

SE 3XA3: Test Report

DinoDodger

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Table 1: **Revision History**

Date	Version	Notes
2017/11/20	1.0	Creating Test Report
2017/12/05	1.1	rev1

1 Functional Requirements Evaluation

1.1 Jump Test 1 (JT-01)

JT-01			
Trial	Input	Output	Result
1	Pressed Spacebar	Character Transitions from y = 300 to y=150 and back to y=300	pass
2	Pressed and held Spacebar	Character repeatedly transitions along y from 300, to 150 and back	pass

1.2 Jump Test 2 (JT-02)

JT-02			
Trial	Input	Output	Result
1	Pressed Spacebar	Character jumps over incoming cactus	pass
2	Pressed Spacebar	Character jumps over incoming low-altitude pteradactyl	pass

1.3 Obstacle Collision Test 1 (OCT-01))

OCT-01			
Trial	Input	Output	Result
1	Pressed Space-bar earlier than optimal time	Character collides with Cactus when descending and Gameplay ends	pass
2	Pressed Space-bar earlier than optimal time	Character collides with low-altitude pteradactyl when descending and Gameplay ends	pass
3	Pressed Space-bar	Character collides with high-altitude pteradactyl during transition and Gameplay ends	pass

1.4 Obstacle Collision Test 2 (OCT-02)

OCT-02			
Trial	Input	Output	Result
1	none	Character collides with side of cactus	pass
2	Space bar pressed till pteradactyl encountered then no input	Character collides with low-altitude pteradactyl	pass

1.5 Points Test 1 (PT-01)

PT-01			
Trial	Input	Output	Result
1	none	Points increment automatically	pass
2	none	Points start from 0; Points increment automatically	pass

1.6 Points Test 2 (PT-02)

PT-02			
Trial	Input	Output	Result
1	Space bar (Game played as intended)	Points: 58 High-score: 58	pass
2	'Play Again' clicked with mouse; Space bar pressed (Game played for shorter time than Trial 1)	Points: 16 High-score: 58	pass
3	'Play Again' clicked with mouse; Space bar pressed (Game played for longer time than Trial 1)	Points: 80 High-score: 80	pass

1.7 Points Test 3 (PT-03)

PT-03			
Trial	Input	Output	Result
1	Space bar (Game played as intended)	Points: 58 High-score: 58	ok
2	'Main Menu' clicked with mouse; Space bar pressed (Game played as intended)	Highscore reset to 0 during Gameplay; Points: 16 Highscore: 16	pass
3	'Main Menu' clicked with mouse; Space bar pressed (Game played as intended)	Highscore reset to 0 during Gameplay; Points: 80 Highscore: 80	pass

1.8 Combination Selection Test 1 (CST-01)

CST-01			
Trial	Input	Output	Result
1	grey character; grey landscape; PLAY	grey character; grey landscape	pass
2	grey character; red landscape; PLAY	grey character; red landscape	pass
3	grey character; blue landscape; PLAY	grey character; blue landscape	pass
4	red character; grey landscape; PLAY	red character; grey landscape	pass
5	red character; red landscape; PLAY	red character; red landscape	pass
6	red character; blue landscape; PLAY	red character; red landscape	pass
7	blue character; grey landscape; PLAY	blue character; grey landscape	pass
8	blue character; red landscape; PLAY	blue character; red landscape	pass
9	blue character; blue landscape; PLAY	blue character; blue landscape	pass

1.9 Combination Selection Test 2 (CST-02)

CST-02			
Trial	Input	Output	Result
1	PLAY	grey character; grey landscape	pass

2 Nonfunctional Requirements Evaluation

For each Non-functional requirements test deemed most important, simple survey questions were given to ten random people in Thode Library, McMaster University as described in Test Plan and the class presentation. To protect the anonymity of the test subjects, a number was assigned to correspond to their rank response for each test. The test subjects were instructed to play the game as intended by an average user for this project.

2.1 Usability

2.1.1 Usability Test (UT-01)

UT-01	
Person	Rank
1	5
2	5
3	4
4	5
5	4
6	5
7	5
8	4
9	5
10	5
average	4.7

2.2 Performance

2.2.1 Performance Test (PFT-01)

PFT-01	
Person	Rank
1	4
2	3
3	4
4	4
5	4
6	3
7	5
8	4
9	5
10	3
average	3.9

2.3 Learnability

2.3.1 Learnability Test (LT-01)

LT-01	
Person	Rank
1	5
2	5
3	5
4	5
5	5
6	4
7	5
8	5
9	4
10	5
average	4.8

2.4 Look and Feel

2.4.1 Look and Feel Test (LFT-01)

OCT-02	
Person	Rank
1	4
2	4
3	4
4	5
5	4
6	5
7	3
8	4
9	4
10	5
average	4.4

3 Comparison to Existing Implementation

According to test results, DinoDodger compares well within the functional requirement constraints set by the original T-rex runner project. The additional features such as the UI and extra character and landscape selections make the game unique and more enjoyable to play, as reflected in the non-functional requirement test survey results. Visit Test Plan for more details.

4 Unit Testing

Note: Manual testing was used. Since the implementation of the obstacle speeds are intervals, decreasing the intervals would result in the animation taking place in less time, hence virtually faster. The speeds of the Cacti and Pteradactyl were printed to the console and compared to their initial interval values of 2000ms and 1800ms respectively. Each trial is simply an updated print statement during Gameplay.

4.1 Difficulty Test 1 (DT-01)

DT-01			
Trial	Input	Output	Result
1	Spacebar (Game played as intended)	Cactus Interval: 1995;2000; Pteradactyl interval: 1795;1800	pass
2	Gameplay continued from Trial 1	Cactus Interval: 1990;1995; Pteradactyl interval: 1790;1795	pass

5 Changes Due to Testing

Introduction of new modules: Pteradactyl, Cactus, PointCounter previously planned to be implemented within PlayScene module itself. `Character.jump()` and `Pteradactyl.getRandomHeight()` were no longer used.

6 Automated Testing

none

7 Trace to Requirements

see Test Plan

8 Trace to Modules

see Test Plan

9 Code Coverage Metrics

9.1 Function coverage

In all modules, all routines were called except for `jump()` in `Character` and `getRandomHeight()` in `Pteradactyl`. This is because implementation of the animation of these objects either did not require these to work or were faulty. In the case of `Character.jump()`, which performed the jump transition of the character during `Gameplay`, every time `Gameplay` mode was re-entered during single execution of the game, it appeared a new thread instance of the method was created and repeated itself the number of times the `Gameplay` was restarted. This bug was temporarily fixed by hard-coding the transition within the `PlayScene` module.

9.2 Statement coverage

All statements within the modules in this project were executed as evident in the test cases showing functional requirements were met.

9.3 Condition coverage

All boolean conditions were met in the modules containing them. `UI`, `DinoDodger`, `Cactus`, and `PlayScene` all executed if statements that concerned character and landscape selection, releasing random obstacles at intervals, and testing for collisions between the character and obstacles.

9.4 Branch coverage

The most important branches concerned keycode `Spacebar` inputs and the reaction of the program, the character and landscape selection branches in `UI` and `DinoDodger`, and cacti selection in `Cactus`. All these branches were used throughout program execution.