Detailed System Design

Inventory Management System

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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:** Confirmationof 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

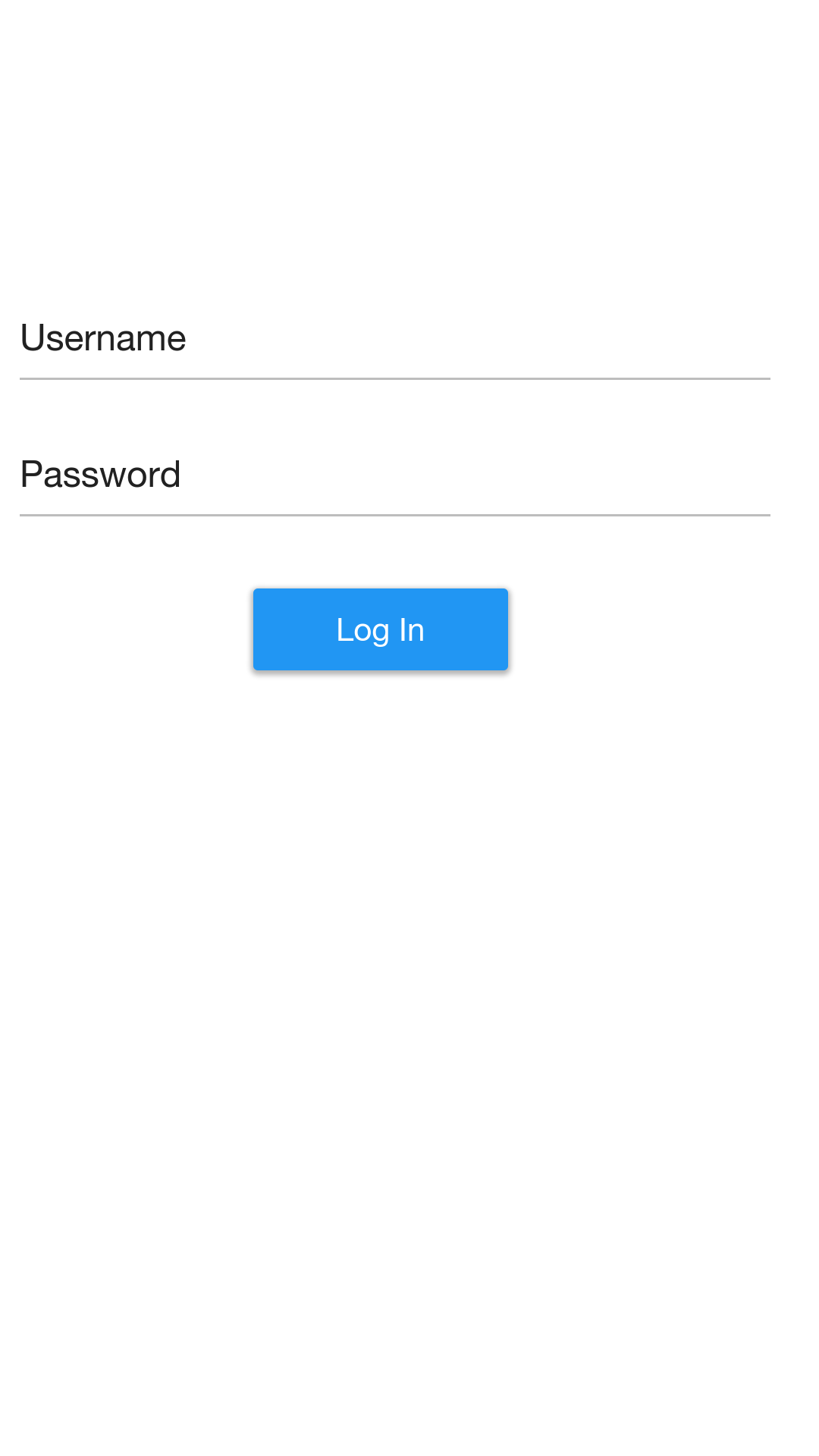
# User Interface

## Specification

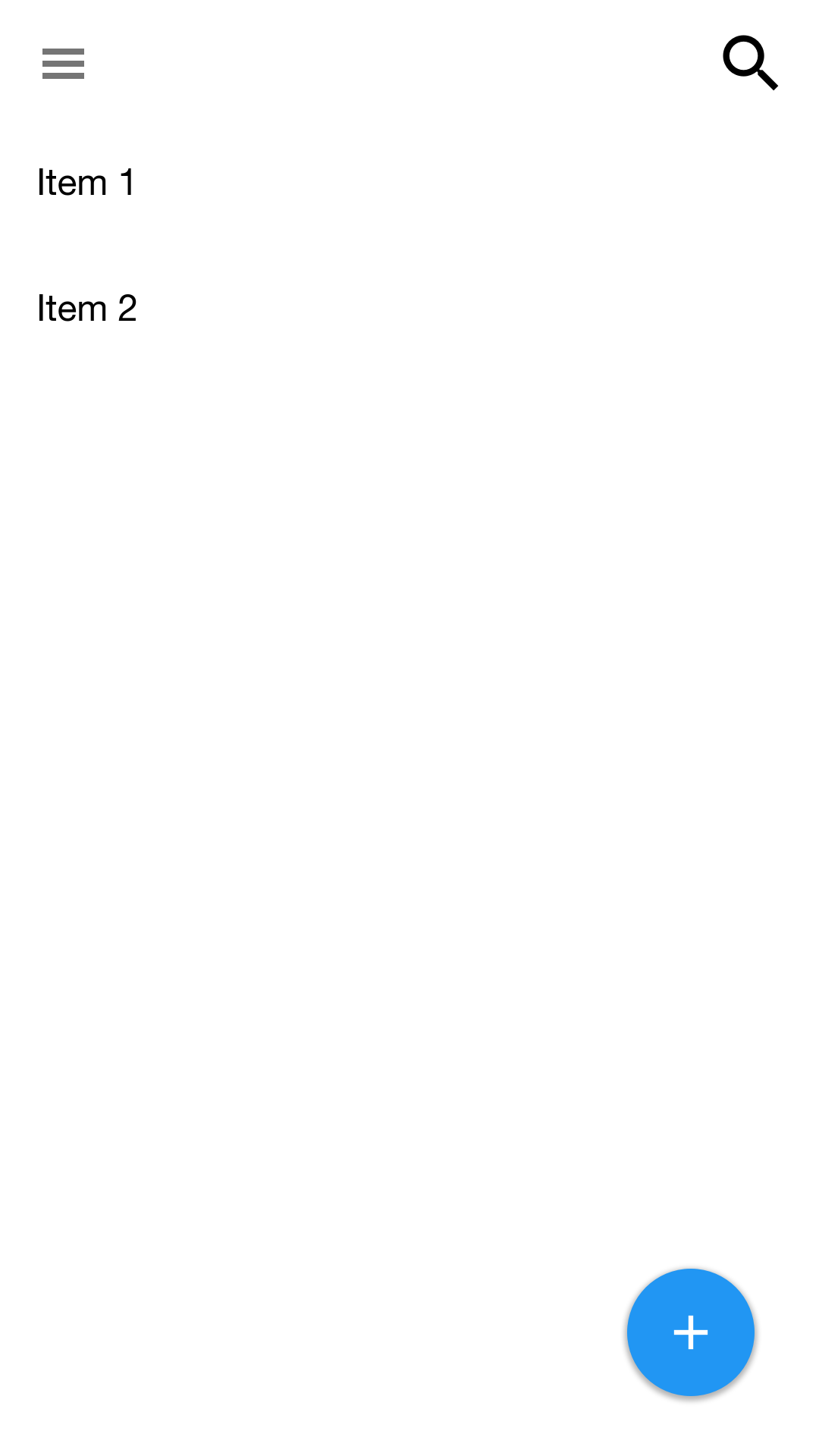


## Mockups

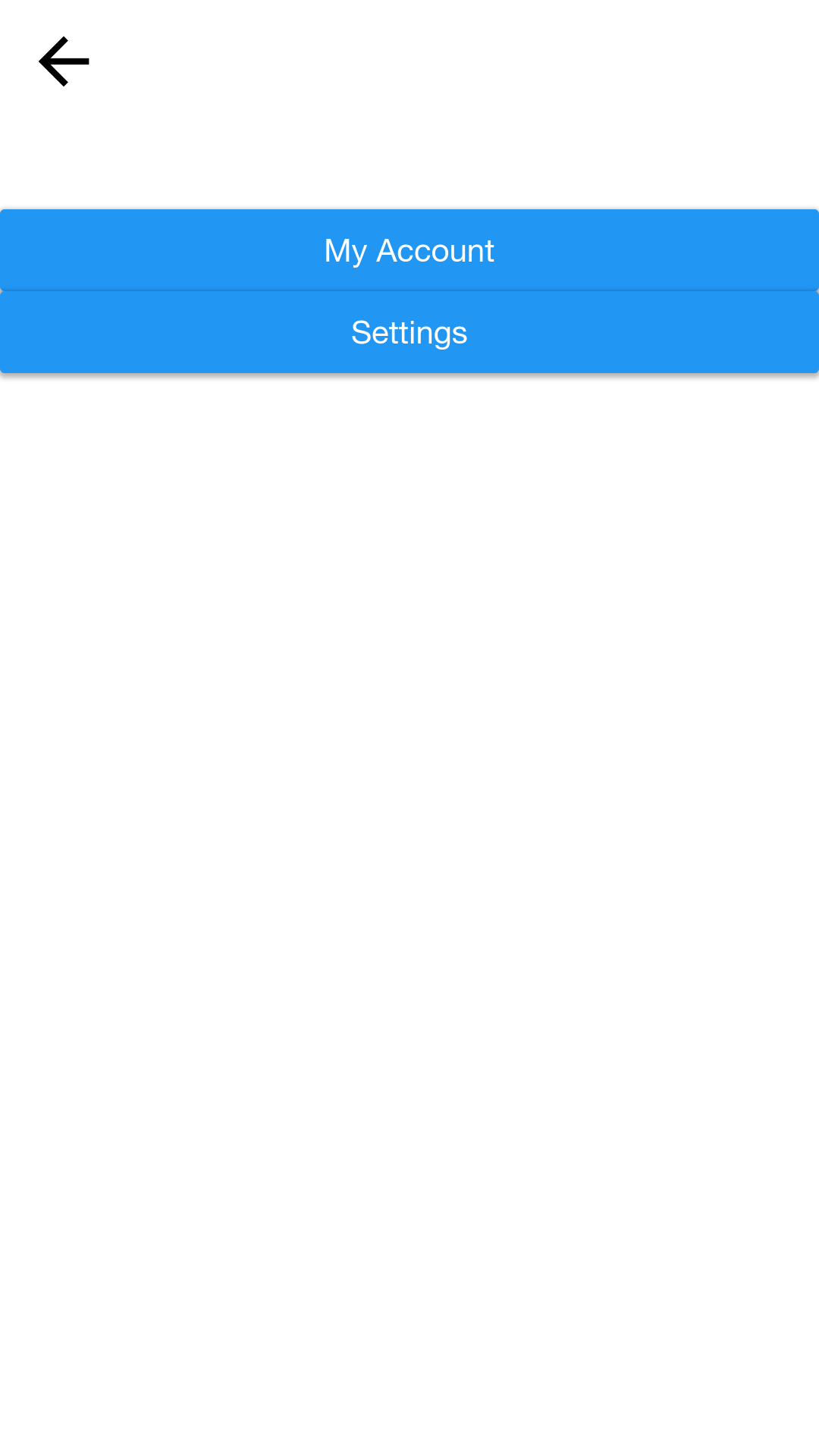
### Login Screen



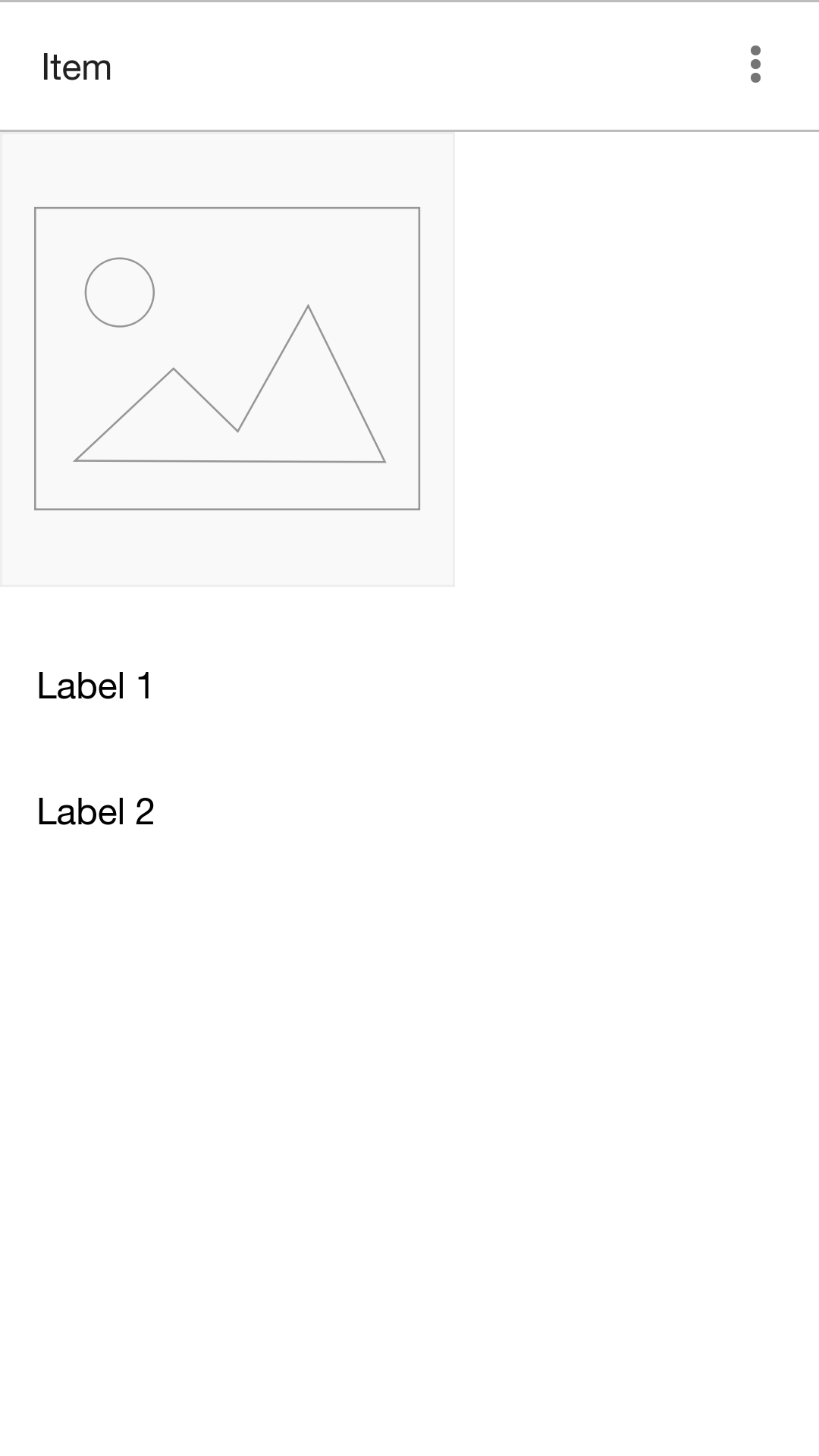
### Home Screen



### 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

