Test Plan and Cases (TPC)

Farmworkers Safety App

Team 09

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Version History

Date	Author	Version	Changes made	Rationale
12/05/16	Shobhit Agarwal	1.0	• Compiled the entire doc	• Complete doc for TPC
02/08/17	David Tasky	2.0	• Added new test cases	• Additional development to be done this semester

Table of Contents

Table of Tables

1. Introduction

This Test Plan and Cases (TPC) document describes the test cases and the acceptance criteria of the Farmworker safety app system. The test plan consists of both unit tests as well as acceptance/usability tests. The unit tests are written as the code is being developed and serves to ensure that the code will behave as expected. It is directly testing the functions that the developers coded. The acceptance/usability tests are done once key features of the app have been developed. The purpose of those tests is to ensure that the system operates as expected. It is intended to test every feature of the app to certify the quality/integrity of the product.

2. Test Strategy and Preparation

The unit tests written by the developers follow the agile continuous integration strategy. As they develop new code, it is then tested to make sure it behaves as expected. It is also intended to test boundary and exit/entry criteria in order to cover all possible cases.

The acceptability/usability tests done by the tests are part of the requirements-test traceability strategy. Their purpose is to ensure that all Win conditions have been satisfied and that the overall system behaves as expected.

2.1 Hardware preparation

Hardware needed:
* A computer equipped with a web browser and an internet connection
* A smartphone with a browser and an internet connection
* Any mobile phone with texting capabilities
* A cloud based web server to host the application

2.2 Software preparation

Software needed:
* Any modern web browser
* Android / iOS or other mobile operating system
* Server side scripts deployed on web server for sending automated text and retrieving weather information
* MySQL Server and NUnitASP testing software

2.3 Other pre-test preparations

None

2.4 Requirements Traceability

Table 1: Requirements Traceability Matrix

OCD	Requirements	Win-Win	SSAD	TPC
OC1	Temperature Based Notification	WC_4153, WC_4156, WC_4170, WC_4172, WC_4182	UC-14	TC-01, TC-02, TC-03

OC2	Educational Content	WC_4159, WC_4161 - 4164, WC_4179	UC-12, UC-13	TC-04, TC-05, TC-06, TC-07
OC3	Profile System	WC_4175, WC_4177, WC_4178, WC_4180, WC_4181, WC_4184	UC-1, UC-2, UC-3, UC-4, UC-6, UC-7, UC-8, UC-9, UC-10, UC-11	TC-10, TC-11, TC-12, TC-13, TC-14
OC4	Accurate Farmworker Location	WC_4157, WC_4171	UC-5	TC-08, TC-09

3. Test Identification
3.1 Test Identifier

TC-01 Send SMS Notifications

3.1.1   Test Level

Unit testing

3.1.2   Test Class

Erroneous input testing

3.1.3   Test Completion Criteria

This test case can be considered complete when:

- The system sends the messages successfully or an error message is shown when the system doesn't send the message
- System sends the message in the correct language
- System sends the message to the correct phone number
- Systems sends the correct message about the weather

3.1.4   Test Cases

Table 2: TC-01-01 System sends messages successfully

Test Case Number	TC-01-01 System sends messages successfully
Test Item	Once a certain threshold has been triggered, test that the system sends messages successfully.
Test Priority	M (Must Have)
Pre-conditions	The number of the user should be in the system when he/she registered
Post-conditions	The system should send the correct messages
Input Specifications	Weather condition exceeds predefined threshold
Expected Output Specifications	The system sends out the correct message or an error message is shown if it doesn't send
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions: • The system sends the message notification correctly • Error message shown when system doesn't send the message Fail criteria: • The system doesn't send a message when the weather condition exceeds the threshold
Assumptions and Constraints	N/A
Dependencies	N/A
Traceability	WC_4156: As a user, I should be able to receive Temperature based notification via text when it exceeds a threshold

Table 3: TC-01-02 System sends SMS in correct language

Test Case Number	TC-01-02 The system sends SMS in correct language.
Test Item	Test to make sure the system sends messages in the correct language
Test Priority	M (Must Have)
Pre-conditions	The number of the user should be in the system when he/she registered
Post-conditions	The user receives the message in the correct language.
Input Specifications	Weather condition exceeds predefined threshold
Expected Output Specifications	The user receives the message in the correct language.
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions.

	• The system sends the message in the correct language. Fail criteria: • The system sends the message in the incorrect language
Assumptions and Constraints	N/A
Dependencies	TC-01-01
Traceability	WC_4156: As a user, I should be able to receive Temperature based notification via text when it exceeds a threshold

Table 4: TC-01-03 System sends the message to correct phone number

Test Case Number	TC-01-03 System sends the message to correct phone number.
Test Item	Test to make sure the system sends messages to the correct phone number.
Test Priority	M (Must Have)
Pre-conditions	The number of the user should be in the system when he/she registered.
Post-conditions	The system should to send the message to the correct number.
Input Specifications	Weather condition exceeds predefined threshold
Expected Output Specifications	The system sends notification text to the right number.
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following condition. • The system sends the message to the right phone number Fail criteria: • The system sends the message to the wrong phone number
Assumptions and Constraints	N/A
Dependencies	TC-01-01
Traceability	WC_4156: As a user, I should be able to receive Temperature based notification via text when it exceeds a threshold

Table 5: TC-01-04 System sends the correct message

Test Case Number	TC-01-04 System sends the correct message
Test Item	Test to make sure the system sends the correct message about the weather
Test Priority	M (Must Have)
Pre-conditions	The number of the user should be in the system when he/she registered.
Post-conditions	The system should to send the correct message about the weather

Input Specifications	Weather condition exceeds predefined threshold
Expected Output Specifications	The system sends the correct notification to the user
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following condition. • The system sends the correct message about the weather Fail criteria: • The system sends an incorrect message about the weather
Assumptions and Constraints	N/A
Dependencies	TC-01-01
Traceability	WC_4156: As a user, I should be able to receive Temperature based notification via text when it exceeds a threshold

3.2 Test Identifier

TC-02 Receive SMS Notifications

3.2.1   Test Level

System Testing

3.2.2   Test Class

Usability Testing

3.2.3   Test Completion Criteria

This test case can be considered complete when:

- The user receives the message successfully.
- The user receives the correct information about weather information.
- The user receives the message in the correct format and language.

3.2.4   Test Cases

Table 6: TC-02-01 User receives the message successfully

Test Case Number	TC-02-01 User receives the message successfully
Test Item	Test to make sure the user receives the message successfully
Test Priority	M (Must Have)

Pre-conditions	• The number of the user should be in the system when he/she registered. • The system has sent a message to the user
Post-conditions	The user should receive the message successfully
Input Specifications	Weather condition exceeds predefined threshold
Expected Output Specifications	The system sends the notification to the user and the user receives it successfully
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following condition. • The system sends the message about the weather • The user receives the message successfully Fail criteria: • The system sends the message about the weather • The user does not receive the message
Assumptions and Constraints	N/A
Dependencies	TC-01-01
Traceability	WC_4156: As a user, I should be able to receive Temperature based notification via text when it exceeds a threshold

Table 7: TC-02-02 User receives the correct message

Test Case Number	TC-02-02 User receives the correct message
Test Item	Test to make sure the user receives the correct message about the weather
Test Priority	M (Must Have)
Pre-conditions	• The number of the user should be in the system when he/she registered. • The system has sent a message to the user
Post-conditions	The user should receive the correct message successfully
Input Specifications	Weather condition exceeds predefined threshold
Expected Output Specifications	The system sends the correct message notification to the user and the user receives it successfully
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following condition. • The system sends the message about the weather • The user receives the correct message successfully Fail criteria: • The user does not receive the message • The user receives an incorrect message about the weather
Assumptions and Constraints	N/A
Dependencies	TC-01-01, TC-02-02

Traceability	WC_4156: As a user, I should be able to receive Temperature based notification via text when it exceeds a threshold

Table 8: TC-02-03 User receives the message in correct format and language

Test Case Number	TC-02-03 User receives the message in the correct format and language
Test Item	Test to make sure the user receives the message in the correct format and language
Test Priority	M (Must Have)
Pre-conditions	• The number of the user should be in the system when he/she registered. • The system has sent a message to the user
Post-conditions	The user should receive the message in the correct format and language
Input Specifications	Weather condition exceeds predefined threshold
Expected Output Specifications	The system sends the notification to the user and the user receives it in the correct format and language
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following condition. • The system sends the message about the weather • The user receives the message in the correct format and language Fail criteria: • The system sends the message about the weather • The user does not receive the message • The user receives the message in the incorrect format or the wrong language
Assumptions and Constraints	N/A
Dependencies	TC-01-01, TC-02-01
Traceability	WC_4156: As a user, I should be able to receive Temperature based notification via text when it exceeds a threshold

3.3 Test Identifier

TC-03 Fetch Temperature based on user's location

3.3.1   Test Level

Unit Testing.

3.3.2   Test Class

- Correct Input Testing.
- Erroneous Input Testing.

3.3.3   Test Completion Criteria

This test case can be considered complete when:

- The system fetches the temperature and weather forecast information successfully from the weather API.
- The system shows an appropriate error message, when a problem is encountered while fetching the temperature or weather forecast information from the weather API.
- The system correctly determines if the temperature value goes above the specified threshold or not.

3.3.4   Test Cases

Table 9: TC-03-01 Request Weather Information from Weather API based on user's location

Test Case Number	TC-03-01 Request Weather Information from Weather API based on user's location.
Test Item	Request Weather Information Functionality, providing a location.
Test Priority	M (Must Have)
Pre-conditions	Fetching of User's Location.
Post-conditions	The weather information is requested successfully and accurately from the Weather API.
Input Specifications	- Correct and appropriate, user's location is fetched from the data base. - Execute the function of weather information retrieval.
Expected Output Specifications	The system shows successfully accurate weather information of the user's location.

Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions: • The weather information is shown on the screen correctly and without any errors. • The weather information of the location is stored on the database. Fail criteria: • Any other criteria that the one described on the pass criteria.
Assumptions and Constraints	• The location of the user selected for the test is correct and accurate, without any errors or invalid characters. • Weather API, must be online and working properly. • The database must be online and available for the location fetching.
Dependencies	N/A
Traceability	WC_4173: As a user, I should be able to view current temperature data so that I know if conditions are unsafe

Table 10: TC-03-02 Request Weather Information from Weather API using invalid or missing location value

Test Case Number	TC-03-02 Request Weather Information from Weather API using corrupted or invalid location value
Test Item	Request Weather Information Functionality, providing a location in an invalid format or blank.
Test Priority	M (Must Have)
Pre-conditions	Fetching of User's Location.
Post-conditions	The system identifies that the user's location value is invalid and/or is not yet available.
Input Specifications	• User location fetched from the database is in invalid format and/or empty. • Execute the function of weather information retrieval.
Expected Output Specifications	The system shows an error message indicating that the location from which the weather is trying to be fetch is not valid or blank.

Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The error message is shown on the screen accordingly. • No request to the weather API is made. Fail criteria: • Any other criteria that the one described on the pass criteria.
Assumptions and Constraints	• The location entered must invalid or blank. • The database must be online and available for the location fetching.
Dependencies	N/A
Traceability	WC_4173: As a user, I should be able to view current temperature data so that I know if conditions are unsafe

Table 11: TC-03-03 Request daily weather forecast from Weather API at a previously specified schedule

Test Case Number	TC-03-03 Request daily weather forecast from Weather API at a previously specified schedule.
Test Item	Request Weather Forecast Functionality, providing a location.
Test Priority	M (Must Have)
Pre-conditions	• Fetching of User's Location. • The System is set to time and date that matches the specified schedule.
Post-conditions	The weather forecast information is requested successfully and accurately and at the correct schedule from the Weather API.
Input Specifications	• Correct and appropriate, user's location is fetched from the data base. • Execute the function of weather forecast information retrieval.
Expected Output Specifications	The system shows successfully accurate weather forecast information of the user's location.
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The weather forecast information is shown on the

	screen correctly and without any errors. • The weather forecast information of the location is stored on the database. Fail criteria: • Any other criteria that the one described on the pass criteria.
Assumptions and Constraints	• The location of the user selected for the test is correct and accurate, without any errors or invalid characters. • Weather API, must be online and working properly. • The database must be online and available for the location fetching.
Dependencies	N/A
Traceability	WC_4173: As a user, I should be able to view current temperature data so that I know if conditions are unsafe

Table 12: TC-03-04 Request daily weather forecast at a schedule different that the one previously specified

Test Case Number	TC-03-04 Request daily weather forecast at a schedule different that the one previously specified.
Test Item	Attempt to request weather forecast functionality, providing a location, at a different time schedule that the one previously specified.
Test Priority	M (Must Have)
Pre-conditions	• Fetching of User's Location. • The System is set to time and date that doesn't match the specified schedule.
Post-conditions	• The weather forecast information is not requested. • The system must provide an appropriate warning accordingly
Input Specifications	• Correct and appropriate, user's location is fetched from the data base. • Execute the function of weather forecast information retrieval.
Expected Output Specifications	The system does not make a forecast request from the weather API, and shows a signal indicating this outcome.
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions.

	• The error message is shown on the screen accordingly. • No request to the weather API is made. Fail criteria: • Any other criteria that the one described on the pass criteria.
Assumptions and Constraints	• The location of the user selected for the test is correct and accurate, without any errors or invalid characters. • The database must be online and available for the location fetching.
Dependencies	N/A
Traceability	WC_4173: As a user, I should be able to view current temperature data so that I know if conditions are unsafe

Table 13: TC-03-05 Determine if the user's location weather conditions (temperature) go above the specified threshold.

Test Case Number	TC-03-05 Determine if the user's location weather conditions (temperature) go above the specified threshold.
Test Item	Determine if the temperature information of the user's location is above the predefined temperature threshold.
Test Priority	M (Must Have)
Pre-conditions	• Fetching of User's Location. • Fetching of User's Location Weather Information (Temperature).
Post-conditions	• If the location's temperature is above the threshold, a warning is shown. • If the location's temperature is below the threshold, no warning is shown.
Input Specifications	• Correct and appropriate, user's location is fetched from the data base. • Correct and appropriate temperature value is fetched from the location's weather information. • Execute the function of temperature raise warning.
Expected Output Specifications	The system determines correctly and accurately if the temperature value of a location is within the predefined temperature threshold or not.
Pass/Fail Criteria	Pass criteria:

	This test will pass when meet all the following conditions. • The warning message is shown on the screen at the appropriate scenario (Temperature above threshold). • No warning message is shown at the appropriate scenario (Temperature below threshold). Fail criteria: • Any other criteria that the one described on the pass criteria.
Assumptions and Constraints	• The location of the user selected for the test is correct and accurate, without any errors or invalid characters. • Correct Temperature value is always provided. • The database must be online and available for the location fetching.
Dependencies	N/A
Traceability	WC_4173: As a user, I should be able to view current temperature data so that I know if conditions are unsafe

3.4 Test Identifier

TC-04 Upload New Educational Content

3.4.1   Test Level

Unit Testing

3.4.2   Test Class

Erroneous input testing

3.4.3   Test Completion Criteria

This test case can be considered complete when:

- Display easy to use and well organized file selection window for admin
- Dynamically test the size and format of the file and display warning to the admin
- The admin of the system be able to upload education videos and documents.
- Display appropriate success or failure message after upload for admin

3.4.4   Test Cases

Table 14: TC-04-01 Upload a file with correct size and format

Test Case Number	TC-04-01 Upload a file with correct size and format.
Test Item	The file being uploaded by the admin matches all the requirements of the system
Test Priority	M (Must have)
Pre-conditions	The admin chooses the file that she wants to upload from the file selection window and then uploads the file to the server
Post-conditions	The admin receives success message.
Input Specifications	• Click on choose file button • Select the target file • Click on open button of file selection window • Click on upload button
Expected Output Specifications	Receive success message
Pass/Fail Criteria	This test will pass if: • The expected output occurs • The file gets stored on server. • The video or document become available to the user to watch and review. Otherwise it fails.
Assumptions and Constraints	The file is selected before clicking upload button.
Dependencies	None
Traceability	WC_4159: As a user, I should be able to watch educational videos in the application at any time.

Table 15: TC-04-02 Upload a file with correct size but incompatible format

Test Case Number	TC-04-02 Upload a file with correct size but incompatible format
Test Item	The admin tries to upload a file which have a different format than what is required by the system
Test Priority	M (Must have)
Pre-conditions	The admin chooses the file that she wants to upload from the file selection window and clicks on open.
Post-conditions	A warning message shows up to inform the admin that the file has incompatible format. Then the system allows the admin to choose another file
Input Specifications	• Click on choose file button • Select the target file

	• Click on open button of file selection window
Expected Output Specifications	Appropriate error message that states the selected file has incompatible format.
Pass/Fail Criteria	This test will pass if: • The Admin select the file and receive an error message. • After closing the error message and selection window the file will not be selected for upload. Otherwise it will fail.
Assumptions and Constraints	none
Dependencies	Depends on the file format requirements defined for the system.
Traceability	WC_4159: As a user, I should be able to watch educational videos in the application at any time.

Table 16: TC-04-03 Upload a file with correct format but larger size

Test Case Number	TC-04-03 Upload a file with correct format but larger size
Test Item	The admin tries to upload a file which size exceeds the limits defined for system to upload a file.
Test Priority	M (Must have)
Pre-conditions	The admin chooses the file that she wants to upload from the file selection window and clicks on open.
Post-conditions	A warning message shows up to inform the admin that the file has larger size and cannot be uploaded. Then the system allows the admin to choose another file.
Input Specifications	• Click on choose file button • Select the target file • Click on open button of file selection window
Expected Output Specifications	Appropriate error message that states the selected file exceeds the size limits defined by system.
Pass/Fail Criteria	This test will pass if: • The Admin select the file and receive an error message. • After closing the error message and selection window the file will not be selected for upload. Otherwise it will fail.
Assumptions and Constraints	none
Dependencies	The file size limits defined for the system.
Traceability	WC_4159: As a user, I should be able to watch educational videos in the application at any time.

Table 17: TC-04-04 Not enough space on server for new file

Test Case Number	TC-04-04 Not enough space on server for new file
Test Item	There are a lot of educational material existing on server storage that there is no room for new file to be uploaded.
Test Priority	M (Must have)
Pre-conditions	The admin selects the file that she wants to upload, clicks on open to finalize the selection, then clicks upload to upload the file.
Post-conditions	The admin receives error message indicating there is not enough storage space on server to upload the file.
Input Specifications	- Click on choose file button - Select the target file - Click on open button of file selection window - Click on upload button to upload the file.
Expected Output Specifications	Error message that inform the user about storage space of the server.
Pass/Fail Criteria	This test will pass if: - The user receives not enough space error message. - The system allows the admin to perform the action again without refreshing the app. Otherwise it will fail.
Assumptions and Constraints	The system doesn't overwrite space and damage other files to complete the upload.
Dependencies	none
Traceability	WC_4159: As a user, I should be able to watch educational videos in the application at any time.

Table 18: TC-04-05 Upload a file that already exist in directory

Test Case Number	TC-04-05 Upload a file that already exist in directory
Test Item	The admin uploads a file that has same name and format as another file that already exists on server.
Test Priority	M (Must have)
Pre-conditions	The admin selects the file that she wants to upload from file selection window and click on open to finalize the selection. The clicks on upload to upload the file.
Post-conditions	receives an error message that another file with same name and format already exist. The error message has two condition: replace and cancel. If the user chooses replace the existing file will be overwritten by new file and cancel will cancel the upload.
Input Specifications	• Click on choose file button

	• Select the target file • Click on open button of file selection window • Click on upload button to upload the file.
Expected Output Specifications	Error message that indicates a file with same name and format already exists.
Pass/Fail Criteria	This test will pass if: • It displays the error message that indicates file with same name and format exists. • Click on replace will replace the existing file with new file. • If the user decides to cancel the upload, the existing file will not be overwritten. • Overwriting the file will not damage other files. • Two file with same name will not exist. Otherwise it will fail.
Assumptions and Constraints	Replacing the file will not damage other files and it will not keep two files with same name and format on server.
Dependencies	none
Traceability	WC_4159: As a user, I should be able to watch educational videos in the application at any time.

3.5 Test Identifier

TC-05 View Educational content

The test suite tests the functionality of the farmworker being able to successfully view all the educational content when one is available. The system should also show any new content as soon as it becomes available.

3.5.1   Test Level

Unit Testing

3.5.2   Test Class

Erroneous input test

3.5.3   Test Completion Criteria

This test case can be considered complete when:

- The farmworker is able to view the same educational content multiple times
- Removal of any content while that content is in use does not crash the application
- Links for the removed educational content do not show
- The farmworker is able to search for the educational content he wants to watch/read.

3.5.4   Test Cases

Table 19: TC-05-01 The farmworker is able to view the same educational content multiple times

Test Case Number	TC-05-01 The farmworker is able to view the same educational content multiple times
Test Item	Ability to view the educational content multiple times.
Test Priority	M (Must Have)
Pre-conditions	The system displays all the available educational contents.
Post-conditions	The system successfully shows the educational content.
Input Specifications	• Click Educational Content • Click on any available educational content that has been watched at least once earlier
Expected Output Specifications	The system displays the educational content
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The educational content is displayed from the start. • No error is thrown that it has been already watched. • The correct education content that was clicked is shown. Fail criteria: • The system fails to show the educational content • A wrong educational content is shown. • There is any error shown
Assumptions and Constraints	• The system does not crash while the test case is running and the database is also up and running

	• The user has permission to view the educational content.
Dependencies	N/A
Traceability	WC_4159: As a user, I should be able to watch educational videos in the application at any time.

Table 20: TC-05-02 Removal of any content while that content is in use does not crash the application

Test Case Number	TC-05-02 Removal of any content while that content is in use does not crash the application
Test Item	Ability to handle dynamic removal of a content
Test Priority	M (Must Have)
Pre-conditions	The system displays all the available educational contents.
Post-conditions	The system shows an error message that the content requested was deleted
Input Specifications	1. Click Educational Content 2. Click on any available educational content 3. Admin deletes the content that the user is watching
Expected Output Specifications	The system shows an error saying that the content has been removed
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The educational content is displayed from the start. • No error is thrown until the content is deleted. • An error is thrown when content is deleted and user is taken to the list of all available contents Fail criteria: • The system crashes • A wrong educational content is shown. • There is any error shown
Assumptions and Constraints	• The system does not crash while the test case is running and the database is also up and running • The user has permission to view the educational content.
Dependencies	N/A
Traceability	WC_4159: As a user, I should be able to watch educational videos in the application at any time.

Table 21: TC-05-03 Links for the removed educational content do not show

Test Case Number	TC-05-03 Links for the removed educational content do not show
Test Item	Successfully handle when an educational content is removed while the app is in use
Test Priority	M (Must Have)
Pre-conditions	The system displays all the available educational contents.
Post-conditions	The system removes the link for the content and the user is unable to view that link anymore
Input Specifications	• Click Educational Content • Click on any available educational content that has been removed
Expected Output Specifications	The system removes the link for the content and the users can no longer see that link
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The link for the content is removed Fail criteria: • The system crashes • The link does not disappear, allowing the user to click on it
Assumptions and Constraints	• The system does not crash while the test case is running and the database is also up and running • The user has permission to view the educational contents
Dependencies	N/A
Traceability	WC_4159: As a user, I should be able to watch educational videos in the application at any time.

Table 22: TC-05-04 The farmworker is able to search for the educational content he wants to watch/read

Test Case Number	TC-05-04 The farmworker is able to search for the educational content he wants to watch/read.
Test Item	Ability to perform a search on the educational content.
Test Priority	M (Must Have)
Pre-conditions	The system displays all the available educational contents.

Post-conditions	The system successfully shows the list of educational content for the search query.
Input Specifications	• Click Educational Content • Search for a keyword
Expected Output Specifications	The system displays the list of educational contents relevant to the search criteria
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The search result is valid for the keyword. • System does not crash when there are no search results • User is able to watch the educational content from the search result Fail criteria: • The system fails to show the educational content based on search • A wrong educational content is shown. • System crashes
Assumptions and Constraints	• The system does not crash while the test case is running and the database is also up and running • Every other required fields are filled. • The user has permission to edit the location field.
Dependencies	N/A
Traceability	WC_4159: As a user, I should be able to watch educational videos in the application at any time.

3.6 Test Identifier

TC-06 Create a quiz

3.6.1   Test Level

Software item level

3.6.2   Test Class

Erroneous test

3.6.3   Test Completion Criteria

The test for create a quiz will be completed when

- The system creates a complete and correct quiz.
- The quiz is displayed correctly on the monitor.
- The system shows appropriate error message according to the mistake made

3.6.4   Test Cases

Table 23: TC-06-01 Check create quiz with correct information

Test Case Number	TC-06-01 Check create quiz with correct information.
Test Item	Create quiz functionality is tested using appropriate information.
Test Priority	M (Must Have)
Pre-conditions	The system display forum page. User has admin privileges
Post-conditions	The created quiz page display correctly.
Input Specifications	• Click create quiz • Put appropriate information in every required fields. • Click submit
Expected Output Specifications	The created quiz page is shown.
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The quiz is created correctly • Created quiz data is stored in database correctly Fail criteria: • Other than pass criteria.
Assumptions and Constraints	• There is no violated information when the quiz is created • Every required field is filled. • Only admin has permission to create a quiz.
Dependencies	N/A
Traceability	WC_4163: As an admin, I can create quizzes

Table 24: TC-06-02 Check create quiz with some missing required fields

Test Case Number	TC-06-02 Check create quiz with some missing required fields.
Test Item	Create quiz functionality is tested without some important information.
Test Priority	M (Must Have)
Pre-conditions	The system display the quiz page where user want to create a quiz. User has admin privileges
Post-conditions	The system identifies the missing fields in the creating-quiz form
Input Specifications	• Click create quiz • Put information in the form with some blank required fields. • Click submit
Expected Output Specifications	• The system shows red text to identify the missing required fields. • No change for the fields that have already been filled.
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The error message is shown correctly. • No change for the other fields. Fail criteria: • Other than pass criteria.
Assumptions and Constraints	• Admin privilege needed to have permission to create a quiz • Hardware and network is working correctly
Dependencies	N/A
Traceability	WC_4163: As an admin, I can create quizzes

Table 25: TC-06-03 Check create quiz by a user without permission.

Test Case Number	TC-06-03 Check create quiz by a user without permission.
Test Item	Create quiz functionality when handle with a user who has no permission.

Test Priority	M (Must Have)
Pre-conditions	The system displays the page where the create quiz button is located
Post-conditions	The system displays an error message identifying that the user has no permission to create the quiz.
Input Specifications	Click create quiz
Expected Output Specifications	An error message "Cannot create quiz" is shown.
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following condition. • An error message is shown correctly. • User cannot create the quiz. Fail criteria: • Other than pass criteria.
Assumptions and Constraints	The user has no permission to create the quiz
Dependencies	N/A
Traceability	WC_4163: As an admin, I can create quizzes

3.7 Test Identifier

TC-07 Take a quiz on Educational content

The test suite is to test the functionality of the farmworker being able to take a quiz on any educational content if one is available.

3.7.1   Test Level

Unit Testing

3.7.2   Test Class

Erroneous input test

3.7.3   Test Completion Criteria

This test case can be considered complete when:

- The farmworker is able to take the quiz multiple times.
- System saves the progress and completion of all quizzes and show the last grade scored by the farmworker
- The farmworker should be able to take a quiz from a mobile device or/and a personal computer
- Deletion of a quiz while in use does not crashes the application, but gracefully exits with an error message

3.7.4   Test Cases

Table 26: TC-07-01 The farmworker is able to take the quiz multiple times

Test Case Number	TC-07-01 The farmworker is able to take the quiz multiple times.
Test Item	Ability to take a quiz multiple times
Test Priority	M (Must Have)
Pre-conditions	The system displays the quiz and previous score
Post-conditions	The system saves the user's response and allows to take the quiz more than once.
Input Specifications	- Click Take a Quiz - Take the quiz even if he has taken it earlier - Click Submit
Expected Output Specifications	The system saves the new response and shows it on the display
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. - The response gets saved in the database. - User can take the quiz again Fail criteria: - System doesn't save the user's response or score - System does not allow the user to take the quiz more than once
Assumptions and Constraints	- The system does not crash while the test case is running and the database is also up and running - Every other required fields are filled.

	• The user has permission to take quizzes.
Dependencies	N/A
Traceability	WC_4161: As a user, I should be able to take quizzes

Table 27: TC-07-02 System saves the progress and completion of all quizzes and show the last grade scored by the farmworker

Test Case Number	TC-07-02 System saves the progress and completion of all quizzes and show the last grade scored by the farmworker
Test Item	Save all quiz responses by the user and show when user takes the quiz again
Test Priority	M (Must Have)
Pre-conditions	The system displays the quiz and previous score
Post-conditions	The system saves the user's response and allows to take the quiz more than once.
Input Specifications	• Click Take a Quiz • User gets the previous score shown on the display • Take the quiz and click submit
Expected Output Specifications	The system saves the new response and shows it on the display
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The response gets saved in the database. • User can take the quiz again • User can see his last score on the quiz Fail criteria: • System doesn't save the user's response or score • System does not allow the user to take the quiz more than once • System does not show the last score
Assumptions and Constraints	• The system does not crash while the test case is running and the database is also up and running • Every other required fields are filled. • The user has permission to take quizzes.
Dependencies	N/A
Traceability	WC_4161: As a user, I should be able to take quizzes

Table 28: TC-07-03 The farmworker should be able to take a quiz from a mobile device or/and a personal computer

Test Case Number	TC-07-03 The farmworker should be able to take a quiz from a mobile device or/and a personal computer
Test Item	Ability to take a quiz from a mobile device/computer
Test Priority	M (Must Have)
Pre-conditions	The system displays the quiz and previous score
Post-conditions	The system saves the user's response and allows to take the quiz more than once.
Input Specifications	• Click Take a Quiz • Take the quiz even if he has taken it earlier • Click Submit
Expected Output Specifications	The system saves the new response and shows it on the display
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The response gets saved in the database. • User can take the quiz again • The user is successfully able to take quiz either on mobile or computer Fail criteria: • System doesn't save the user's response or score • System does not allow the user to take the quiz more than once • The user cannot access quiz on mobile device / computer
Assumptions and Constraints	• The system does not crash while the test case is running and the database is also up and running • Every other required fields are filled. • The user has permission to take quizzes.
Dependencies	N/A
Traceability	WC_4161: As a user, I should be able to take quizzes

Table 29: TC-07-04 Deletion of a quiz while in use does not crashes the application, but gracefully exits with an error message

Test Case Number	TC-07-04 Deletion of a quiz while in use does not crashes

	the application, but gracefully exits with an error message
Test Item	Deleting a quiz while in use does not crashes the app
Test Priority	M (Must Have)
Pre-conditions	The system displays the quiz and previous score
Post-conditions	The admin removes the quiz while the user is taking it
Input Specifications	• Click Take a Quiz • Take the quiz even if he has taken it earlier • Ask admin to remove the quiz
Expected Output Specifications	An error message is shown and the user is taken to the homepage without crashing the app
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The system shows an error message that the quiz was removed • The system does not crash and takes user to the homepage Fail criteria: • The partial response gets saved in the database. • System does not throw any error message • The system crashes on deletion of the quiz
Assumptions and Constraints	• The system does not crash while the test case is running and the database is also up and running • Every other required fields are filled. • The user has permission to take quizzes.
Dependencies	N/A
Traceability	WC_4161: As a user, I should be able to take quizzes

3.8 Testing Identifier

TC-08 Farmworker self-update of location

This test suite tests the functionality of the farmworker being able to update his/her location themselves by entering either their ZIP code or the location name on their profile. The system should take in the new location and send the confirmation text along with the current temperature of that location. The user also has the option of texting their farm code in order to update their location.

3.8.1   Test Level

Unit Testing

3.8.2   Test Class

Erroneous input test

3.8.3   Test Completion Criteria

This test case can be considered complete when:

- The farmworker is able to update his/her location correctly using a valid ZIP code which gets persisted in the database.
- Invalid ZIP codes should throw error and not persist in the database.
- The farmworker is able to update his/her location correctly using a valid farm name / city name / area name which gets persisted in the database.
- Farmworker should receive a text notification when the location is successfully updated. Farmworker should receive the current weather information for the new location along with the confirmation message.
- The system should throw an error if the location field is left blank.
- The farmworker is able to text which farm they are working at to update their location

3.8.4   Test Cases

Table 30: TC-08-01 Update Farmworker location with a valid ZIP code

Test Case Number	TC-08-01 Update Farmworker location with a valid ZIP code.
Test Item	Update of Farmworker profile and his location update is tested using correct information.
Test Priority	M (Must Have)
Pre-conditions	The system displays the profile page with the current location and the ability to edit the location.
Post-conditions	The location in the profile is correctly updated.
Input Specifications	- Click Edit Profile - Change the current location with a valid ZIP code - Click Save Changes
Expected Output	The updated profile page is shown with the new location.

Specifications	
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The new location gets saved in the database correctly. • The old location is removed from the farmworker's profile. • The new location name and the ZIP code is then displayed on the updated profile page correctly. Fail criteria: • The new location does not gets saved in the database. • The new location does not gets updated in the profile page • There is any error on entering a valid ZIP • The system does not recognize/updates a valid ZIP
Assumptions and Constraints	• The system does not crash while the test case is running and the database is also up and running • Every other required fields are filled. • The user has permission to edit the location field.
Dependencies	N/A
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

Table 31: TC-08-02 Update Farmworker location with an invalid ZIP code / farm name / city name

Test Case Number	TC-08-02 Update Farmworker location with an invalid ZIP code / city name / farm name / farm code
Test Item	Update of Farmworker profile and his location update is tested using incorrect information.
Test Priority	M (Must Have)
Pre-conditions	The system displays the profile page with the current location and the ability to edit the location.
Post-conditions	The location in the profile is not updated and remains what is was before the change was requested.
Input Specifications	• Click Edit Profile • Change the current location with an invalid ZIP code / location code / area name / farm code or name

	• Click Save Changes
Expected Output Specifications	• An error message is displayed that the entered location is incorrect, please try again • the location on the profile is not updated
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The new location does not gets saved in the database. • The old location is not touched and the field does not get updated. • The old location is displayed on the updated profile page. • An error message is shown that tells the user that the location entered is incorrect Fail criteria: • The incorrect location gets saved in the database • An error message is not shown • The old location is removed from the database / profile • The profile shows the new incorrect location
Assumptions and Constraints	• The system does not crash while the test case is running and the database is also up and running • Every other required fields are filled. • The user has permission to edit the location field.
Dependencies	N/A
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

Table 32: TC-08-03 Check if the user receives a text message with a successful message on his location being updated

Test Case Number	TC-08-03 Check if the user receives a text message with a successful message on his location being updated
Test Item	Receiving success text message on updating farmworker location with a valid location is tested.
Test Priority	M (Must Have)
Pre-conditions	The system displays the profile page with the current location and the ability to edit the location.

Post-conditions	The location in the profile is correctly updated and the user receives a text message that tells him that his update was successful along with the current temperature at the new location.
Input Specifications	- Click Edit Profile - Change the current location with a valid location - Click Save Changes
Expected Output Specifications	The updated profile page is shown with the new location and the user receives a text message with the new location and the temperature at that location.
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. - The new location gets saved in the database correctly. - The old location is removed from the farmworker's profile. - The new location is then displayed on the updated profile page correctly. - The user receives a text message with a successful message that the location was updated in his preferred language - The message is sent in the user's preferred language - The user receives the current temperature information for the new location that was updated Fail criteria: - No confirmation text message is sent to the user - Text message received does not specify what action was taken, for instance, location being updated - The text message does not give information on what was the previous location and what has it been changed to - The message is sent in a language other than the preferred language of the user
Assumptions and Constraints	- The system does not crash while the test case is running and the database is also up and running - Every other required fields are filled. - The user has permission to edit the location field. - User's mobile number is available in the system - The user's mobile has permissions to receive texts from our system - The text message service is working properly and sends messages when instructed to without any

	issues. • No weather information text message is sent to the user • Text message received does not specify that the temperature is for the new location
Dependencies	N/A
Traceability	WC_4172: As a user, I should receive the information about the tomorrow's weather

Table 33: TC-08-04 The system should throw an error if the location field is left blank.

Test Case Number	TC-08-04 The system should throw an error if the location field is left blank
Test Item	Update of Farmworker profile and his location update is tested using empty information.
Test Priority	M (Must Have)
Pre-conditions	The system displays the profile page with the current location and the ability to edit the location.
Post-conditions	An error message is thrown to prompt user to enter a valid location. The location in the profile is not updated and remains what is was before the change was requested until a valid entry is entered.
Input Specifications	• Click Edit Profile • Change the current location with an empty data field • Click Save Changes
Expected Output Specifications	• An error message is displayed that the entered location is empty, please try again • the location on the profile is not updated and nothing is processed
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The new location does not gets saved in the database. • The old location is not touched and the field does not get updated. • The old location is displayed on the updated profile

	page.
	• An error message is shown that tells the user that the location entered is empty and prompts to enter a valid location Fail criteria: • An empty location gets saved in the database • An error message is not shown • The old location is removed from the database / profile • The profile shows an empty location
Assumptions and Constraints	• The system does not crash while the test case is running and the database is also up and running • Every other required fields are filled. • The user has permission to edit the location field.
Dependencies	N/A
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

Table 34: TC-08-05 Update Farmworker location with a valid farm / area / city name

Test Case Number	TC-08-05 Update Farmworker location with a valid farm name / area/city name.
Test Item	Update of Farmworker profile and his location update is tested using correct information.
Test Priority	M (Must Have)
Pre-conditions	The system displays the profile page with the current location and the ability to edit the location.
Post-conditions	The location in the profile is correctly updated.
Input Specifications	• Click Edit Profile • Change the current location with a valid area/city name like Baker's field / Los Angeles • Click Save Changes
Expected Output Specifications	The updated profile page is shown with the new location.
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The zip code of the new location gets saved in the database correctly.

	• The old location is removed from the farmworker's profile. • The new location along with the ZIP code is then displayed on the updated profile page correctly. Fail criteria: • The new location does not gets saved in the database. • The new location does not gets updated in the profile page • There is any error on entering a valid farm name, city name, area name • The system does not recognize/updates a valid area name/city/farm name.
Assumptions and Constraints	• The system does not crash while the test case is running and the database is also up and running • Every other required fields are filled. • The user has permission to edit the location field.
Dependencies	N/A
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

Table 35: TC-08-06 Update Farmworker location by SMS message

Test Case Number	TC-08-06 Update Farmworker location by SMS message
Test Item	Update of Farmworker profile and his location update is tested by SMS message
Test Priority	M (Must Have)
Pre-conditions	The user sends a message to the system with a valid farm code to indicate his farm location
Post-conditions	The location in the profile is correctly updated.
Input Specifications	User texts valid farm code to system
Expected Output Specifications	The user's location is updated
Pass/Fail Criteria	Pass criteria: This test will pass when meet all the following conditions. • The zip code of the new location gets saved in the database correctly. • The old location is removed from the farmworker's profile. Fail criteria:

	• The new location does not gets saved in the database. • The new location does not gets updated in the profile page • The system does not recognize/update a valid farm code
Assumptions and Constraints	• The user has a valid farm code to text
Dependencies	N/A
Traceability	WC_4172: As a user, I should receive the information about the tomorrow's weather

3.9 Test Identifier

TC-09 Contractor/Farmer update of farmworker location

Farmworkers who work for contractors work on different farms during the year. Therefore, they have to update their location every time they move to different farm. Since they might forget to update, the contractors can update their location when they are assigning them to a farm. This feature is open for famers as well so they can update the location of the farmworkers that they hire during the year.

3.9.1   Test Level

Unit Testing

3.9.2   Test Class

Erroneous input testing

3.9.3   Test Completion Criteria

This test case can be considered complete when:

- Input correct location
- Make the changes only if it is being made by contractor or farmer
- Display confirmation message
- Send update text message to farmworker and inform about the change.

3.9.4   Test Cases

Table 36: TC-09-01 Enter correct location

Test Case Number	TC-09-01 Enter correct location.
Test Item	The location being updated by the contractor or the farmer is within the longitude and latitude range of our system. For example: is within the longitude and latitude of the central valley.
Test Priority	M (Must have)
Pre-conditions	The contractor or farmer access the location section of the farmworker profile and input the new location (zip code, farm code, or coordinates)
Post-conditions	The admin receives success message. Farmworkers receive text message for the change made on his/her account
Input Specifications	• Click on location Text area • Input the new location • Click on update button
Expected Output Specifications	Receive success message, and text message.
Pass/Fail Criteria	This test will pass if: • The expected output occurs • The contractor or farmer list for selected farm contain the farmworker. Otherwise it fails.
Assumptions and Constraints	none
Dependencies	none
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

Table 37: TC-09-02 Enter out of range location parameter

Test Case Number	TC-09-02
Test Item	The Contractor or the farmer inputs a location parameter which is out of the scope of the app.
Test Priority	M (Must have)
Pre-conditions	The Contractor or the farmer choose the target farmworker and inputs the location of the farm that the farmworker has been or will move to.
Post-conditions	A warning message will be displayed to inform the contractor or farmer that the location is out of the scope of the app.
Input Specifications	• Click on location Text area

	• Input the new location • Click on update button
Expected Output Specifications	An error message that contains the location entered by the user.
Pass/Fail Criteria	This test will pass if: • The Contractor or the farmworker receive appropriate and descriptive message. • After closing the Error message, the user be able to enter a new location. Otherwise it will fail.
Assumptions and Constraints	none
Dependencies	none
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

Table 38: TC-09-03 The user trying to make the change is Contractor or farmer

Test Case Number	TC-09-03
Test Item	The user who is trying to update farmworker location is a Contractor or Farmer
Test Priority	M (Must have)
Pre-conditions	The user selects the farmworker profile and changes the location
Post-conditions	The user receives a confirmation message, the farmworker receives a text message.
Input Specifications	• Search the Farmworkers name to find the profile • Access the profile • Enter the new location parameter • Click on update
Expected Output Specifications	• Receive success message. • Farmworker receives text message.
Pass/Fail Criteria	This test will pass if: • The user be able to access the page. • The expected outcome take place. Otherwise it will fail.
Assumptions and Constraints	none
Dependencies	none
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

Table 39: TC-09-04 The user accessing trying to make the change is not Contractor or farmer

Test Case Number	TC-09-04
Test Item	The user trying to access farmworker profile is not authorized
Test Priority	M (Must have)
Pre-conditions	The user searches the farmworker name and click on the target farmworker profile to edit.
Post-conditions	Receive error message that explains the user is not authorized to access this page.
Input Specifications	• Search the farmworkers name • Click on profile to edit the farmworkers profile.
Expected Output Specifications	Error message to inform the user that the access was denied.
Pass/Fail Criteria	This test will pass if: • The expected outcome take place Otherwise it will fail.
Assumptions and Constraints	none
Dependencies	none
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

3.10 Test Identifier

TC-10 Create a user profile

User profiles enable our system to store specific information about the users that are registered on our system. These profiles include a user's phone number so that users can be contacted with safety-critical information, and they include biometric information about the users. This biometric data includes the age gender, weight, and height of the user (farmworker) and is important to make sure that all educational content and safety recommendations are personalized and targeted directly at this user.
This test suite tests the functionality of the user profile creation module to make sure that new user profiles can be added to the system, provided that these profiles are complete and have the correct information.

3.10.1 Test Level

Unit testing

3.10.2 Test Class

Erroneous input testing

3.10.3 Test Completion Criteria

This test case can be considered complete when:

- The system creates and stores user profiles when data is complete, correct, and non-duplicate. Created user profiles can be found and displayed in the system.
- The system prevents the creation of user profiles that have missing information and provides appropriate error messages
- The system prevents the creation of user profiles for which data is entered of the incorrect type or of incompatible types and provides appropriate examples of the correct data format and offers support to the user.
- The system prevents the creation of user profiles with duplicate data of profiles already existing in the system, and it provides appropriate information to fix this issue
- The system checks that phone numbers associated with accounts are reachable, and if they are not reachable, it prevents the creation of the user profile and provides instructions on how to fix the problem.

3.10.4 Test Cases

Table 40: TC-10-01 – Test creating a user profile with complete and correct information

Test Case Number	TC-10-01 Test creating a user profile with complete and correct information
Test Item	Creating a new user profile with complete and correct information is tested. The profile creation module will take in a user's name, phone number, height, weight, gender, and work location, and it will store this information in a database.
Test Priority	M (Must Have)
Pre-conditions	The system should display a profile creation page

Post-conditions	The users' pages for farms and for the system should show profiles of associated users
Input Specifications	- Click create new profile - Input all required information into the provided fields - Optionally, also input voluntary information - Click "Register Profile"
Expected Output Specifications	"Successfully created user profile" message should be shown, with the option to view details of newly created profile, to create a new profile, or to view all active profiles in the system
Pass/Fail Criteria	Pass criteria: *This test will pass if all the conditions below are satisfied.* - The user profile is created correctly - The new user profile is added to the "profile" table in the database - A success message is shown to the user who creates the profile Fail criteria: *This test will fail if any of the following occurs.* - The system does not allow the user to create a profile - The new user profile is not added to the database - The new user profile cannot be found on the system - The profile is linked to an incorrect farm. (The profile does not have to be linked to a farm, but if it is linked to a farm, it must be linked to the correct one) - A success message is not shown to the user
Assumptions and Constraints	- All required information is provided - The phone number provided does not already exist in the system - The system is allowing new profiles to be created
Dependencies	No dependencies
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

Table 41: TC-10-02 – Test creating a user profile with missing information

Test Case Number	TC-10-02 Test creating a user profile with missing information

Test Item	Creating a new user profile with missing information is tested. The profile creation module will check what required information is missing (i.e. name, phone number, height, weight, gender, or work location), and it will instruct the user to fill in the missing fields before the profile can be added to the system.
Test Priority	M (Must Have)
Pre-conditions	The system should display a profile creation page
Post-conditions	The profile creation page should show an error message indicating that required fields are missing. Missing required fields should be highlighted.
Input Specifications	• Click create new profile • Input all required information except at least 1 required field into the provided fields a) Optionally, also input voluntary information • Click "Register Profile"
Expected Output Specifications	The system should stay on the create profile page and the "Unable to create new profile. Some required fields are missing" message should be shown, and missing fields should be highlighted. No new data should be added to the database at this time - the profile should not be added to the system.
Pass/Fail Criteria	Pass criteria: *This test will pass if all the conditions below are satisfied.* • The user profile is prevented from being created • The user is shown an error message • Missing required fields are highlighted Fail criteria: *This test will fail if any of the following occurs.* • The system allows the profile to be created • The new user profile with missing information is added to the database • The profile can be found in the system, though it has not officially been created yet • A success message is shown to the user • An error message is not shown to the user • Missing, required fields are not highlighted
Assumptions and Constraints	• Some required information is missing • The phone number provided does not already exist in the system • The system is allowing new profiles to be created

Dependencies	No dependencies
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

Table 42: TC-10-03 – Test creating a user profile with incorrect/incompatible information

Test Case Number	TC-10-03 Test creating a user profile with incorrect/incompatible information
Test Item	Creating a new user profile with incorrect information or information of the wrong type is tested. The profile creation module should check all fields to make sure entered-data is of expected type.
Test Priority	M (Must Have)
Pre-conditions	The system should display a profile creation page
Post-conditions	The profile creation page should show an error message indicating that some fields have malformed data. These fields should be highlighted on the profile creation page.
Input Specifications	- Click create new profile - Input all required information correctly except at least 1 required field in which the information is entered with incorrect formatting or with incompatible values i) Optionally, also input voluntary information ii) Can also input incompatible information in voluntary fields - Click "Register Profile"
Expected Output Specifications	The system should stay on the create profile page and the "Unable to create new profile. Some fields have incorrect or incompatible values" message should be shown, and missing fields should be highlighted. Examples of correct formatting should be shown next to the incorrect fields. No new data should be added to the database at this time - the profile should not be added to the system.
Pass/Fail Criteria	Pass criteria: *This test will pass if all the conditions below are satisfied.* - The user profile is prevented from being created - The user is shown an error message - Incorrect fields are highlighted

	Fail criteria: *This test will fail if any of the following occurs.* • The system allows the profile to be created • The new user profile with incorrect/incompatible information is added to the database • The profile can be found in the system, though it has not officially been created yet • A success message is shown to the user • An error message is not shown to the user • Incorrectly filled fields are not highlighted
Assumptions and Constraints	• Some fields in the profile creation page are filled incorrectly • The phone number provided does not already exist in the system • The system is allowing new profiles to be created
Dependencies	No dependencies
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

Table 43: TC-10-04 – Test creating a user profile when an identical profile already exists

Test Case Number	TC-10-04 Test creating a user profile when an identical profile already exists
Test Item	Creating a new user profile with duplicate information as another profile is tested. The profile creation module should check the database to make sure that no profile exists with the same phone number as in the profile to be created.
Test Priority	M (Must Have)
Pre-conditions	The system should display a profile creation page. At least one user profile must exist in the system.
Post-conditions	The profile creation page should show an error message indicating that the entered phone number is already associated with a profile. The phone number field should be highlighted. A "help" button should appear, allowing the user to submit a support ticket requesting more details or requesting that the other profile be deleted.
Input Specifications	• Click create new profile • Input all required information correctly and input the

	same phone number as the phone number associated with an existing profile a) Optionally, also input voluntary information • Click "Register Profile"
Expected Output Specifications	The system should stay on the create profile page and the "Unable to create new profile. The phone number entered for this profile is already associated with another profile in the system" message should be shown, and the phone number field should be highlighted. A "help" button should appear. No new data should be added to the database at this time – the profile should not be added to the system.
Pass/Fail Criteria	Pass criteria: *This test will pass if all the conditions below are satisfied.* • The user profile is prevented from being created • The user is shown an error message • Phone number field is highlighted • Help button appears Fail criteria: *This test will fail if any of the following occurs.* • The system allows the profile to be created • The duplicate user profile is added to the database • Duplicate profiles can be found in the system • A success message is shown to the user • An error message is not shown to the user • Phone number field is not highlighted
Assumptions and Constraints	• The phone number provided already exists in the system • The system is allowing new profiles to be created
Dependencies	No dependencies
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

Table 44: TC-10-05 – Test creating a user profile when phone number cannot be verified

Test Case Number	TC-10-05 Test creating a user profile when phone number cannot be verified
Test Item	Creating a new user profile with a phone number that cannot be verified. The profile creation module should verify this phone number via the Nexmo API when the user attempts to register a profile.

Test Priority	M (Must Have)
Pre-conditions	The system should display a profile creation page.
Post-conditions	The profile creation page should show an error message indicating that the entered phone number cannot be verified. The phone number field should be highlighted. A "verify your phone number" button should appear, giving the user instructions on how to verify his number.
Input Specifications	• Click create new profile • Input all required information correctly i) Optionally, also input voluntary information • Click "Register Profile"
Expected Output Specifications	The system should stay on the create profile page and the "Unable to create new profile. The phone number entered for this profile cannot be verified" message should be shown, and the phone number field should be highlighted. A "verify your phone number" button should appear. No new data should be added to the database at this time – the profile should not be added to the system.
Pass/Fail Criteria	Pass criteria: *This test will pass if all the conditions below are satisfied.* • The user profile is prevented from being created • The user is shown an error message • Phone number field is highlighted • "Verify your phone number" button appears Fail criteria: *This test will fail if any of the following occurs.* • The system allows the profile to be created • The user profile is added to the database though the phone number has not been verified • A success message is shown to the user • An error message is not shown to the user • Phone number field is not highlighted
Assumptions and Constraints	• The system is allowing new profiles to be created
Dependencies	No dependencies
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

3.11 Test Identifier

TC- 11 Edit/Update user profile

Farmworkers should be able to update their profile information such as: contact information, password, and location.

3.11.1 Test Level

Unit Testing

3.11.2 Test Class

Erroneous input testing

3.11.3 Test Completion Criteria

This test case can be considered complete when:

- Able to view the current information.
- Able to change the information.
- Confirm if phone number is being updated.
- Able to save the information.

3.11.4 Test Cases

Table 45: TC-11-01 Change profile information

Test Case Number	TC-11-01 Change profile information
Test Item	The user is able to change his/her own profile information.
Test Priority	M (Must have)
Pre-conditions	The user opens his/her profile and inputs the new information and clicks save.
Post-conditions	User receives confirmation that profile was updated. User is able to see updated information on profile page
Input Specifications	- Click on profile - Click on edit - Enter new information - Click on submit
Expected Output Specifications	Receive message that the information was

	updated.

Pass/Fail Criteria	This test will pass if:
	    • User receives message information was updated
	    • When user goes back to profile can see the updated information.
	Otherwise it fails.

Assumptions and Constraints	none
Dependencies	none
Traceability	WC_4184: As a user, I should be able to create and modify my profile - weight / height / other metrics

3.12 Test Identifier

TC-12 Delete user profile

Farmworkers, farmers, and contractors should be able to delete their profile from the Farmworkers' Safety app anytime they want to.

3.12.1 Test Level

Unit Testing

3.12.2 Test Class

Erroneous input testing

3.12.3 Test Completion Criteria

This test case can be considered complete when:

- The system shows option for delete the user profile
- Ask the user the reason for deleting the profile
- Shows confirmation message to the user
- Delete the profile from the database

3.12.4 Test Cases

Table 46: TC-12-01 Successfully delete the profile

Test Case Number	TC-12-01 Successfully delete the profile
Test Item	The user would like to delete or deactivate his/her profile.
Test Priority	M (Must have)
Pre-conditions	The delete profile option is available to user on profile page.
Post-conditions	The system prompts the user to choose the reason why he/she is leaving the system. Prompts the user to confirm that he/she wants to delete the profile. Then success message is being shown to user.
Input Specifications	- Click on profile - Click on Delete Profile - Choose the reason - Click submit - Click Yes to confirm that you want to delete the profile - Click on confirm
Expected Output Specifications	After choosing the reason and confirm the he/she wants to delete the profile. User receives a message that the profile was deleted. The profile is being deleted from the database, and user cannot log back in.
Pass/Fail Criteria	This test will pass if: - User receives message that profile was deleted - User cannot login with old credentials Otherwise it fails.
Assumptions and Constraints	none
Dependencies	none
Traceability	WC_4180: As a user, I should be able to disable my account.

Table 47: TC-12- 02: The delete function deletes only the selected profile

Test Case Number	TC-12-02 The delete function deletes only the selected profile
Test Item	After user performs delete on his profile only his account is being deleted and all other accounts or profiles are still available on system.
Test Priority	M (Must have)
Pre-conditions	The user completes the profile delete
Post-conditions	Only that user's profile is deleted from the

	database
Input Specifications	• Click Yes to confirm the Delete • Click on Sign-in • Enter other user credentials • Click log-in
Expected Output Specifications	After a user successfully deleted his profile, only his profile is deleted from the database and no others.
Pass/Fail Criteria	This test will pass if: • A user deleted his account successfully • Only that profile is deleted from the database Otherwise it will fail.
Assumptions and Constraints	none
Dependencies	none
Traceability	WC_4180: As a user, I should be able to disable my account.

3.13 Test Identifier

TC-13 Register Farm

Admin should be able to register a farm with the system so that workers can select that farm as their location to receive notifications

3.13.1 Test Level

Unit Testing

3.13.2 Test Class

Erroneous input testing

3.13.3 Test Completion Criteria

This test case can be considered complete when:

- Admin is able to register their farm with the system
- Farm worker is able to then select that farm as their location

3.13.4 Test Cases

Table 48: TC-13-01 Successfully register farm

Test Case Number	TC-13-01 Successfully register farm
Test Item	Admin should be able to register a farm with the system
Test Priority	M (Must have)
Pre-conditions	• The farm owner requests that their farm be added to the system and supplies the required information • Admin inputs that information in the farm registration page
Post-conditions	The farm is registered with the system, saving its location so that workers can select that farm as their location and receive notifications for that area
Input Specifications	• Admin goes to the farm registration page • Admin inputs the farm name, address, zip code, and other required information • Admin then hits submit
Expected Output Specifications	That farm is registered with the system and a farm worker is then able to select that farm as their location
Pass/Fail Criteria	This test will pass if: • Admin can register a farm • Farm worker can then select that farm as their location Otherwise it fails.
Assumptions and Constraints	none
Dependencies	none
Traceability	WC_4175: As an admin, I should be able to see all of the information of the farm

Table 49: TC-13-02 System registers farm to a different farm code than what farmer requested

Test Case Number	TC-13-02 System registers farm to a different farm code than what farmer requested
Test Item	System should register the correct farm code
Test Priority	M (Must have)
Pre-conditions	• Number of the user should be in the

	system • User texts a valid farm code to the system
Post-conditions	The user does not receive the correct confirmation message from the system
Input Specifications	• User has already registered with system • User texts valid farm code to the system
Expected Output Specifications	User does not receive the correct confirmation message and the system sends a warning that it did not register that user correctly
Pass/Fail Criteria	This test will pass if: • The system sends a warning Otherwise it fails.
Assumptions and Constraints	none
Dependencies	none
Traceability	WC_4156: As a user, I should be able to receive temperature based notification via text when it exceeds a threshold

Table 50: TC-13-03 System does not register farmer at requested farm code

Test Case Number	TC-13-03 System does not register farmer at requested farm code
Test Item	System should register the correct farm code
Test Priority	M (Must have)
Pre-conditions	• Number of the user should be in the system • User texts a valid farm code to the system
Post-conditions	The user does not receive the correct confirmation message from the system
Input Specifications	• User has already registered with system • User texts valid farm code to the system
Expected Output Specifications	User does not receive the correct confirmation message and the system sends a warning that it did not register that user correctly
Pass/Fail Criteria	This test will pass if: • The system sends a warning Otherwise it fails.
Assumptions and Constraints	none
Dependencies	none
	WC_4156: As a user, I should be able to receive temperature based notification via text when it

Traceability	exceeds a threshold

3.14 Test Identifier

TC-14 Login/Logout

User should be able to login and logout of the web app

3.14.1 Test Level

Unit Testing

3.14.2 Test Class

Erroneous input testing

3.14.3 Test Completion Criteria

This test case can be considered complete when:

- User is able to login to the web app
- User is able to logout of the web app
- User is able to select forgot password and have a new one sent to their email

3.14.4 Test Cases

Table 51: TC-14-01 Login

Test Case Number	TC-14-01 Login
Test Item	User should be able to login to the web app if they have already registered with the system
Test Priority	M (Must have)
Pre-conditions	- User has registered with the web app - User enters their username and password and then hits the login button
Post-conditions	User is taken to their profile page
Input Specifications	- User enters username and password - User hits the login button
Expected Output Specifications	User is taken to their profile page where they can then use the system
	This test will pass if:

Pass/Fail Criteria	• User is able to enter their login credentials and then be taken to their profile page Otherwise it fails.
Assumptions and Constraints	User already has registered with the system
Dependencies	none
Traceability	WC_4176: As a user, I should know how to work with the application

Table 52: TC-14-02 Logout

Test Case Number	TC-14-02 Logout
Test Item	User should be able to logout of the system
Test Priority	M (Must have)
Pre-conditions	User is currently logged in
Post-conditions	User is logged out of the system
Input Specifications	• User is currently logged in • User hits the logout button
Expected Output Specifications	User is logged out of the system and is not able to access the system
Pass/Fail Criteria	This test will pass if: • User can hit the logout button and be logged out of the system • User can no longer access any content of the system Otherwise it fails.
Assumptions and Constraints	User is already logged in
Dependencies	TC-14-01
Traceability	WC_4176: As a user, I should know how to work with the application

Table 53: TC-14-03 Forgot password

Test Case Number	TC-14-03 Forgot password
Test Item	User should be able to select the forgot password option to receive a new password
Test Priority	M (Must have)
Pre-conditions	• User has an account with the system • User has forgotten their password
Post-conditions	User receives and email with a new password to

	login with
Input Specifications	• User enters username • User hits the forgot password link
Expected Output Specifications	System emails the user with a new password that they can then use to login
Pass/Fail Criteria	This test will pass if: • User can request a new password • System emails them a new password • User can login with that new password Otherwise it fails.
Assumptions and Constraints	User already has account with the system
Dependencies	none
Traceability	WC_4176: As a user, I should know how to work with the application

4. Resources and schedule

4.1 Resources

Currently as per the requirements we developed a prototype to showcase the most important capabilities. Initial testing was done for these capabilities and the document also describes the testing to be done for all the capabilities of the project.

The final testing would be done once all the functionalities are available.

Data Set: We used sample data to test the modules.
Software: NUnit for ASP.NET
Budget: All test units are available for free, so $0.
For integrated and continuous testing, we'll use Selenium.

4.2 Staffing and Training Needs

David and Fereshteh, as the two DEN students, will be in charge of creating the unit/acceptance tests.

Training required: None

4.3 Schedule

Table 54: Testing Schedule

Date	Test Identifier	Responsible person	Resources	Training needs
2/13/17	TC-01, TC-02	Fereshteh	Computer with installed web app Phone	N/A
3/1/17	TC-03-TC-04	David	Computer with installed web app Phone	N/A
3/15/17	TC-05-TC-06	David	Computer with installed web app Phone	N/A
3/27/17	TC-07-TC-08	Fereshteh	Computer with installed web app Phone	N/A
3/27/17	TC-09	Fereshteh	Computer with installed web app Phone	N/A
3/27/17	TC-10-TC-12	David	Computer with installed web app Phone	N/A
3/27/17	TC-13	David	Computer with installed web app Phone	N/A
3/27/17	TC-14	David	Computer with installed web app Phone	N/A