

GreenList

Test Plan Document

CS-4850 Section I

Spring 2026

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April 1st 2026



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Table of Contents

1. Overview	3
1.1. Purpose	3
1.2. Scope	3
2. Testing Summary	3
2.1. Scope of Testing	3
3. Test Cases	4
4. Test Procedures	5
5. Test Environment	6
6. Test Data	6
7. Software Test Report (STR)	7

1. Overview

1.1. Purpose

The purpose of this document is to define the test scope, focus areas, and objectives for the GreenList grocery list mobile application. Specifically, this document establishes:

- The test scope and focus areas relevant to GreenList features
- The test responsibilities across the development team
- The test strategy for all levels and types of testing
- Entry and exit criteria for each testing phase
- The test schedule and major milestones
- Assumptions, risks, and dependencies that affect testing

1.2. Scope

This document details the testing to be performed by the SP-5 Green project team for the GreenList application — a React Native mobile app backed by Firebase Authentication and Cloud Firestore, allowing users to create, manage, and collaboratively share grocery lists in real time. The document defines:

- What will be tested (authentication, list CRUD, real-time sync, collaboration, UI)
- How testing will be performed (manual, unit, integration, and connectivity testing)
- What resources are needed and when

2. Testing Summary

2.1. Scope of Testing

2.1.1. In scope

The following areas are within scope for this project's testing efforts:

- User authentication: sign-up, login, logout, delete account, and Google Authentication via Firebase authentication.
- Grocery list management: create, read, update, and delete (CRUD) lists
- Grocery item management: add, edit, delete, and mark items complete within a list
- Real-time synchronization: verifying changes propagate instantly to all collaborators
- Collaboration features: inviting friends, managing permissions, removing collaborators
- Favorites and template features
- USDA food database integration for food search and nutritional information
- UI responsiveness and navigation across major application screens
- Firebase security rules enforcement (access control)

2.1.2. Out of scope

- Android platform compatibility (team only testing on iOS)
- Performance/load testing under high concurrent user counts
- Dark mode or Desktop web version (planned improvements, not yet implemented)

3. Test Cases

ID	Description	Expected Result
TC-01	Sign up with a new email and password	Account Created, user lands on lists page
TC-02	Log in with valid credentials	User authenticated, lists page displayed
TC-03	Attempt Login with invalid credentials	User shown error logging in, no authentication gained
TC-04	Log in with Google	Google account linked, user authenticated
TC-05	Log out of the app	Session cleared, user returned to login screen
TC-06	Delete account	Account deleted, not able to log into it anymore
TC-07	Create a new grocery list	List appears on lists page and saved to firestore
TC-08	Delete a grocery list	List removed from UI and database
TC-09	Add an item to a grocery list	Item appears in list and database in real-time
TC-10	Edit an existing grocery item	Updated name/details reflected in the list
TC-11	Delete a grocery item	Item removed from list and database in real-time
TC-12	Mark an item as complete	Item shows as checked; completion count updates
TC-13	Two users edit the same shared list simultaneously	Both users see each other's changes with minimal delay
TC-14	Invite a friend as a collaborator	Friend can see and edit the shared list
TC-15	Remove a collaborator from a list	Removed user can no longer access the list
TC-16	Attempt to access a list without permission	Access denied; list does not appear for unauthorized user
TC-17	Mark a list as a favorite	List appears under the favorites tab
TC-18	Navigation between all major screens	No crashes or broken routes

4. Test Procedures

<p>TC-01: Sign Up</p> <ol style="list-style-type: none"> 1. Open the app on the iOS simulator or device. 2. Tap Sign Up and enter a new email address and password. 3. Expected: Account is created and the Lists page loads. 	<p>TC-02: Login</p> <ol style="list-style-type: none"> 1. Open the app and tap Log In. 2. Enter valid credentials and submit. 3. Expected: User is authenticated and the Lists page is shown.
<p>TC-03: Invalid Credentials</p> <ol style="list-style-type: none"> 1. Open the app and tap Log In. 2. Enter invalid credentials and submit. 3. Expected: User is shown an error message and user is not authenticated. 	<p>TC-04: Google Authentication</p> <ol style="list-style-type: none"> 1. Tap Continue with Google on the login screen. 2. Select a Google account and authorize. 3. Expected: User is logged in and redirected to the Lists page.
<p>TC-05: Logout</p> <ol style="list-style-type: none"> 1. Navigate to the Account screen. 2. Tap Log Out. 3. Expected: Session ends and the login screen is displayed. 	<p>TC-06: Delete Account</p> <ol style="list-style-type: none"> 1. Go to the Account screen. 2. Click delete account. 3. Expected: The account should be deleted and logged out to the login page.
<p>TC-07: Create List</p> <ol style="list-style-type: none"> 1. From the Lists page, tap the plus button. 2. Enter a list name and confirm. 3. Expected: New list appears in the list view. 	<p>TC-08: Delete List</p> <ol style="list-style-type: none"> 1. Go into the list, tap the three dots in the top right. 2. Select Delete and confirm. 3. Expected: List is removed from the screen and Firestore.
<p>TC-09: Add Item</p> <ol style="list-style-type: none"> 1. Open a grocery list. 2. Tap Add Item, enter a name, and confirm. 3. Expected: Item appears at the bottom of the list 	<p>TC-10: Edit Item</p> <ol style="list-style-type: none"> 1. Tap an existing item to open edit mode. 2. Change the name and save. 3. Expected: Updated name is shown in the list.
<p>TC-11: Delete Item</p> <ol style="list-style-type: none"> 1. Open a grocery list. 2. Tap the trash icon on the right side next to the item. 3. Expected: Item is removed from the list. 	<p>TC-12: Complete Item</p> <ol style="list-style-type: none"> 1. Tap the checkbox next to a grocery item. 2. Expected: Item is marked complete; count updates on the Lists page
<p>TC-13: Real-Time Sync</p> <ol style="list-style-type: none"> 1. Open the same list on two separate devices/accounts. 2. Add or edit an item on one device. 3. Expected: The change appears on the other device within ~2 seconds without refreshing. 	<p>TC-14: Invite Collaborator</p> <ol style="list-style-type: none"> 1. Open a list and navigate to the share/collaborator settings. 2. Search for a friend's account and send an invite. 3. Expected: Friend can now see and edit the list on their device.
<p>TC-15: Remove Collaborator</p> <ol style="list-style-type: none"> 1. In the list's collaborator settings, 	<p>TC-16: Access Control</p> <ol style="list-style-type: none"> 1. Log in with a test account that has not

<p>select a collaborator and remove them.</p> <ol style="list-style-type: none"> Expected: Removed user can no longer see or access the list. 	<p>been invited to a specific list.</p> <ol style="list-style-type: none"> Attempt to navigate to or search for that list. Expected: List is not visible; Firestore security rules block access.
<p>TC-17: Favorites</p> <ol style="list-style-type: none"> Tap the heart icon next to the grocery list. Navigate to the Favorites tab. Expected: The list appears under Favorites. 	<p>TC-18: Navigation</p> <ol style="list-style-type: none"> Tap through all bottom navigation tabs: Home, Lists, Nutrition, Friends, Account. Open and close several lists. Expected: All screens load without crashes or blank pages.

5. Test Environment

Component	Details
Frontend Framework	React Native with Expo (TypeScript/TSX)
Backend / Database	Firebase Authentication + Cloud Firestore
Development Machine	macOS with Xcode installed
Mobile Runtime	iOS Simulator (Xcode) and physical iPhone via Expo Go
Package Manager	Node.js / npm
Version Control	GitHub
Network	Standard Wi-Fi

6. Test Data

Testing required three accounts: An owner account used for all list creation and CRUD tests, a collaborator account added to shared lists for real-time sync and permission tests, and an unrelated account intentionally kept off all lists to verify access control. A separate Google account was also used for Google Authentication login testing. The following data was set-up to start testing:

- A "Weekly Groceries" list owned by the owner account, pre-filled with items (Milk, Eggs, Bread, Butter, Apples) used for item add, edit, delete, and complete tests.
- A "Shared Shopping" list owned by the owner account and shared with the collaborator account, used for real-time sync and collaborator management tests.
- A "Delete Me" list with placeholder items, used solely for the list deletion test so that other lists remain intact across test runs.

7. Software Test Report (STR)

The table below records the result of each test case executed against the GreenList prototype.

ID	Description	Pass	Fail	Severity
TC-01	Sign up with a new email and password	✓		
TC-02	Log in with valid credentials	✓		
TC-03	Attempt Login with invalid credentials	✓		
TC-04	Log in with Google	✓		
TC-05	Log out of the app	✓		
TC-06	Delete account	✓		
TC-07	Create a new grocery list	✓		
TC-08	Delete a grocery list	✓		
TC-09	Add an item to a grocery list	✓		
TC-10	Edit an existing grocery item	✓		
TC-11	Delete a grocery item	✓		
TC-12	Mark an item as complete	✓		
TC-13	Two users edit the same shared list simultaneously	✓		
TC-14	Invite a friend as a collaborator	✓		
TC-15	Remove a collaborator from a list	✓		
TC-16	Attempt to access a list without permission	✓		
TC-17	Mark a list as a favorite	✓		
TC-18	Navigation between all major screens	✓		