SE 3XA3: Test Report
2048

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Contents

List of Tables

List of Figures

This document is intended to provide a complete encapsulation of the results of the testing that was performed during the development of and indicated in the Test Plan of the 2048 project.

1 Functional Requirements Evaluation

Testing for functional requirements are all expected to be done manually.

1.1 Test For Basic Functions

Test Name: FRT1-1
Initial State: Nothing is processing.
Input: Operate the game.
Expected Output: The game should be set up and available to play.
Actual Result: Same to the expectation.

Test Name: FRT1-2
Initial State: A game with tiles existing, but not filled with tiles.
Input: Up, Down, Left, Right keys on keyboard.
Expected Output: Tiles should follow rules of merging.
Actual Result: Same to the expectation.

Test Name: FRT1-3
Initial State: A game with tiles which can not be merged.
Input: Up, Down, Left, Right keys on keyboard.
Expected: The game should end properly.
Actual Result: Same to the expectation.

Test Name: FRT1-4
Initial State: Game end and highest score is uploaded.
Input: Game end and score is uploaded.
Expected: The game should end and highest score is uploaded.
Actual Result: Same to the expectation.

1.2   Test For Special Tools

Test Name: FRT2-1
Initial State: A Game with boom available.
Input: Press the boom button multiple times.
Expected: A random tile should be empty and the boom can only work once, after using boom, no more tiles can be boomed. A new boom is available when reach 2048.
Actual Result: Same to the expectation.

Test Name: FRT2-2
Initial State: A Game with redo available.
Input: Press the redo button multiple times.
Expected: The grid should turn back to last time before tiles are moved and merged. The redo should only trace back one step and can redo boom but can't recover number of booms.
Actual Result: Same to the expectation.

Test Name: FRT2-3
Initial State: A Game with new game available.
Input: Press the new game button multiple times.
Expected: A new game is created and set up.
Actual Result: Same to the expectation.

Test Name: FRT2-4
Initial State: Open the game.
Input: No input, let time pass.
Expected: Time indicator should increase every second.
Actual Result: Same to the expectation.

2   Nonfunctional Requirements Evaluation

2.1   Usability

Test Name: NFRT1-1
Initial State: PC and different operational systems.
Input: Use different internet explorer to operate the program and perform

basic operations.
Expected: The game should work properly on each system and each internet explorer.
Actual Result: The game work for all combinations of system and internet explorer except for IE.

Test Name: NFRT1-2
Initial State: Different platforms.
Input: Open the game on different platforms.
Expected: The game should work properly on each platform.
Actual Result: Same to the expectation.

Test Name: NFRT1-3
Initial State: A internet explorer without prerequisite module.
Input: Open the game using the internet explorer.
Expected: The game should can not work.
Actual Result: Same to the expectation.

2.2   Performance

Test Name: NFRT2-1
Initial State: Set up a normal game.
Input: Multiple input at the same time, i.e. 10 inputs from the keyboard in 0.1s.
Expected: The game should work properly.
Actual Result: Same to the expectation.

Test Name: NFRT2-2
Initial State: Set up a normal game.
Input: Normal input in human speed.
Expected: The game should work properly.
Actual Result: Same to the expectation.

3 Comparison to Existing Implementation

N/A

4 Unit Testing

N/A for our program, since all functions added are hard to use unit test to test, so manual testing for our project is expected.

5 Changes Due to Testing

5.1 Functional Requirement

When we develop the new features, we find that switch and the original boom is hard to implement since it involves in re-write the game from the very bottom part of the code and need to change all modules, so we delete switch function and boom is reworked.

5.2 Nonfunctional Requirement

5.2.1 Usability

The test for IE is not pass, the program is not available for the explorer.

5.2.2 performance

Not applicable.

6 Automated Testing

Not applicable.

7 Trace to Requirements

Test	Requirements
	Functional Requirements Testing
FRT1-1	FR1,FR2
FRT1-2	FR1,FR2,FR3,FR4,FR5,FR6,FR7,FR8,FR10,FR11,FR12,FR13,FR14
FRT1-3	FR15,FR16,FR17,FR18,FR19
FRT1-4	FR19
FRT2-1	FR20,FR21
FRT2-2	FR22
FRT2-3	FR23
FRT2-4	FR24
	Non-functional Requirements Testing
NFRT1-1	
NFRT1-2	
NFRT1-3	
NFRT2-1	
NFRT2-2	

Table 1: Trace Between Tests and Requirements

8 Trace to Modules

Test	Modules
	Modules involve in Testing
FRT1-1	grid,tile,local storage manager,keyboard input manager game manager,html actuator
FRT1-2	grid,tile,local storage manager,keyboard input manager game manager,html actuator
FRT1-3	grid,tile,local storage manager,keyboard input manager game manager,html actuator
FRT1-4	grid,tile,local storage manager,keyboard input manager game manager,html actuator
FRT2-1	grid,tile,local storage manager,keyboard input manager game manager,html actuator
FRT2-2	grid,tile,local storage manager,keyboard input manager game manager,html actuator
FRT2-3	grid,tile,local storage manager,keyboard input manager game manager,html actuator
FRT2-4	grid,tile,local storage manager,keyboard input manager game manager,html actuator
	Non-functional Requirements Testing
NFRT1-1	grid,tile,local storage manager,keyboard input manager game manager,html actuator
NFRT1-2	grid,tile,local storage manager,keyboard input manager game manager,html actuator
NFRT1-3	grid,tile,local storage manager,keyboard input manager game manager,html actuator
NFRT2-1	grid,tile,local storage manager,keyboard input manager game manager,html actuator
NFRT2-2	grid,tile,local storage manager,keyboard input manager game manager,html actuator

Table 2: Trace Between Tests and Modules

9   Code Coverage Metrics

Not applicable.

Table 3: **Revision History**

Date	Version	Notes
April 2nd	Draft	Outlined sections, responsibilities.
April 6th	0	All sections are completed.