
Global Frog Games

**Sir Stanley's Well Rounded Adventure
Testing Plan**

Version 1.4

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Revision History

Date	Version	Description	Author
10/4/20	1.0	Initial writeup	Brooke Smith
15/4/2020	1.1	Tutorial and Tips Screen Testing	Nick Bonavia
15/4/20	1.2	Color categories, score screen, and achievement testing	Sellars Levy
23/4/20	1.3	Goalie Defender, Goalie shootout 1 and 2	Westen Riley
3/5/20	1.4	Final Edits	Brooke Smith, Nick Bonavia

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Iteration Plan

1. Introduction

1.1 Purpose

The purpose of this test plan is to specify how we will ensure our mobile game is bug free. This document will include information about what level we will be testing our project (unit, integration, system) and how we will be testing each component.

1.2 Testing Environment

Due to some limitations on installing the game to a mobile device, half of our team will be testing *Sir Stan's Well Rounded Adventure* on their phones (iPhone, Android), while the other half will be testing the game on their computers (running various operating systems). Unfortunately due to Covid-19, testing on a mobile device that the game is intended to run on is not available to our entire group.

1.3 Definitions, Acronyms, and Abbreviations

See the glossary.

1.4 References

Team website:

<http://riogrande.cs.tcu.edu/1920GlobalGameApp/index.html>

Glossary

Vision Document

Developers Guide

Software Development Plan

Installation and User Guide

Software Requirements Specification

Testing Plan

Github Repository:

<https://github.com/tcuseriordesigncourse/globalgameapp>

2. Descriptions of Tests

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2.1 Test 1 - Title Screen

Objectives:

1. Test that the title screen is displayed upon launch.
2. Ensure the music is playing when the game is launched.
3. Test all of the buttons on the title screen to ensure that they lead to the right place and play the correct sound.

Description:

The tester will launch the game on their device. The tester will ensure the music is playing (and record if it is too loud or too soft). The tester will then test every button by tapping each one.

Expected Results:

The title screen should appear when launching the game and the “menu music” should play. The buttons should lead to their correct destinations and will play the “menu button sound” when tapped.

2.2 Test 2 - Map Screen

Objectives:

1. Test that the Map Screen is displayed upon hitting the “Play” button on the Title Screen.
2. Ensure the music switches to the map screen music.
3. Test that the map scrolls left and right.
4. Test the “Back” button to ensure that it leads back to the main menu and plays the correct sound.
5. Test every level button to ensure that it displays the pre-mini-game progress screen, plays the correct sound, and displays the correct amount of stars achieved in that minigame.
6. Test every pre-mini-game progress screen by ensuring that the back and play buttons do what they are meant to do as well as play the button sound.

Description:

The tester will press the “Play” button by tapping/clicking it and will ensure that the Map Screen is displayed and that the Map Screen music is played. The tester will then check that the map scrolls left and right by swiping or scrolling depending on the testing environment. Then the tester will test every level button by tapping them to ensure that it displays the proper “pre-mini-game” progress screen, plays the correct sound, and displays the proper amount of stars achieved in the minigame. The tester will also check the “Play” and “Back” buttons on the pre-mini-game progress screen. Finally, the tester will test the Map Screen’s “Back” button.

Expected Results:

The Map Screen will be displayed and the Map Screen music will play. The map can scroll left and right. Each button should play a sound and cause the correct “pre-mini-game” progress screen to be displayed. Each “pre-mini-game” progress screen should display the amount of stars that the player has achieved for the minigame. The “pre-mini-game” progress screen’s “Play” button should lead to the correct minigame, and the “Back” button should cause the progress screen to disappear. Finally, the Map Screen’s “Back” button will bring the player back to the main Title Screen.

2.3 Test 3 - Falling Food (Level 1)

Objectives:

1. Verify that the correct music is playing.

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2. Verify that there is a three second countdown before the game begins.
3. Verify that there is a 60 second countdown that starts when the game begins.
4. Test the ability to move the basket left and right.
5. Verify that the foods are falling in a random order.
6. Verify that the overall score is correct.
7. Verify that the food categories are counted correctly.

Description:

The tester will tap “Play” from the tutorial and ensure that the three second countdown will begin. The tester will ensure that the 60 second countdown will play when the three second countdown finishes. The tester will now test that the basket can move left and right by tapping to the right of the basket and the left of the basket. The player will then test the scoring by playing the game. The tester should track how many foods they caught overall, as well as how many of each category of food. The tester should repeat this process for a second time to ensure that the foods are falling in a random order.

Expected Results:

A three second countdown will play after the “Play” button is tapped. When the three second countdown is finished, the 60 second countdown will start and the game will now be playable and foods will be falling from the top of the screen in a random order. When the tester taps to the left of the basket, the basket will move to the left. When the tester taps to the right of the basket, the basket will move to the right. When the player catches any food, the score will increment by one. The score for the category of food that the tester caught will also be incremented by one. When the 60 seconds are up, the game will end.

2.4 Test 4 - Sir Stanley’s Goalie Shootout (Level 1)

Objectives:

1. Verify that the correct music is playing.
2. Verify that there is a three second countdown before the game begins.
3. Verify that there is a 30 second countdown that starts when the game begins.
4. Test the ability to kick the ball in any direction.
5. Verify that the ball can be scored when it enters the goalie net.
6. Verify that the ball can be blocked when hitting an object that is not the goal.
7. Verify that the ball can be reset after hitting an object that is not the goal.
8. Verify the game ends when the time is done.

Description:

The tester will tap “Play” from the tutorial and ensure that the three second countdown will begin. The tester will ensure that the 30 second countdown will play when the three second countdown finishes. The tester will now test that the ball can be kicked in any direction by clicking anywhere on the screen and seeing the ball move in that direction. The player will then test the scoring by playing the game - when the ball enters the goal. The tester should track how many goals they scored overall, as well as testing to see the ball reset correctly and blocked by objects.

Expected Results:

A three second countdown will play after the “Play” button is tapped. When the three second countdown is finished, the 30 second countdown will start and the game will now be playable and the ball can be kicked in any random direction. When the tester taps on the screen the ball will move in that direction. When the player “kicks” the ball into the goalie net, the score will increment by one. When the player kicks the ball into an object that is not the goal net - the ball will reset.. When the 30 seconds are up, the game will end.

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2.5 Test 5 - Stan's Snacks (Level 1)

Objectives:

1. Verify that the correct music is playing.
2. Verify that there is a three second countdown before the game begins.
3. Test that touching the correct answer box triggers the green 'correct' overlay.
4. Test that touching the incorrect answer box triggers the red 'incorrect' overlay.
5. Test that touching both answer boxes at approximately the same time, does not produce any odd or unexpected behavior.
6. Test that the user can not quickly select an answer choice multiple times for the same question.
7. Test the pause button, to verify that the game pauses, the user can not select an answer choice during that state, and the score does not increment.
8. Test that the number of correct answers matches the corresponding number of stars received upon completion of the game.
9. Touch anywhere and everywhere else on the screen to make sure there are not unexpected behaviors.

Description:

The tester will launch the Stan's Snacks mini game from the map scene. The countdown timer should then start and the first item should appear on screen, with the 'Fruit' and 'Vegetable' buttons appearing below. The tester will play through the game normally and make sure all expected results are achieved. Then the tester will follow the seven steps listed above and compare the behaviors.

Expected Results:

Pressing the correct answer should bring up green overlay, pressing incorrect should bring up a red overlay. Pressing the correct answer should increment the score by 1, incorrect answers should not increment or decrement. Pressing the pause menu should pause the game, and disable the user from interacting with the game during the time the pause is active.

Only one button should be allowed to be pressed for each question.

The score screen showing the total points, and corresponding stars should appear upon completion of the twelve questions.

Any other results are considered unexpected behavior and potentially require fixes, depending on the severity.

2.6 Test 6 - Color Categories (Level 1)

Objectives:

1. Verify that the correct music is playing.
2. Verify that there is a three second countdown before the game begins.
3. Test that touching the correct answer box triggers the green 'correct' overlay.
4. Test that touching the incorrect answer box triggers the red 'incorrect' overlay.
5. Test that touching multiple answer boxes at approximately the same time, does not produce any odd or unexpected behavior.
6. Test that the user can not quickly select an answer choice multiple times for the same question.
7. Test the pause button, to verify that the game pauses, the user can not select an answer choice during that state, and the score does not increment.

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8. Test that the number of correct answers matches the corresponding number of stars received upon completion of the game.
9. Touch anywhere and everywhere else on the screen to make sure there are not unexpected behaviors.
10. Test that the timer will expire and load the next question if an answer isn't picked.

Description:

The tester will launch the Color Categories mini game from the map scene. The countdown timer should then start and the first item should appear on screen, with the four colored buttons appearing below. The tester will play through the game normally and make sure all expected results are achieved. Then the tester will follow the eight steps listed above and compare the behaviors.

Expected Results:

Pressing the correct answer should bring up green overlay, pressing incorrect should bring up a red overlay. Pressing the correct answer should increment the score by 1, incorrect answers should not increment or decrement. Pressing the pause menu should pause the game, and disable the user from interacting with the game during the time the pause is active.

Only one button should be allowed to be pressed for each question.

The score screen showing the total points, and corresponding stars should appear upon completion of the questions. Any other results are considered unexpected behavior and potentially require fixes, depending on the severity.

2.7 Test 7 - Goalie Defender (Level 1)

Objectives:

1. Verify that the correct music is playing.
2. Verify that there is a three second countdown before the game begins.
3. Verify there are three hearts when the game starts.
4. Verify that the ball is being randomly kicked in a direction.
5. Test the ability to drag the defender left and right.
6. Verify that the ball can be blocked by the defender.
7. Verify that when a ball is blocked - the score counter goes up.
8. Verify that when the ball enters the net a heart is taken away.
9. Verify that when all three hearts are gone - the game ends.

Description:

The tester will tap "Play" from the tutorial and ensure that the three second countdown will begin. The tester will ensure that the defender can be dragged left and right to both edges of the screen. The tester will now test that the ball can be blocked by the defender and that the ball is kicked in a random direction each time. The player will then test the scoring by playing the game - when the ball is blocked, the score goes up. When a ball enters the goal - a heart is taken away. The player will let all three hearts be taken away to make sure the game ends when all three hearts are taken away.

Expected Results:

A three second countdown will play after the "Play" button is tapped. When the three second countdown is finished, the game will start playing and the ball will start being kicked in random directions. When the tester drags their finger on the screen the goalie will follow along the same position in a linear line. When the player blocks a ball from being scored, the score goes up. When the ball enters the net a heart will be taken away. When all three hearts are taken away the game will end.

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2.8 Test 8 - Falling Food (Level 2)

Objectives:

1. Verify that the correct music is playing.
2. Verify that there is a three second countdown before the game begins.
3. Verify that there is a 60 second countdown that starts when the game begins.
4. Test the ability to move the basket left and right.
5. Verify that the foods are falling in a random order.
6. Verify that the overall score is correct.
7. Verify that the food categories are counted correctly.
8. Verify that catching a “balanced meal” (carb, fruit, vegetable, and protein) will cause the score to be affected by a multiplier.
9. Verify that the steps needed to catch a balanced meal work as it should.

Description:

The tester will tap “Play” from the tutorial and ensure that the three second countdown will begin. The tester will ensure that the 60 second countdown will play when the three second countdown finishes. The tester will now test that the basket can move left and right by tapping to the right of the basket and the left of the basket. The player will then test the scoring by playing the game. The tester should track how many foods they caught overall, as well as how many of each category of food.

To test the “balanced meal” multiplier:

1. Catch one fruit, one vegetable, one carb, and one protein in any order without catching any duplicates of any of them. To ensure that this is working correctly, the tester should try to catch the four food groups in various orders.
 - a. Example: First catch a fruit, then vegetable, then carb, then protein. For the next test, catch a carb, then a fruit, then a vegetable, then a protein.
2. The tester should also try “interrupting” these streaks by catching a duplicate of one category of food before finishing the “balanced meal”
3. Example: Catch a protein, a fruit, a carb, and another protein.

Expected Results:

A three second countdown will play after the “Play” button is tapped. When the three second countdown is finished, the 60 second countdown will start and the game will now be playable and foods will be falling from the top of the screen in a random order. When the tester taps to the left of the basket, the basket will move to the left. When the tester taps to the right of the basket, the basket will move to the right. When the player catches any food, the score will increment by one. The score for the category of food that the tester caught will also be incremented by one.

For testing the “balanced meal” multiplier:

1. When the tester begins to catch a “balanced meal” a visual indicator in the form of a checkmark will be displayed next to the food category count if the tester has caught that type of food.
2. When the tester catches a “balanced meal” the multiplier will be incremented by one. The overall score will now be affected by this multiplier. Any foods caught with this multiplier will now count as $(1 * m)$ with “m” being the current multiplier.
3. When the player “interrupts” a “balanced meal”, all of the check marks will be hidden.

When the 60 seconds are up, the game will end.

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2.9 Test 9 - Stanley's Goalie Shootout (Level 2)

Objectives:

1. Verify that the correct music is playing.
2. Verify that there is a three second countdown before the game begins.
3. Verify that there is a 30 second countdown that starts when the game begins.
4. Test the ability to kick the ball in any direction.
5. Verify that the ball can be scored when it enters the goalie net.
6. Verify that the ball can be blocked when hitting an object that is not the goal.
7. Verify that the ball can be reset after hitting an object that is not the goal.
8. Verify the game ends when the time is done.

Description:

The tester will tap "Play" from the tutorial and ensure that the three second countdown will begin. The tester will ensure that the 30 second countdown will play when the three second countdown finishes. The tester will now test that the ball can be kicked in any direction by clicking anywhere on the screen and seeing the ball move in that direction. The player will then test the scoring by playing the game - when the ball enters the goal. The tester should track how many goals they scored overall, as well as testing to see the ball reset correctly and blocked by objects.

Expected Results:

A three second countdown will play after the "Play" button is tapped. When the three second countdown is finished, the 30 second countdown will start and the game will now be playable and the ball can be kicked in any random direction. When the tester taps on the screen the ball will move in that direction. When the player "kicks" the ball into the goalie net, the score will increment by one. When the player kicks the ball into an object that is not the goal net - the ball will reset.. When the 30 seconds are up, the game will end.

2.10 Test 10 - Stan's Snacks (Level 2)

Objectives:

1. Verify that the correct music is playing.
2. Verify that there is a three second countdown before the game begins.
3. Test that touching the correct answer box triggers the green 'correct' overlay.
4. Test that touching the incorrect answer box triggers the red 'incorrect' overlay.
5. Test that touching two or more answer boxes at approximately the same time, does not produce any odd or unexpected behavior.
6. Test that the user can not quickly select an answer choice multiple times for the same question.
7. Test the pause button, to verify that the game pauses, the user can not select an answer choice during that state, and the score does not increment.
8. Test that the number of correct answers matches the corresponding number of stars received upon completion of the game.
9. Touch anywhere and everywhere else on the screen to make sure there are not unexpected behaviors.

Description:

The tester will launch the Stan's Snacks Level 2 mini game from the second map scene. The countdown timer should then start and the first item should appear on screen, with the 'Carb', 'Protein', and 'Fat' buttons appearing below. The tester will play through the game normally and make sure all expected results are achieved. Then the

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tester will follow the seven steps listed above and compare the behaviors.

Expected Results:

Pressing the correct answer should bring up green overlay, pressing incorrect should bring up a red overlay. Pressing the correct answer should increment the score by 1, incorrect answers should not increment or decrement. Pressing the pause menu should pause the game, and disable the user from interacting with the game during the time the pause is active.

Only one button should be allowed to be pressed for each question.

The score screen showing the total points, and corresponding stars should appear upon completion of the twelve questions.

Any other results are considered unexpected behavior and potentially require fixes, depending on the severity.

2.11 Test 11 - Tutorials

Objectives:

1. Test that the tutorial appears before each minigame starts
2. Test the “Next” button works and changes to “finished” when the tutorial is done
3. Test that each section of the tutorial is successfully shown

Description:

The tester will launch each minigame and verify they’re greeted with the tutorial for the specific minigame. After this, the tester will verify that clicking the “Next” button functions correctly, and that the “Finish” button ends the tutorial.

Expected Results:

Pressing the “Next” button should change the tutorial content to the next paragraph
Pressing the “Finish” button should end the tutorial and remove the tutorial from the screen.

2.12 Test 12 - Score Screens

Objectives:

1. Test that the score screen appears upon completion of each minigame.
2. Test that the ‘Back to Map’ button returns the user to the map.
3. Verify that the correct number of stars and score are displayed.
4. Verify that the correct number of fruits, vegetables, carbs, and proteins are shown for the ‘Falling Food’ minigames.

Description:

Upon completion of any minigame, the score screen should appear and display the final score and the number of stars the player received. When the ‘Back to Map’ button is pressed, the user should be brought back to the map screen.

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Expected Results:

The correct number of stars and score should be displayed.
The 'Back to Map' button should return the tester to the map.

2.13 Test 13 - Achievements

Objectives:

1. Verify that all achievements are displayed under the 'Collections' tab.
2. Complete each achievement and verify that it gets updated to show it is complete.
3. Verify that achievements remain unlocked when the game is reloaded.

Description:

The tester will open the achievements page and verify that all achievements are locked, then proceed to complete each achievement. Upon completion of each achievement, the tester will return to the achievement page to verify that the specific achievement is now unlocked. The tester will continue this until all achievements are unlocked then verify that they remain unlocked when the game is next opened.

Expected Results:

All achievements should be initially locked.
Each achievement should become unlocked when completed.
Once unlocked, an achievement should not go back to being locked.

2.14 Test 14 - Tips

Objectives:

1. Verify that all each minigame has an entry in the Tips screen
2. Pressing on the "button" for each minigame works and takes you to the specified tip
3. Verify Tip content is displayed correctly
4. Test the "Back" button works in a tip and takes you back to the Tips screen
5. Test "Back" button in Tips screen returns to Main Menu

Description:

Verify the functionality of menu buttons and that content is displayed correctly on screen. Also, to verify the content is easily readable and is the correct content.

Expected Results:

Pressing a Tip button takes you to the specified tip.
Content in Tip is accurate and scrollable/accessible
Back button in a Tip returns you to the Tips screen
Back button in Tips screen returns you to the Main Menu