

Detailed System Design

Inventory Management System

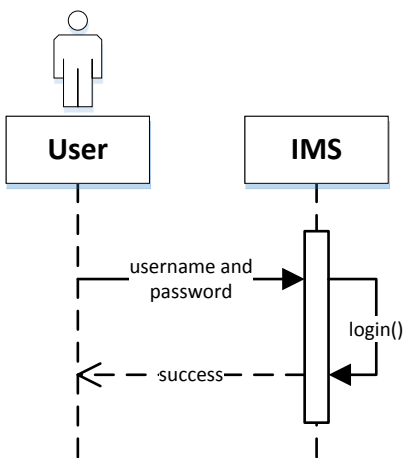
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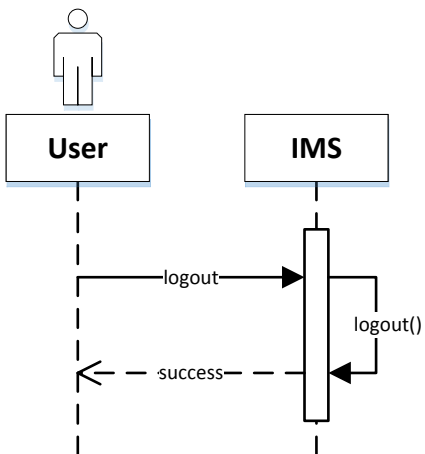
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Sequence Diagrams

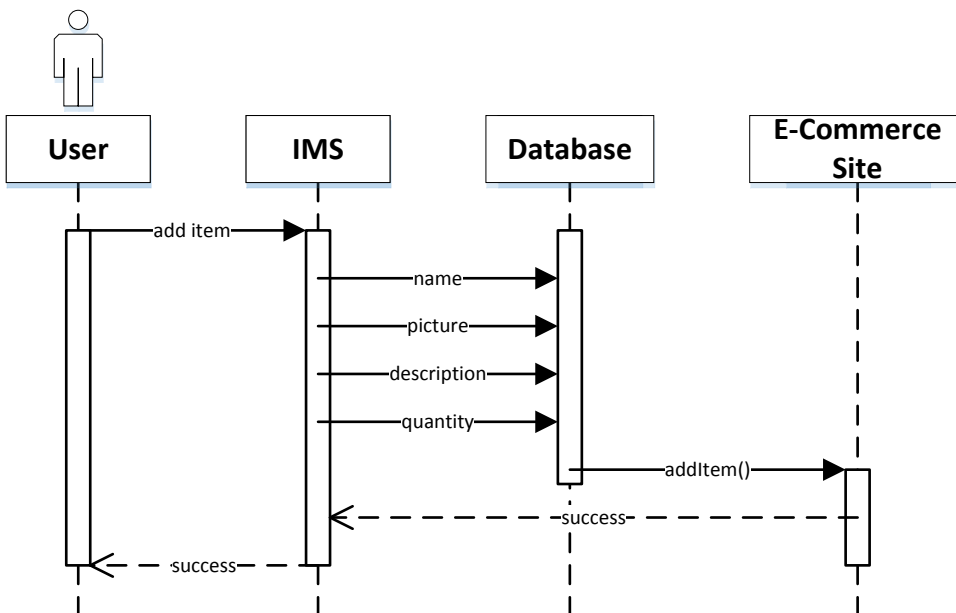
Login



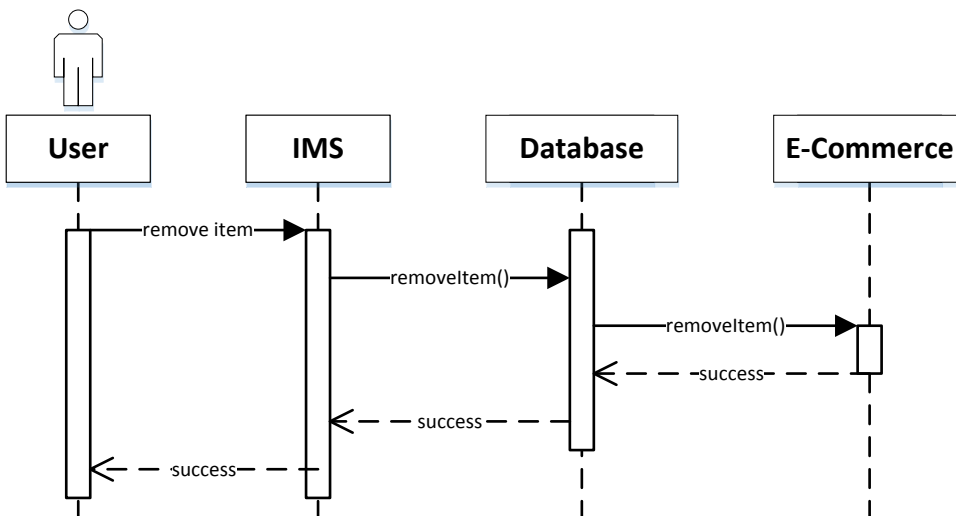
Logout



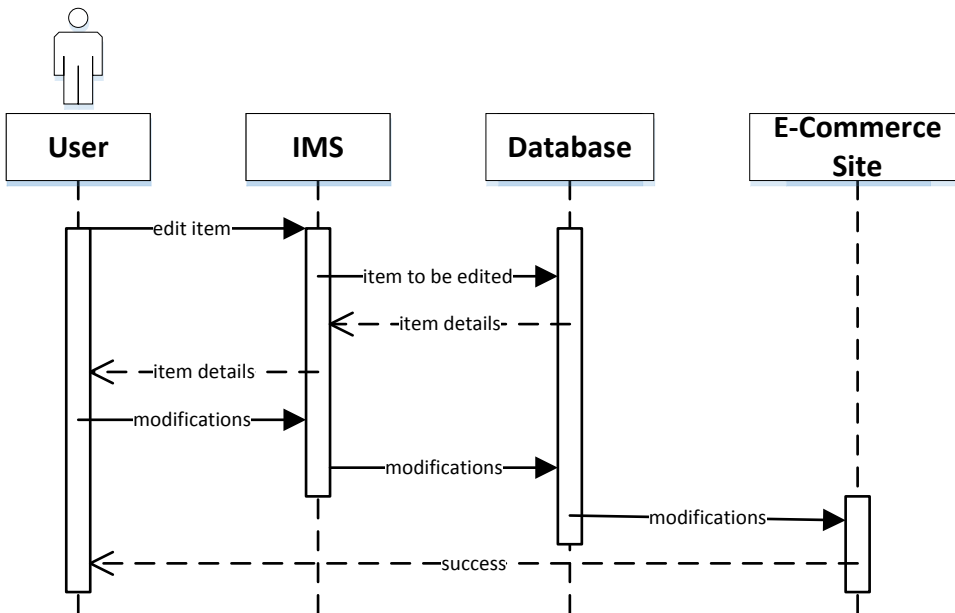
Add Item



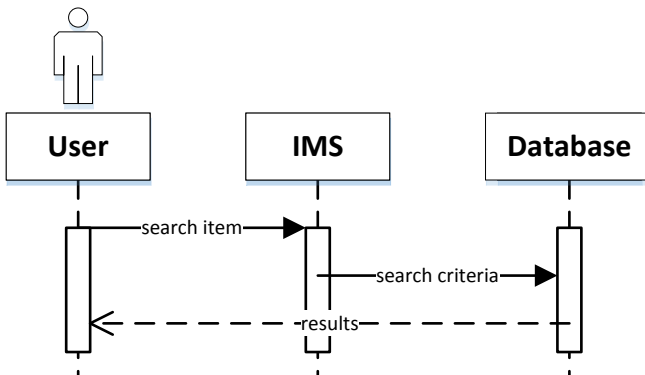
Remove Item



Edit Item



Search Item



Software Specification to the Function Level

Login

Name of Function: Login

Description: Validates that the username is valid and the password provided is correct for that username.

Inputs: Username and password

Source of Input: User

Outputs: Confirmation

Destination of Output: Screen

Processing: When the user initiates the function, the system will validate with the active profiles in the management system to approve the request.

Requirements: Account exists

Precondition: Username and password is valid and user is not already logged in.

Postcondition: User is logged in.

Side effects: Invalid login counter incremented upon failure.

Responses to Abnormal Behavior: Error messages displayed: "Invalid username/password combination"

Necessity: Required

Logout

Name of Function: Logout

Description: Logs the user out of the system.

Inputs: Pressing logout button

Source of Input: User

Outputs: Confirmation

Destination of Output: Screen

Processing: When the user initiates the function, the system will close out the user's session on the management system

Requirements: None

Precondition: User is logged in

Postcondition: User is logged out

Side effects: None

Responses to Abnormal Behavior: Error messages displayed: "No user is currently logged in."

Necessity: Required

Add Item

Name of Function: AddItem

Description: Adds an item to the database

Inputs: Item details

Source of Input: User

Outputs: Confirmation of success

Destination of Output: User

Processing: When the user initiates the function, the system will create a new object in the database for the item with the appropriate fields.

Requirements: None

Precondition: Valid fields and tags for the item

Postcondition: Item is added to the database

Side effects: None

Responses to Abnormal Behavior: Error messages displayed describing specific reason, e.g. "Invalid fields provided", "Item already exists".

Necessity: Required

Remove Item

Name of Function: RemoveItem

Description: Allows user to remove an item from the database

Inputs: Item name

Source of Input: User

Outputs: Confirmation of success

Destination of Output: User

Processing: System queries the database for the specific item and removes it from the database

Requirements: Database is running

Precondition: Item exists

Postcondition: Item is removed

Side effects: None

Responses to Abnormal Behavior: Error messages displayed: "Item does not exist"

Necessity: Required

Edit Item

Name of Function: EditItem

Description: Changes the field values of an item in the database

Inputs: Item to be modified, fields to be modified

Source of Input: User

Outputs: Confirmation of success

Destination of Output: User

Processing: The system checks the database for the existence of the item and then makes modifications to its fields as necessary.

Requirements: Database is running

Precondition: Item exists and has the appropriate fields

Postcondition: Item fields are modified

Side effects: None

Responses to Abnormal Behavior: Error messages displayed: "Item does not exist"

Necessity: Required

Search Item

Name of Function: SearchItem

Description: Searches the database for a specific item and returns all of the information stored about it.

Inputs: Item name

Source of Input: User

Outputs: Item details

Destination of Output: Screen

Processing: The system searches the database for an item and then requests all information that the database has pertaining to the item

Requirements: Database is running

Precondition: Item exists

Postcondition: Item fields are shown to the user

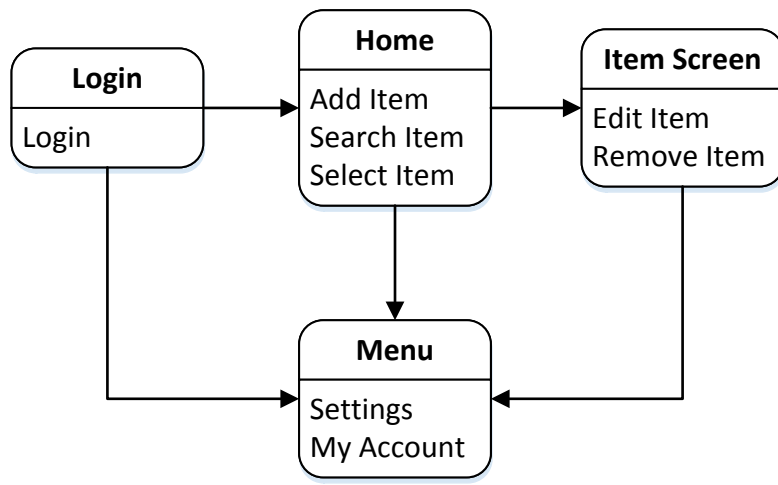
Side effects: None

Responses to Abnormal Behavior: Error messages displayed: "Item does not exist"

Necessity: Required

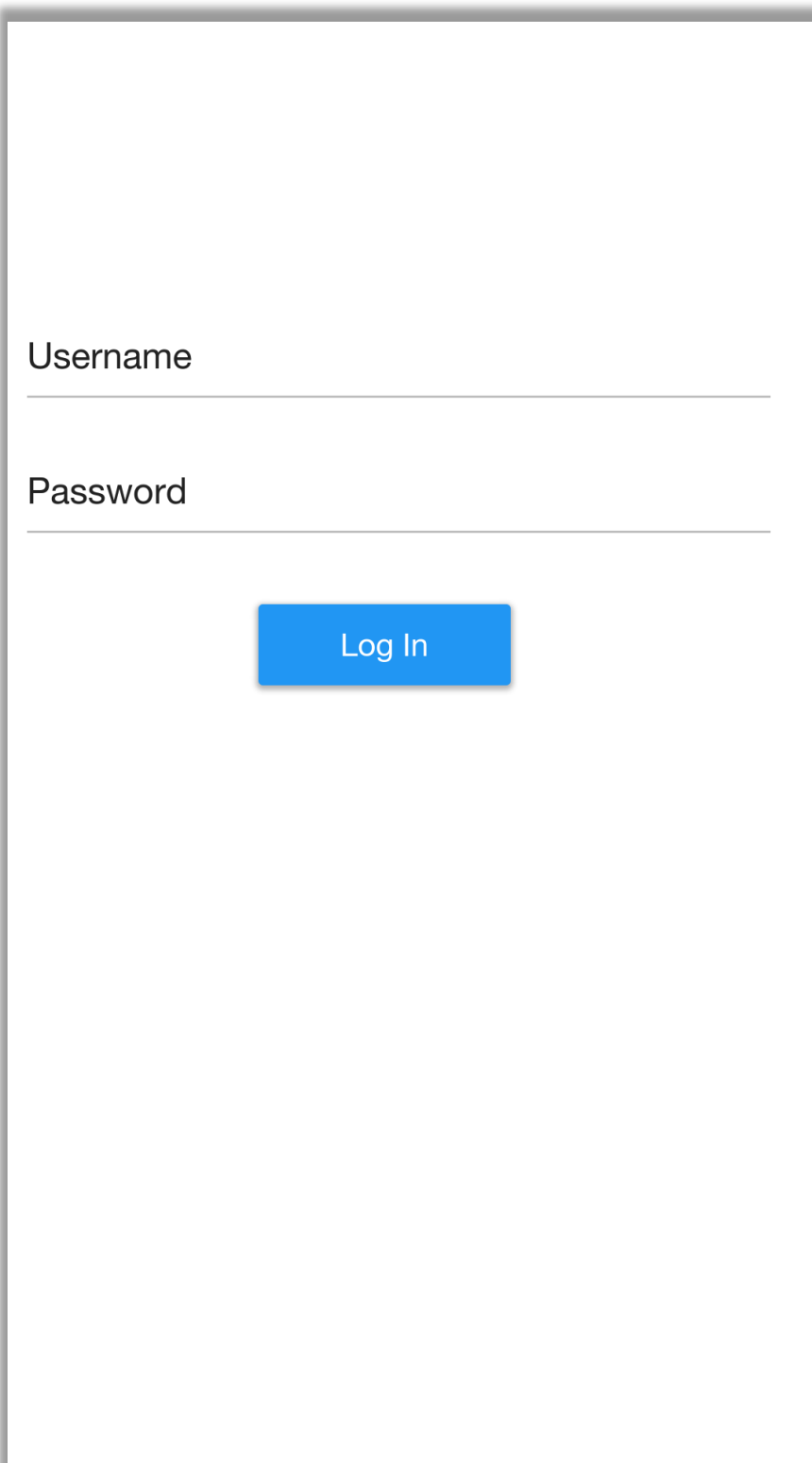
User Interface

Specification



Mockups

Login Screen



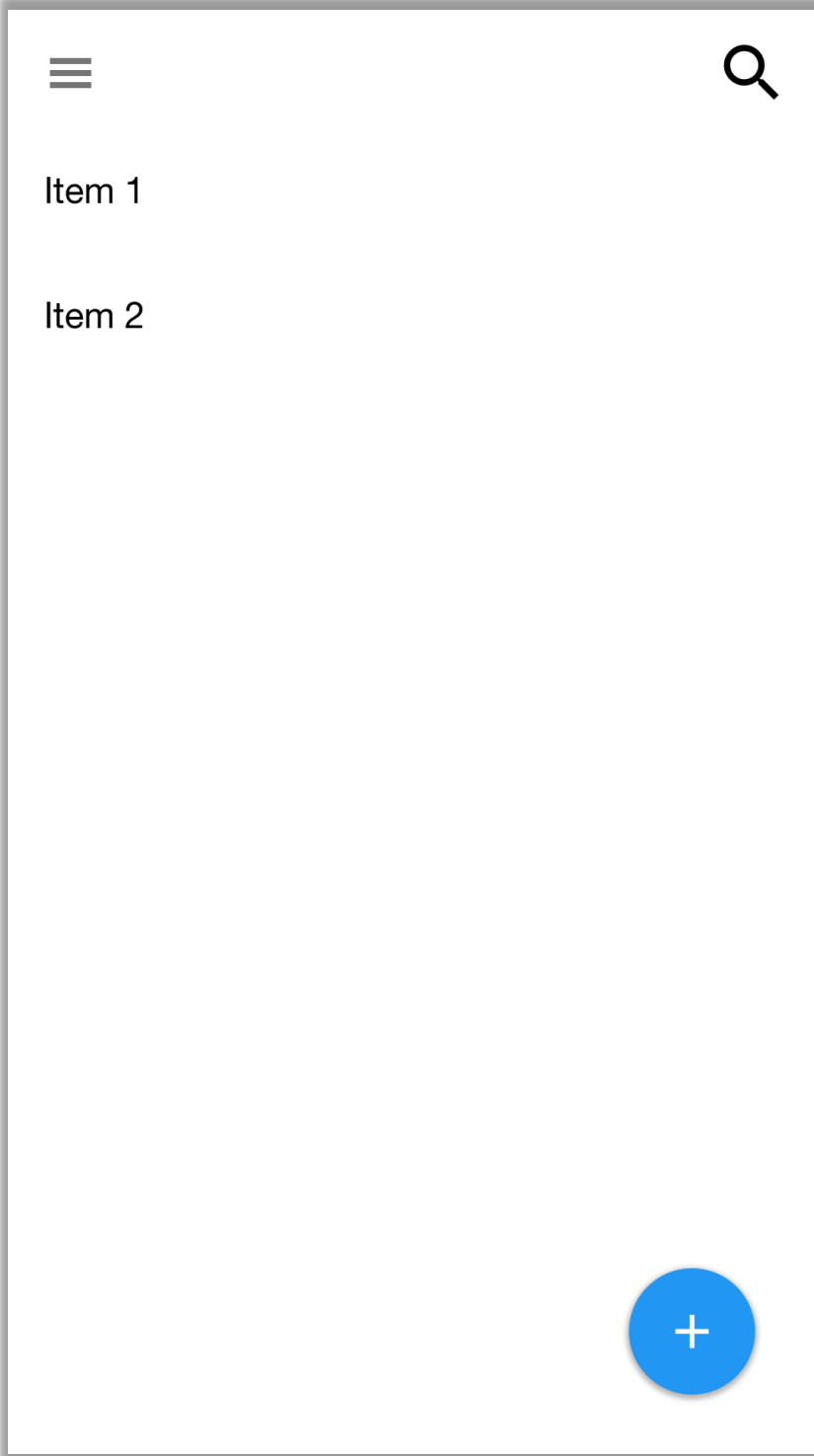
A mockup of a login screen. It features a white background with a thin gray border. The screen contains two input fields: one for 'Username' and one for 'Password', both with light gray labels and horizontal lines. Below the password field is a blue 'Log In' button with white text.

Username

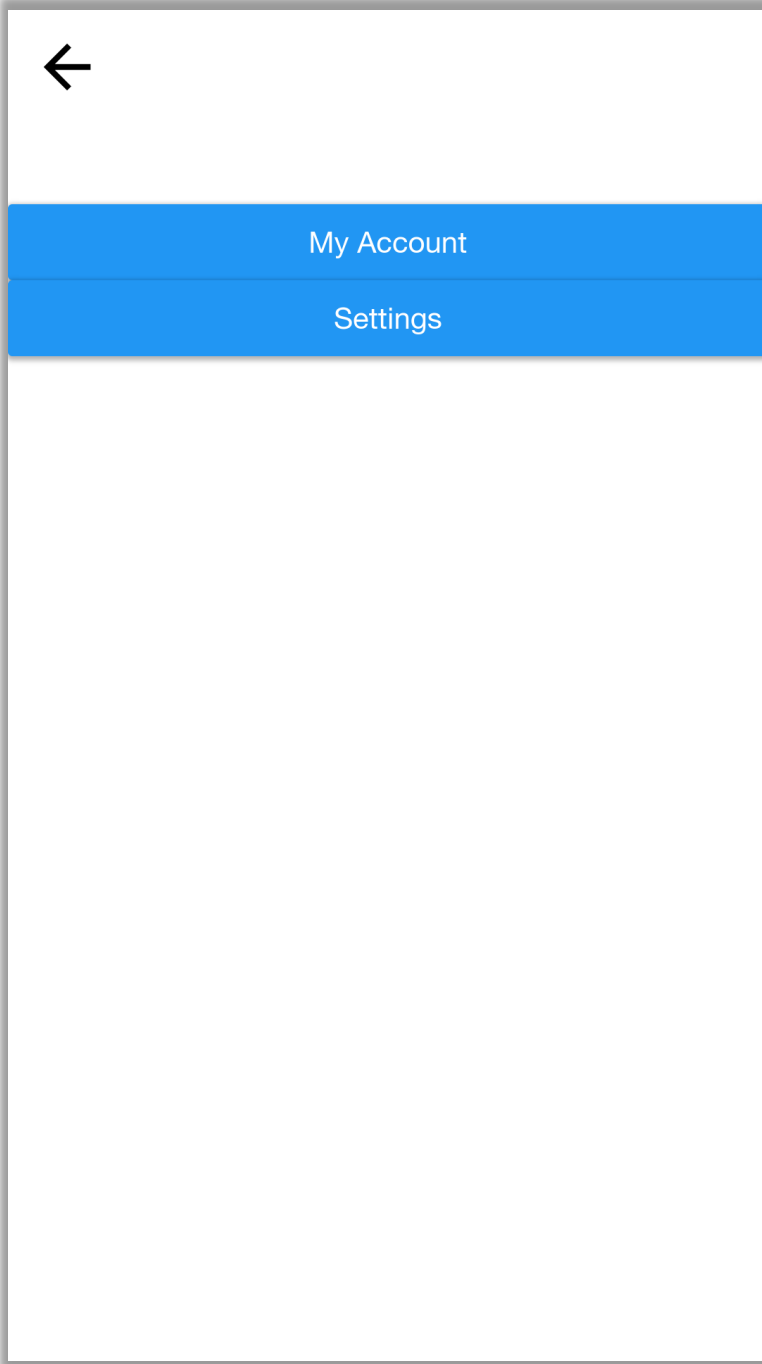
Password

Log In

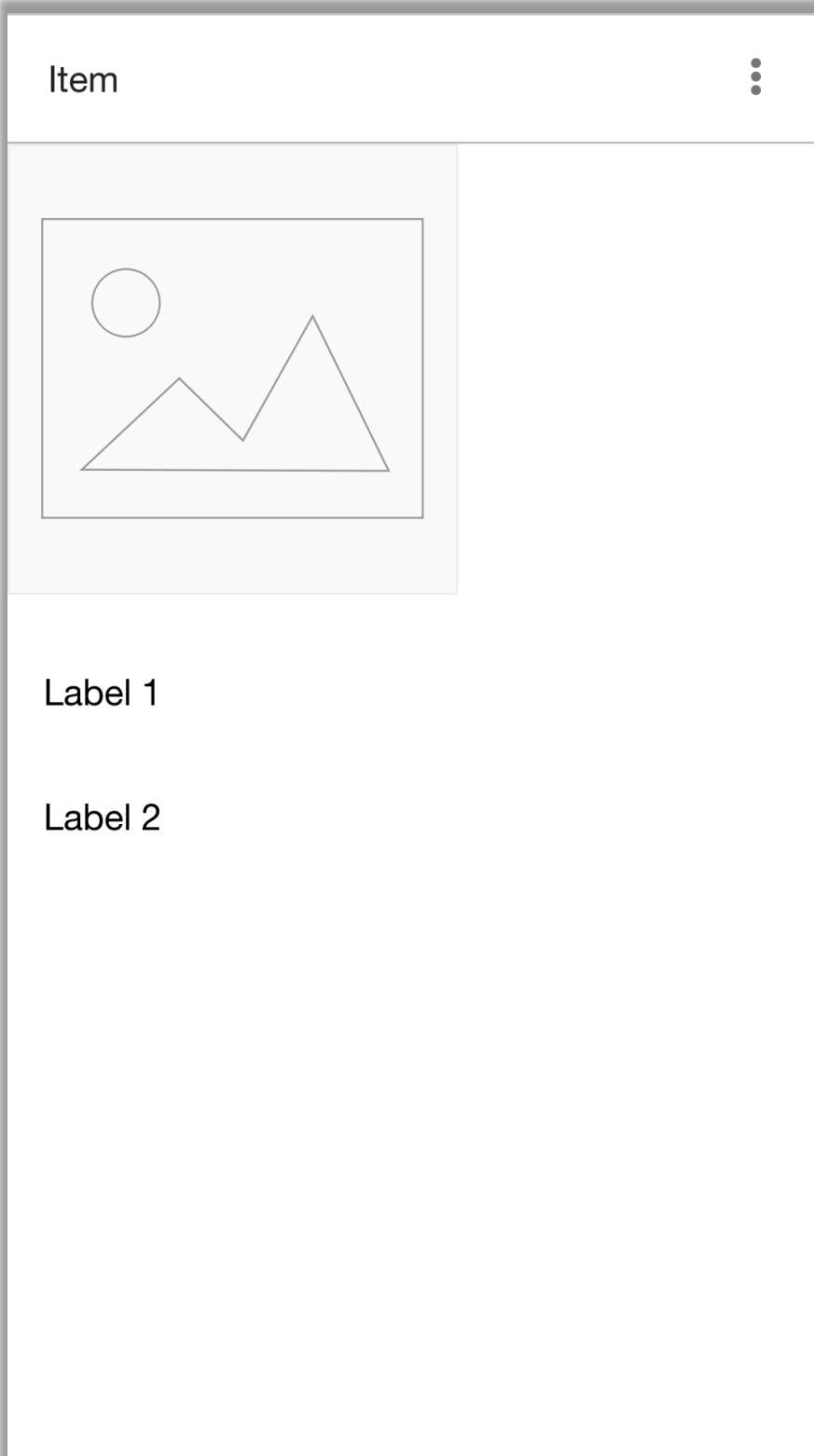
Home Screen



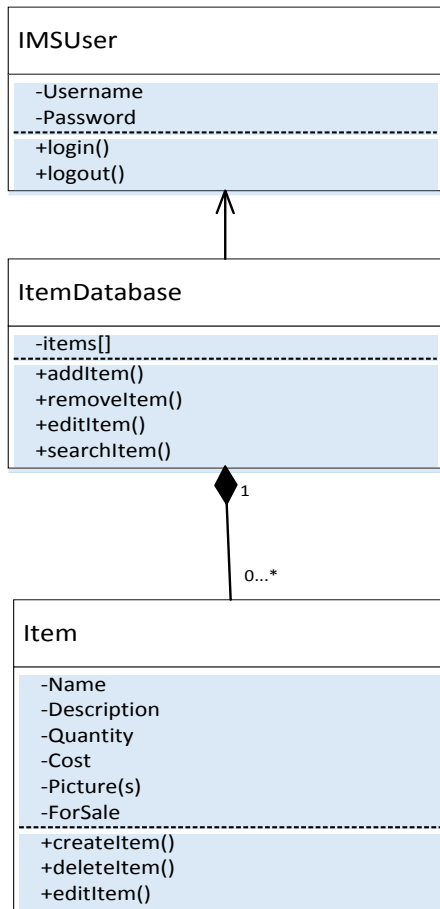
Settings Screen



Item Screen



Database Class Diagram



Failures

Fail-Soft

Login Failed

Provided that the maximum login attempts have not be exceeded allow for the user to try again.
If attempts have been exceeded an administrator must reset the password.

Invalid Input Provided

Return the invalid field provided and allow the user to correct the information and try again.

Maximum Inventory Size Reached

Inform the user and provide the option to remove items or upgrade the system.

Fail-Safe

Power Outage

Server connected to UPS to allow for graceful shutdown after power loss.

Hard Drive Failure

Server set up with redundant hard drives in a RAID array as well as external backups taken nightly.

Environment

