	This label is displayed while the currency data is being loaded. While loading, the user cannot scroll. Localization Key: GUIDELABEL_LOADING
4. Currency Selection Cell	Table Cell	This table cell consists of three UI labels showing the currency's country, code, and symbol. Tap anywhere in the cell and a checkmark will appear on its right side, indicating that a type of currency has been selected.

4.3 Account List Display

The Account List screen displays the name and the current amount of the accounts that the user has added. It also displays a flag indicating whether or not an account has been marked as default.

It allows the user to delete an account, or set it as default by swiping the list item left. When an account item is tapped, the user is taken to a screen where the account details can be viewed and edited. Note that an account marked as default cannot be deleted, so when swiping left, the only available option is "Edit", which has the same functionality as tapping the account list item.

4.3.1 Application Screenshots
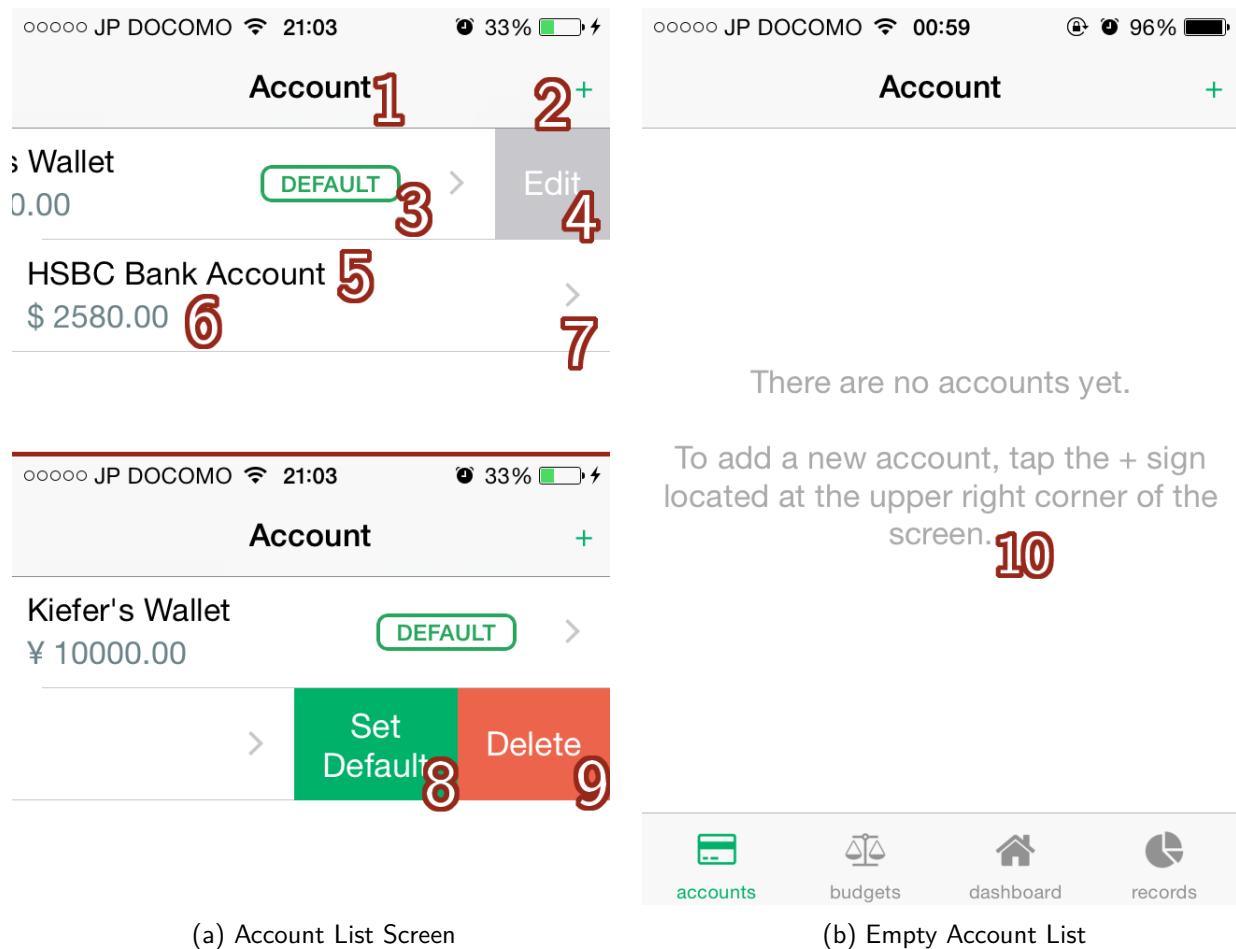
(a) Account List Screen   (b) Empty Account List

Figure 3: Account List Screenshots

Screen Component	Type	Description
1. Screen Title	Label Title	Localization Key: MENULABEL_ACCOUNT
2. Add Button	Button	When tapped, the screen transitions to the Add Account Screen (See section: Adding a New Account) if the number of accounts is less than 20. However, if the number of accounts has reached 20, it will display an error. (See section: Error Scenarios)
3. Default Icon	View Element	An indicator showing whether or not an account is marked as default. There can only be one default account at any one time. Localization Key: LABEL_DEFAULT
4. Edit Button	Table Cell Button	This button is displayed when the swiped cell is not a default account. When tapped, the screen transitions to the Edit Account Screen (See section: Editing an Existing Account) Localization Key: BUTTON_EDIT
5. Account Name Label	Label	A label that displays the name of the account.
6. Amount Label	Label	A label that displays the account's currency and the amount.
7. Chevron Icon	Table cell icon	Indicates that when the entire cell can be tapped. When tapped, the screen transitions to the Edit Account Screen (See section: Editing an Existing Account)

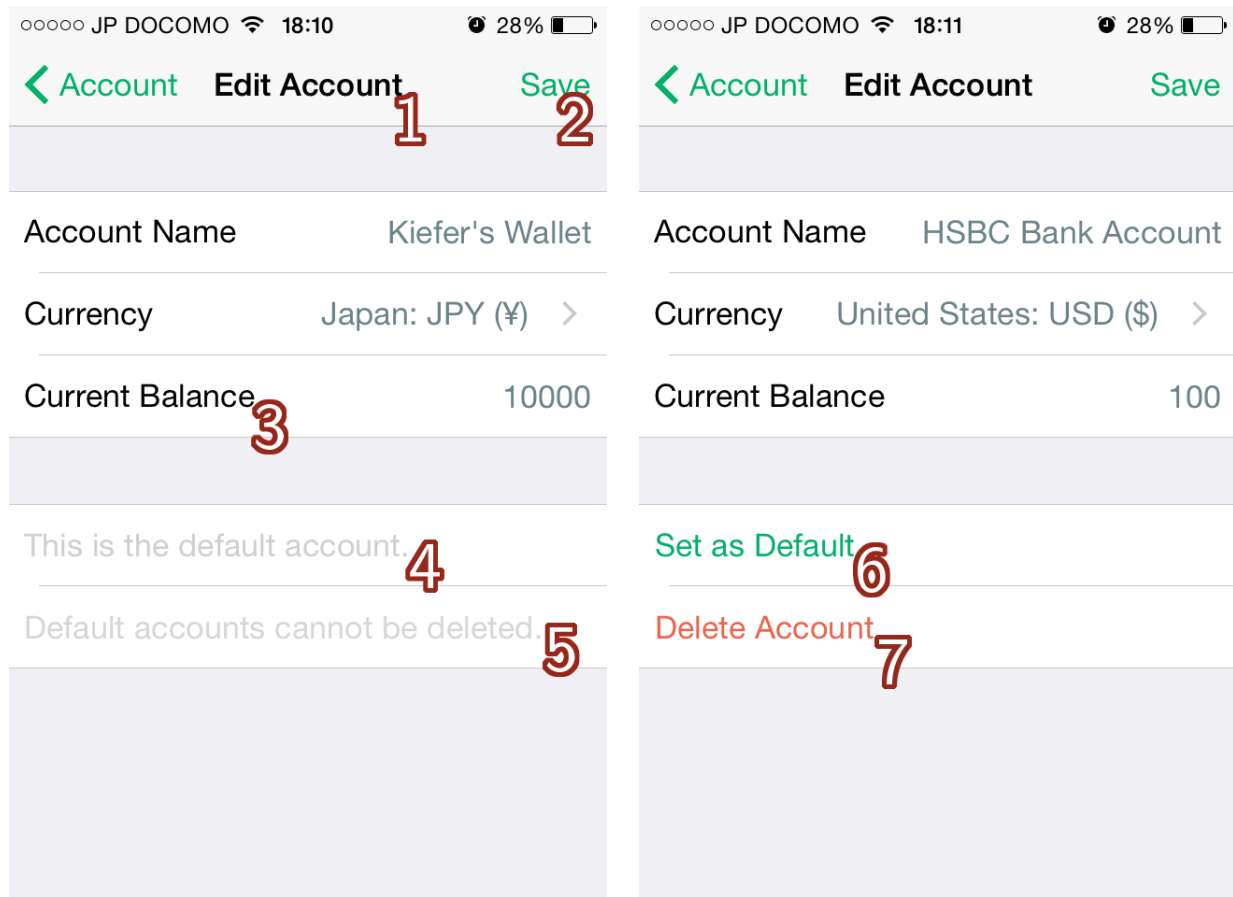| Screen Component	Type	Description
8. Set Default Button	Table Cell Button	This button is displayed when the swiped cell is as default account. When tapped, the cell will slide back and will be marked as default. The previously default cell will slide too, indicating that it was updated and unmarked. Localization Key: BUTTON_SET_DEFAULT
9. Delete Button	Table Cell Button	When tapped, the account is deleted and the cell slides away to disappear. Localization Key: BUTTON_DELETE
10. No Accounts Guide	Label	This label is displayed when there are no accounts present. This scenario theoretically should not happen under normal circumstances, as there is no way for the user to delete an account marked as default, and when the app is freshly installed, there will be one account available, and it is marked as default. Localization Key: GUIDELABEL_NO_ACCOUNTS

4.3.2 Error Scenarios

Title	Description
Maximum Number of Accounts Reached	This error is triggered when the Add a New Account button is pressed the number of accounts present in the core data has reached 20. Localization Key: ERRORLABEL_ TOO_MANY_ACCOUNTS

4.4 Editing an Existing Account

The Edit Account screen enables users to edit existing accounts that were previously added. Its layout is and functionality is similar to the Add Account screen, but users can now set an existing account as default, or delete an account through this screen. Note that accounts that have been marked as default cannot be deleted or set as default once again.

4.4.1 Application Screenshots

(a) Editing a Default Account   (b) Editing a Non-Default Account
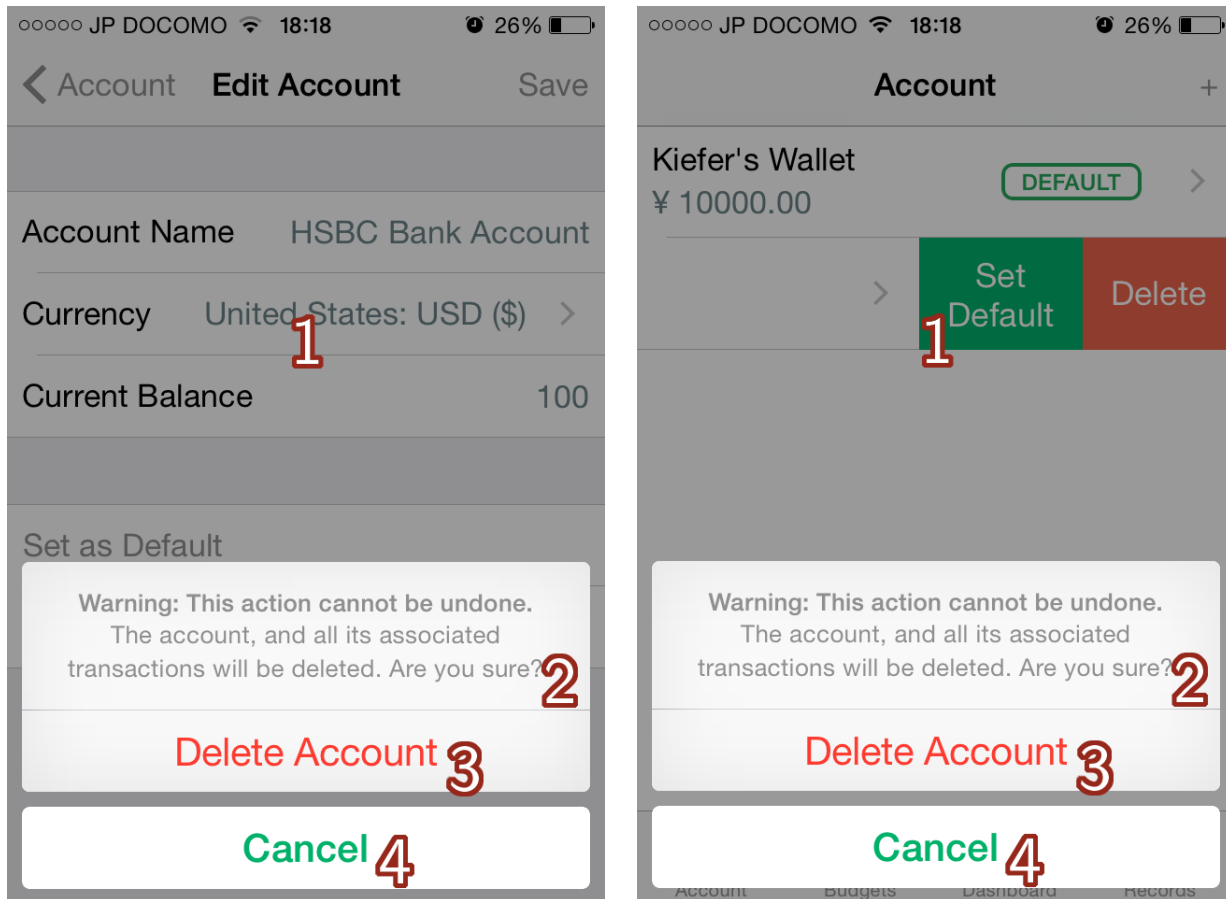
Figure 4: Edit Account Screenshots

Screen Component	Type	Description
1. Screen Title	Label Title	Localization Key: MENULABEL_EDIT_ACCOUNT
2. Save Button	Button	This button has the same functionality as the Done Button (See section: Application Screenshots, Item #2), but it updates the core data instead of adding a new entry. Localization Key: BUTTON_SAVE
3. Current Balance Cell	Table Cell	This cell functions is similar to the Initial Balance cell in the Application Screenshots section, but it has its localization key changed. Localization Keys: LABEL_CURRENT_BALANCE
4. Disabled Default Account Button	Button	This button cannot be tapped, and it informs the user that the current account is marked as default. Localization Key: BUTTON_SET_AS _ACCOUNT_DISABLED
5. Disabled Delete Account Button	Button	This button cannot be tapped, and it informs the user that it is not possible to delete default accounts. Localization Key: BUTTON_DELETE _ACCOUNT_DISABLED

Screen Component	Type	Description
6. Set as Default Button	Button	Once this button is tapped, it will mark the account as default, and will be disabled, turning into a state seen in the fourth item of this screen. Localization Key: BUTTON_SET_AS_DEFAULT
7. Delete Button	Button	Once this button is tapped, it will display a warning, telling the user that the action cannot be undone, as seen in the Deleting an Existing Account section. Localization Key: BUTTON_DELETE_ACCOUNT

4.5 Deleting an Existing Account

This screen consists of a confirmation alert dialog, activated whenever an account is about to be deleted. Deleting an account will delete all transactions related to the account, and it is an action that cannot be undone. Hence, this alert dialog exists to confirm the action.

4.5.1 Application Screenshots

(a) Deleting from Edit Account   (b) Deleting from the Account Display

Figure 5: Account Deletion Screenshots

Screen Component	Type	Description
1. Cancellation Area	Darkened Area	Tap anywhere within the darkened area, and the alert controller will be dismissed.
2. Deletion Message	Alert Controller	This alert controller is in the style of an action sheet. It displays the title and the message of the alert. Localization Keys: LABEL_WARNING_ DELETE_ACCOUNT_TITLE, LABEL_ WARNING_DELETE_ACCOUNT_ MESSAGE
3. Delete Alert Action	Alert Action	Once tapped, this button will delete the selected account and its associated transactions from the core data. Localization Key: BUTTON_DELETE_ACCOUNT
4. Cancel Alert Action	Alert Action	Once tapped, the alert controller will be dismissed. Localization Key: BUTTON_CANCEL

5 Design Specifications
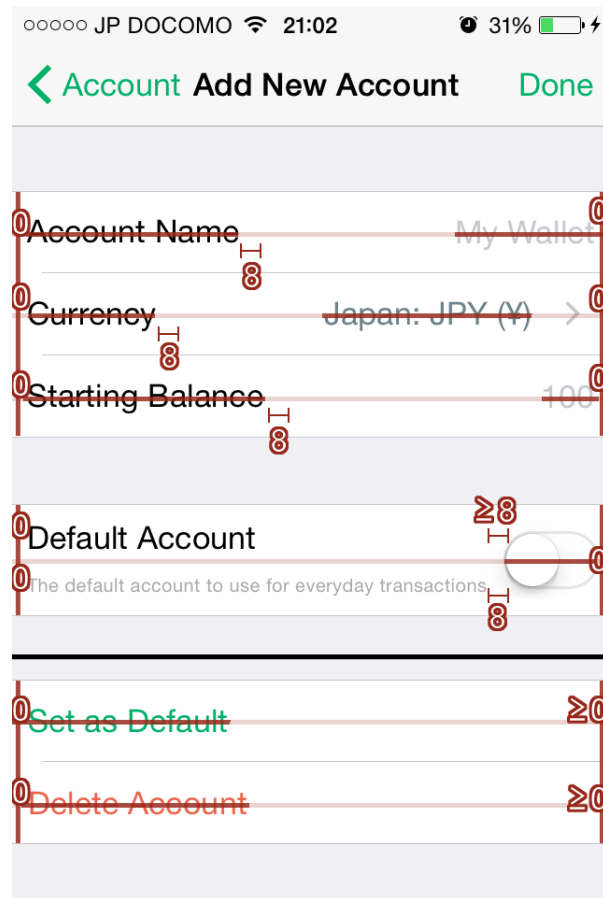
This section contains information regarding visual properties of certain UI elements. Examples of visual properties include height, width, and relative distance to another UI element. The UI elements highlighted in this section may range from text fields, to labels, or to switches and progress bars.

Note that a light maroon line crossing right through the center of a parent UI element (e.g.: The Account Name table cell) indicates that it is divided into two equal portions. A darkened maroon line through a sub-element (e.g.: "Account Name" UI Label, "My Wallet" text field) indicates that it contains the property of being situated in the middle of the parent element.

Note that a vertical or horizontal line leaning against the inner wall of a parent element indicates the distance between the sub-element to the parent element's walls. For example, in the figure above, it can be seen that the "Account Name" UI Label leans against the wall of its table cell at a distance of zero points.

If an element does not have any measurement displayed, this indicates that the element's properties was determined by the operating system. Examples of these include the check mark seen in the currency selection screen, or the title and buttons in the navigation bar.

5.1 Add and Edit Account Screen

○○○○○ JP DOCOMO 📶 21:02   ⏰ 31% 🔋▸⚡

❮ Account **Add New Account**   Done

Account Name   My Wallet

Currency   Japan: JPY (¥) **>**

Starting Balance   100
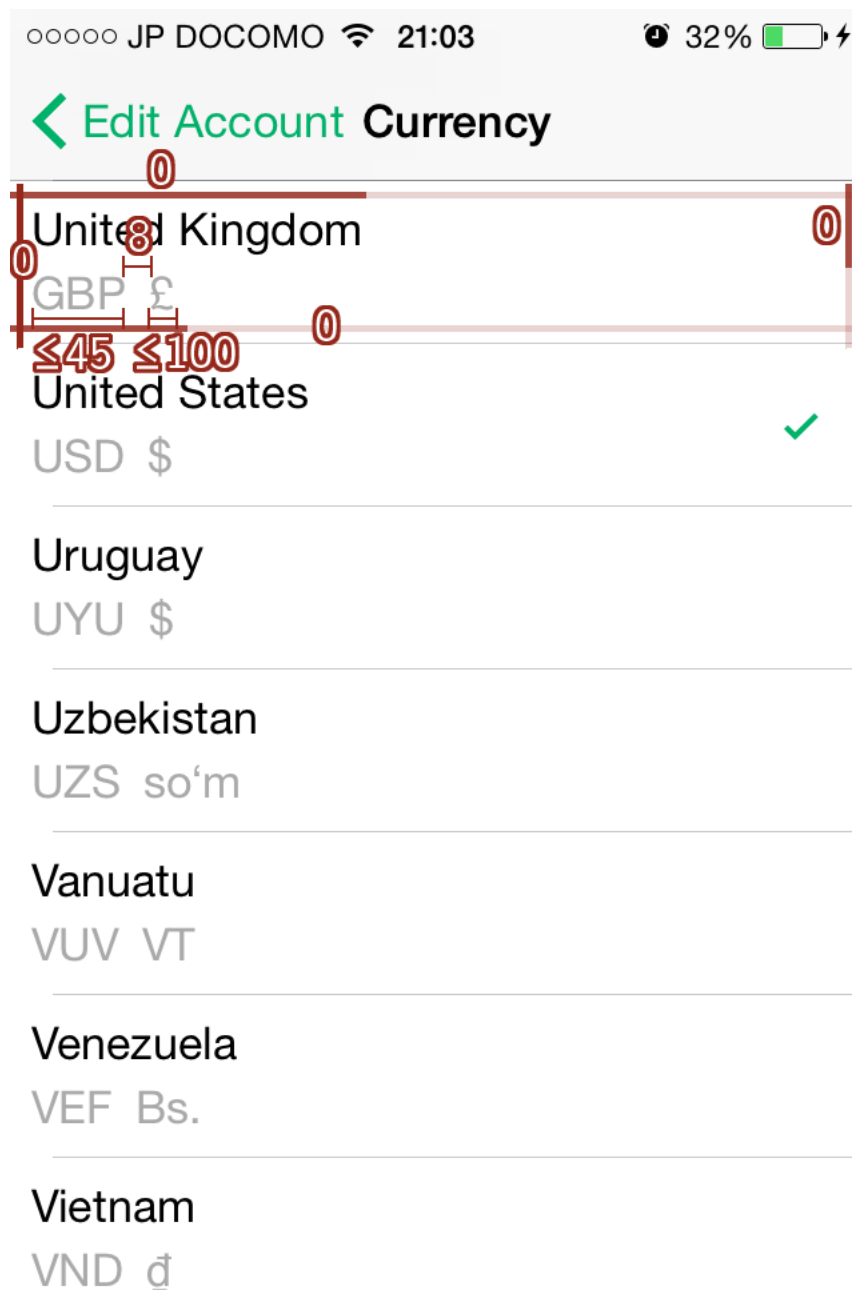
Default Account   ◯

The default account to use for everyday transactions

Set as Default

Delete Account

5.2 Currency Selection Screen

○○○○○ JP DOCOMO 📶 21:03 ⏰ 32% 🔋 ⚡

‹ Edit Account Currency

United Kingdom

GBP £

United States ✓

USD $

Uruguay

UYU $

Uzbekistan

UZS so'm

Vanuatu

VUV VT

Venezuela

VEF Bs.

Vietnam

VND đ

5.3 Account List Display Screen