

Test Plan

Overall Test Plan

The important aspects I wish to cover with this test plan is making sure the functionality of all systems within the application are working as intended. This starts with making sure the reading and writing of data for both the recipe system and ingredient system are working as they should be, allowing the user to make changes and see what is being stored correctly. The aspects that combine these two systems will undergo integration testing to make sure the interfaces between these two systems work correctly. Additional testing will be conducted to make sure authentication and data security are functional. User experience testing will also be conducted to get useful feedback from potential users that will help make the application better. Finally, various testing mechanisms offered by Google Firebase will be leveraged to retrieve additional information regarding performance and usability among varying devices.

Test Case Descriptions

UA1.1 **User Authentication Test 1**

UA1.2 This test will test the user's ability to authenticate within the application

UA1.3 This will be tested by trying to access areas of the application and ensuring that the user is always redirected to the login activity. Once on the login activity, the user will login and should then be able to navigate the application.

UA1.4 Inputs: Valid login credentials

UA1.5 Outputs: A successful login and the ability to navigate the application upon successfully logging in.

UA1.6 Normal

UA1.7 Blackbox

UA1.8 Functional

UA1.9 Unit

UA2.1 **User Authentication Test 2**

UA2.2	This test will test the user's ability to authenticate within the application
UA2.3	This will be tested by trying to access areas of the application and ensuring that the user is always redirected to the login activity. Once on the login activity, the user will attempt to login with invalid credentials and should be denied access to further areas of the application.
UA2.4	Inputs: Invalid login credentials
UA2.5	Outputs: An unsuccessful login and no ability to navigate the rest of the application.
UA2.6	Normal
UA2.7	Blackbox
UA2.8	Functional
UA2.9	Unit

RS1.1 Recipe Storage System Test 1

RS1.2	This test will test the reading functionality of the recipe storage aspect of the application
RS1.3	This will be tested by viewing a user's recipe storage, making sure correct data is being populated and shown to the user. Then other methods for viewing recipe data will be applied such as filtering and searching, and we will ensure correct information is being retrieved and displayed throughout.
RS1.4	Inputs: Logged in user, filter/search criteria
RS1.5	Outputs: Properly displayed recipe data for the logged user, both before and after applying filter/search criteria.
RS1.6	Normal
RS1.7	Blackbox
RS1.8	Functional
RS1.9	Unit

RS2.1 Recipe Storage System Test 2

RS2.2	This test will test the writing functionality of the recipe storage aspect of the application
RS2.3	This will be tested by having a user make changes to aspects of their recipe storage, such as adding a new recipe, deleting a recipe, and editing a recipe.
RS2.4	Inputs: Logged in user, new recipe data
RS2.5	Outputs: Proper writing to the database with new data, as well as updated view showing the changes to the user
RS2.6	Normal
RS2.7	Blackbox
RS2.8	Functional
RS2.9	Unit

IS1.1 **Ingredient Storage System Test 1**

IS1.2	This test will test the reading functionality of the ingredient storage aspect of the application
IS1.3	This will be tested by viewing a user's ingredient storage, making sure correct data is being populated and shown to the user. Then other methods for viewing ingredient data will be applied such as filtering and searching, and we will ensure correct information is being retrieved and displayed throughout.
IS1.4	Inputs: Logged in user, filter/search criteria
IS1.5	Outputs: Properly displayed ingredient data for the logged user, both before and after applying filter/search criteria.
IS1.6	Normal
IS1.7	Blackbox
IS1.8	Functional
IS1.9	Unit

IS2.1 **Ingredient Storage System Test 2**

IS2.2	This test will test the writing functionality of the ingredient storage aspect of the application
IS2.3	This will be tested by having a user make changes to aspects of their ingredient storage, such as adding a new ingredient , deleting an ingredient, and editing an ingredient.
IS2.4	Inputs: Logged in user, new ingredient data
IS2.5	Outputs: Proper writing to the database with new data, as well as updated view showing the changes to the user
IS2.6	Normal
IS2.7	Blackbox
IS2.8	Functional
IS2.9	Unit

DS1.1 **Data Security Test 1**

DS1.2	This test will test the security of a user's data.
DS1.3	This will be tested by having a user login and attempt to access recipe and ingredient data of other users. More details to come on the execution plan for this test.
DS1.4	Inputs: Logged in user
DS1.5	Outputs: Failed ability to access data other than their own recipe and ingredient data.
DS1.6	Abnormal
DS1.7	Blackbox
DS1.8	Functional
DS1.9	Unit

RR1.1 **Recipe Retrieval Test 1**

RR1.2	This test will test the functionality of the recipe retrieval system.
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RR1.3	This will be tested by having a user login and receive recipe suggestions based on their ingredient storage and recipe storage. This will be testing whether or not the queries for these recipes are being generated correctly
RR1.4	Inputs: Logged in user
RR1.5	Outputs: Correct recipe retrievals showing the query system properly working as intended
RR1.6	Normal
RR1.7	Whitebox
RR1.8	Functional
RR1.9	Integration

BS1.1 **Barcode Scanning System Test 1**

BS1.2	This test will test the functionality of the barcode scanning system,
BS1.3	This will be tested by having a user login and use the barcode scanner to scan ingredients into their ingredient storage. The ingredients should be added and views should be updated. The scanner should be retrieving the correct item that corresponds to the scanned barcode.
BS1.4	Inputs: Logged in user, item with barcode scanned
BS1.5	Outputs: Updated views showing correctly scanned ingredient added to ingredient storage, Database properly updated with new item.
BS1.6	Normal
BS1.7	Blackbox
BS1.8	Functional
BS1.9	Integration

UL1.1 **Unit Library Integrity Test 1**

UL1.2	This test will test the functionality/integrity of the unit library, responsible for keeping units of measure for ingredients in check/convertible.
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UL1.3	This will be tested through integrated unit tests conducted in Android Studio, making sure the unit library functions as intended. Functionality that needs testing includes conversion between unit types, unit types correctly holding data, etc.
UL1.4	Inputs: Various inputs spanning normal, abnormal, and boundary conditions
UL1.5	Outputs: Correct/Expected functionality of the Units library including storage, retrieval, conversion, etc.
UL1.6	Normal/Abnormal/Boundary
UL1.7	Whitebox
UL1.8	Functional
UL1.9	Unit

CA1.1 **Cooking Activity System Test 1**

CA1.2	This test will test the functionality of the cooking activity aspect of the application.
CA1.3	This will be tested by having a user login and initiate the cooking activity. The cooking activity should give the user a step by step view for the selected recipe. Once finished, the user's ingredient storage should have the ingredient values just used for the recipe removed. (Recipe stats may also be kept in the future for things like the number of times a recipe has been cooked; these stats should also be updated).
CA1.4	Inputs: Logged in user, cooking activity (recipe information)
CA1.5	Outputs: Updated values of the users ingredient storage, updated views showing new values.
CA1.6	Normal
CA1.7	Blackbox
CA1.8	Functional
CA1.9	Integration

UX1.1 **User Experience Satisfaction Test 1**

UX1.2	This test will test the user experience of the application.
UX1.3	This will be tested by getting users' feedback on the application experience as a whole. Users will be given an alpha version of the application to use for a period of time. Their feedback will be taken to make further improvements to the user experience.
UX1.4	Inputs: User usage of application
UX1.5	Outputs: Feedback corresponding to user experience
UX1.6	Normal
UX1.7	Blackbox
UX1.8	Functional/Performance
UX1.9	Unit/Integration
FR1.1	Firestore Robo Test 1
FR1.2	This test will test the overall application's look and functionality of a multitude of different devices.
FR1.3	This will be tested by leveraging Firestore Test Labs's Robo Test which uses AI to test the application on a large number of different devices which have varying specifications in order to see how the application works on different devices.
FR1.4	Inputs: Firestore Robo Test
FR1.5	Outputs: Test report showing detailed results for each device used which includes logs, screenshots, etc.
FR1.6	Normal/Abnormal/Boundary
FR1.7	N/A
FR1.8	Functional
FR1.9	Unit
FP1.1	Firestore Performance Test 1
FP1.2	This test will test the performance of the application.

FP1.3	This will be tested by leveraging Firebase's Performance Monitoring to gain insight into the performance characteristics of the application. Abnormal/Unexpected results can be used to further improve application performance
FP1.4	Inputs: Firebase Performance Monitoring
FP1.5	Outputs: Correct/Expected functionality of the Units library including storage, retrieval, conversion, etc.
FP1.6	N/A
FP1.7	N/A
FP1.8	Performance
FP1.9	Unit/Integration

Test Case Matrix

	Normal/Abnormal/ Boundary	Blackbox/ Whitebox	Functional/ Performance	Unit/ Integration
UA1	Normal	Blackbox	Functional	Unit
UA2	Normal	Blackbox	Functional	Unit
RS1	Normal	Blackbox	Functional	Unit
RS2	Normal	Blackbox	Functional	Unit
IS1	Normal	Blackbox	Functional	Unit
IS2	Normal	Blackbox	Functional	Unit
DS1	Abnormal	Blackbox	Functional	Unit
RR1	Normal	Whitebox	Functional	Integration
BS1	Normal	Blackbox	Functional	Integration
UL1	Normal/Abnormal/ Boundary	Whitebox	Functional	Unit
CA1	Normal	Blackbox	Functional	Integration
UX1	Normal	Blackbox	Functional/ Performance	Unit/ Integration
FR1	Normal/Abnormal/ Boundary	N/A	Functional	Unit
FP1	N/A	N/A	Performance	Unit/ Integration