Software Test Case Document

for

CS451-002 Group 3 Project

Revision 0.91

|  |  |
| --- | --- |
| **Group Members** | Korede Aderele  Natie Kolbe  Samara Painter  Alex Veltchev |
| **Faculty Advisor** | Dr. Filippos Vokolos, Ph. D |

Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Date** | **Reason for Change** | **Revision** |
| Samara Painter | 2/19/2019 | Initial Document Creation – all sections specified, tester environments, test cases, and glossary not filled out | 0.9 |
| Samara Painter | 2/28/2019 | Specified test cases apart from legal checkers moves. | 0.91 |

Table of Contents

[1. Introduction 4](#_Toc1496627)

[1.1 Definitions, Acronyms, and Abbreviations 4](#_Toc1496628)

[1.2 References 4](#_Toc1496629)

[2. Testing Environments 5](#_Toc1496630)

[2.1 Environment 1 – Player 1 5](#_Toc1496631)

[2.2. Environment 2 – Player 2 5](#_Toc1496632)

[3. Setup Information and Prerequisites 6](#_Toc1496633)

[4. Test Cases 7](#_Toc1496634)

[4.1 Test Case Set A: Initialize Game 7](#_Toc1496635)

[4.1.1 Description 7](#_Toc1496636)

[4.1.2 Preconditions 7](#_Toc1496637)

[4.1.3 Scenarios 7](#_Toc1496638)

[4.2 Test Case Set B: Gameplay 7](#_Toc1496639)

[4.2.1 Description 7](#_Toc1496640)

[4.2.2 Preconditions 7](#_Toc1496641)

[4.2.3 Scenarios 7](#_Toc1496642)

[4.3 Test Case Set C: End Game 7](#_Toc1496643)

[4.3.1 Description 7](#_Toc1496644)

[4.3.2 Preconditions 7](#_Toc1496645)

[4.3.3 Scenarios 8](#_Toc1496646)

[5. Appendix 9](#_Toc1496647)

[5.1 Glossary 9](#_Toc1496648)

# 1. Introduction

The purpose of this document is to outline the specific testing approaches and test cases used to evaluate the functionality, performance, and completeness of the *CS451-002 Group 3 Project,* as defined by the requirements outlined in the *Software Requirements Specification for the CS451-002 Group 3 Project.* The project is a web application that facilitates a game of checkers between two remote users.

## 1.1 Definitions, Acronyms, and Abbreviations

Please refer to the Appendix and Glossary sections for any definitions and abbreviations.

## 1.2 References

This document references requirements and software architecture as specified in the *Software Requirements Specification for the CS451-002 Group 3 Project* and *Software Design for CS451-002 Group 3 Project* documents.

# 2. Testing Environments

The project and all associated test cases, as outlined in this document, have been run within the following test environments.

## 2.1 Environment 1 – Player 1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Machine Name |  | DB Directory | N/A | | | | | |
| OS and Version | Windows 10;  8 GB RAM;  256 GB SSD | Interpreter Platform |  | | | Client Server / Back-End | AWS  (Node.js) | |
| Tester Name | Samara Painter | | | Test Date |  | | |
| New Log |  | | | | State | |  |

## 2.2. Environment 2 – Player 2

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Machine Name |  | DB Directory | N/A | | | | | |
| OS and Version |  | Interpreter Platform |  | | | Client Server / Back-End | AWS  (Node.js) | |
| Tester Name | Natie Kolbe | | | Test Date |  | | |
| New Log |  | | | | State | |  |

# 3. Setup Information and Prerequisites

Prior to testing the project, the following prerequisites must be met:

* The project and all test cases can be run by launching the project with no additional setup.
* The project contains a GUI, which is the only method of interaction the user has with the project.
* All computers the tests are being run on have a working, stable internet connection.
* The AWS server hosting the project server is up and running properly.

# 4. Test Cases

Once the following test cases pass, the *CS451-002 Group 3 Project* fulfills all Priority 1 requirements as outlined by the *Software Requirements Specification for the CS451-002 Group 3 Project* and is considered complete and correct.

## 4.1 Test Case Set A: Initialize Game

### 4.1.1 Description

These test cases cover the expected scenarios that may occur when starting a game. For these tests, Player 1 and Player 2 will be attempting to start a game against each other. Their respective environments are specified in section 2.

### 4.1.2 Preconditions

All preconditions outlined in section 3, unless specified otherwise by the execution steps. Additionally, unless specified in the execution steps, only 2 testers are attempting to run the client application at the same time. Tests A4-A6 will only be run by a separate, third tester.

### 4.1.3 Scenarios

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test Case | | | | | | |
| ID | Req | Priority | Description | Execution Steps | Expected Result | Actual Result |
| A1 | 4.4.2  4.4.3 | High | Download Client Application | 1. Open a browser of choice.  2. Navigate to <https://github.com/SamaraPainter/CS451-002Group3> and click on the “Download” link. | The client app file is downloaded and is > 0 mb in size. |  |
| A2 | 3.2.1.1  5.1.1  5.1.2 | High | Launch Client Application | 1. Launch the application by running the downloaded client app file. | The default browser is opened with a screen that says “Connecting…”. |  |
| A3 | 3.1.1.1  5.1.2  5.1.2.3 | High | Connection Successful | 1. Wait for the “Connecting…” browser screen to change. | The screen updates to say “Connected” in < 1 minute. The screen stays active for 3 seconds before updating again. |  |
| A4 | 3.1.1.1.1  3.1.1.2.1  5.1.2  5.1.2.1  5.1.2.2 | High | Connection Unsuccessful – Game in Progress | **(Tester 3 Only)**  1. Wait for two other testers to launch the client application and successfully reach the “Connected” screen.  2. Launch the client application.  3. Wait for the “Connecting…” screen to update. | The screen updates to say “Unable to Connect – Game in Progress” in < 1 minute. Two buttons appear on the screen: “Try Again,” and “Quit.” |  |
| A5 | 5.1.2.2.1 | Medium | Try Again Button | **(Tester 3 Only)**  1. Click the “Try Again” button on the “Unable to Connect” screen. | The screen updates to the “Connecting…” screen. |  |
| A6 | 5.1.2.2.2 | Medium | Quit Button | **(Tester 3 Only)**  1. Click the “Quit” button on the “Unable to Connect” screen. | The browser closes. |  |
| A7 | 5.1.2.3.1  5.2.1  5.2.2 | High | Game Options Screen | 1. After the “Connected” screen is reached, wait 3 seconds. | The screen updates to the “Game Options” screen. The screen contains a “Start Game” button and a “Nickname” text box. |  |
| A8 | 5.2.1.1  5.2.1.1.1  5.2.1.1.2 | Medium | Nickname – Invalid Characters | 1. Enter a nickname containing at least one special character or number (not a letter or a space).  2. Attempt to click the “Start Game” button. | Observe that the “Start Game” button is unclickable. Additionally, a message appears stating “Invalid nickname entered. Must only contain letters or spaces.” |  |
| A9 | 5.2.1.2 | Medium | Nickname - > 32 Characters | 1. Enter 32 valid characters (letters or spaces) into the nickname text box.  2. Attempt to enter a 33rd character. | Observe that the 33rd character does not appear in the text box. |  |
| A10 | 3.2.1.2  5.2.2  5.3.1  5.3.1.1  5.3.2 | High | Start Game Button | 1. Enter a valid nickname.  2. Click the “Start Game” button. | The screen updates to contain a checker board GUI. The checker board is an 8x8 grid in alternating light and dark colors that are neither red nor black. There are 12 black pieces and 12 red pieces on the board. |  |
| A11 | 5.1.2  5.1.2.1  5.1.2.2 | Medium | Connection Unsuccessful – Server Not Found | 1. Stop the server.  2. Launch the client application.  3. Wait for the “Connecting…” screen to update. | The screen updates to say “Unable to Connect – Server not Found” in < 1 minute. Two buttons appear on the screen: “Try Again,” and “Quit.” |  |

## 4.2 Test Case Set B: Gameplay

### 4.2.1 Description

These test cases cover the expected scenarios that may occur while playing a game. For these tests, Player 1 and Player 2 will be playing against each other. Their respective environments are specified in section 2.

### 4.2.2 Preconditions

All preconditions outlined in section 3. Additionally, a game must already be set up and active between Player 1 and Player 2.

### 4.2.3 Scenarios

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test Case | | | | | | |
| ID | Req | Priority | Description | Execution Steps | Expected Result | Actual Result |
| B1 | 3.2.2.3.1  5.3.2.1  5.3.2.1.1 | High | Select Piece to Move | 1. Wait until it is the player’s turn.  2. Attempt to click a piece that is not flashing yellow (that is the player’s).  3. Click a piece that is flashing yellow. | Observe that nothing happens when a piece not flashing is clicked. When the piece is clicked, all other pieces will stop flashing and some spaces will start flashing. |  |
| B2 | 5.3.2.1.3 | High | Deselect Piece | 1. Click the remaining flashing yellow piece. | The spaces stop flashing, the other pieces that were previously flashing resume flashing. |  |
| B3 | 3.2.2.3.2  3.2.2.4  5.3.2.1.2  5.3.2.1.2.2 | High | Select Move | 1. Click a flashing yellow piece.  2. Click a flashing yellow space.  3. Attempt to click another piece. | Everything stops flashing yellow. Observe that the pieces are no longer clickable. The selected piece is now on the selected space. |  |
| B4 | 5.3.2.1.2.4 | Low | Move Animation | 1. Select a flashing yellow piece.  2. Select a flashing yellow space. | Observe a short animation in which the selected piece follows the selected move’s path, ending on the selected space. |  |
| B5 | 5.3.2.1.2.3  5.3.2.1.2.3.2  5.4.1  5.4.1.1  5.4.2 | Medium | Waiting for Opponent | 1. Select a flashing yellow piece.  2. Select a flashing yellow space.  3. Wait 3 seconds. | Observe a splash screen displayed over the GUI that displays the text “Waiting for Opponent”. The screen is partially see-through. |  |
| B6 | 3.2.2.5  3.2.2.6  5.4.3 | High | Opponent Ends Turn | 1. Reach the splash screen that occurs 3 seconds after selecting a move.  2. Wait for the other player to make a move. | Observe the splash screen disappearing and the board reflecting the other player’s move. |  |
| B7 | 5.3.2.1.2.1 | High | Capture a Piece | 1. Select a flashing yellow piece.  2. Select a flashing yellow space that is on the other side of an opponent’s piece (select a move that captures a piece). | Observe that the opponent’s piece that was captured is removed from the board. |  |
| B8 | 3.2.2.3.3  5.3.2.1.2.1  5.3.3  5.3.3.1 | Medium | Capture Counter | 1. Select a flashing yellow piece.  2. Select a flashing yellow space that is on the other side of an opponent’s piece (select a move that captures a piece). | Observe that the number in the “Captures” box increases by 1. The number is not less than 0 or greater than 12. |  |
| B9 |  |  |  | NATIE ADD ADDITIONAL MOVES HERE (NO GAME ENDING MOVES) |  |  |

## 4.3 Test Case Set C: End Game

### 4.3.1 Description

These test cases cover the expected scenarios that may occur while ending a game. For these tests, Player 1 and Player 2 will be in an active game against each other. Their respective environments are specified in section 2.

### 4.3.2 Preconditions

All preconditions outlined in section 3. Additionally, a game must already be set up and active between Player 1 and Player 2.

### 4.3.3 Scenarios

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test Case | | | | | | |
| ID | Req | Priority | Description | Execution Steps | Expected Result | Actual Result |
| C1 | 5.5.1  5.5.1.1  5.5.2  5.3.2.1.2.3.1 | High | Win Game | 1. Select a flashing piece.  2. Select a flashing space that captures the opponent’s last piece.  3. Wait 3 seconds. | A game result screen is displayed on top of the board GUI specifying “Winner.” The screen is partially see-through. |  |
| C2 | 5.5.2 | High | Lose Game | 1. Allow opponent to capture all pieces.  2. Wait for screen to update. | A game result screen is displayed specifying “Loser.” |  |
| C3 | 5.3.4 | Medium | Forfeit Button | 1. Click the “Forfeit” button. | A game result screen is displayed specifying “Forfeit.” |  |
| C4 | 5.3.4  5.5.2 | Medium | Opponent Forfeit | 1. Opponent click the “Forfeit” button.  2. Wait for screen to update. | A game result screen is displayed specifying “Winner.” |  |
| C5 | 5.5.2 | High | Opponent Close Browser | 1. Opponent close browser displaying game.  2. Wait for screen to update. | A game result screen is displayed specifying “Winner.” |  |
| C6 | 5.5.3 | Medium | “Quit” Button | 1. Reach the game result screen.  2. Click the “Quit” button. | The browser closes. |  |
| C7 | 5.5.4 | High | “Reconnect” Button | 1. Reach the game result screen.  2. Click the “Reconnect” button. | The screen updates to one that says “Connecting…”. |  |

# 5. Appendix

## 5.1 Glossary