

TESTING REPORT

Team 20: Tequila Mockingbird

Exam Numbers: Y3872854, Y3877651, Y3872779, Y3873031, Y3869788



Summary of testing methods and approach

In continuing the code base started by team 10, the Brownfield project presented many problems associated with testing. The main problem with the code is that a lot of the logic for the game is decided within the function "Game.render()" without good use of OOP. Some logic that should be decided within individual classes (such as what happens after boats collide with objects) are explicitly stated within Game.render rather than in the respective classes in their own functions.

Given more time we would rather change the base code to apply better programming standards but given the short time constraints we decided to try and work around it instead and leave it as legacy code. This, however, makes testing the logic for the game functional and stable difficult as many of the key functions of the program are in one large method that depends on many variables and classes that are not explicitly stated as parameters.

Furthermore, the project we picked up was using "libgdx" to handle the graphical interface and drawing to the screen. This seemed like an easy library to work with at the start however resulted in conflicts with testing as "org.junit..." cannot be imported into a file that also imports "com.badlogic.gdx..." as they both require initialisation that must be completed before the other is done. There are definitely work arounds for this, but the most simple solution that we chose was to do as much automatic testing with JUnit as possible but to perform our own tests for any files, classes and functions that reference any classes related to "libgdx". In essence our aim was to recreate the functionality of automatic testing that comes from JUnit but using print lines to the terminal that showed the result of the tests.

Unit Testing

Test ID	Test Name	Function / Class Being Tested	Purpose of Test	Result of test
1	BoatFinished	Boat.hasFinished	To test whether the game registers that a boat correctly finishes the race.	Pass
2	ObstacleInRange	AI.obstacleInRange	Test whether an obstacle is close enough in range to dodge by saying the obstacle is close in front of the AI boat	Pass
3	Leg Increase Difficulty	GameData.level	To see whether the game gets more difficult after each leg	Pass
4	Unique Boats	Boats	To check whether each boat has unique stats	Pass

Manual Testing

Evidence for these tests were recorded as videos. In the evidence columns are links to the videos.

Master playlist: https://youtube.com/playlist?list=PLEiypr_FdgV4qvlrpTOew1ohpVx5T2nP3

Test ID	Test Name	Function / Class Being Tested	Purpose of Test	How the test was performed	Inputs	Expected Outputs	Actual Outputs	Pass/Fail	Evidence	Author
5	InputTest	Game.keyup/keydown	To test whether the game registers key presses correctly.	Run the game and press the keys A , D and ESC to test they work	A , D and ESC key	A key turns the boat left, D key turns the boat right and ESC brings up the pause menu	A key turned the boat left, D key turned the boat right and ESC brought up the pause menu	Pass	https://youtu.be/yf-7r1VLPOg	Ayyesha
6	ObstacleSpawn	Lane.spawnObstacles	Test to see that obstacles spawn and have a collision body	Start the game at any difficulty and check if obstacles spawn, and they have a collision body	n/a	Obstacles will spawn and have a collision body	Obstacles spawned and had a collision body	Pass	https://youtu.be/Y0bE0Nbwbs	Ayyesha

7	Difficulty	MenuUI	Test that the game on medium is harder than the game on easy, and the game on hard is harder than the game on medium.	Load the game on easy, medium and hard difficulties to check the difference in difficulties	n/a	The difficulty increases as it's supposed to	The difficulty increased	Pass	https://youtu.be/XP8ER6QmVYA	Ayyesha
8	SaveGame	SaveGame	To test whether the save game functionality works	Start a game on any difficulty. Pause the game before the race is over and exit to the menu, then exit the game. Then reopen the game and load the last saved game	n/a	After loading the last saved game, the correct game is loaded and resumed from where the player left off	The right game was loaded and resumed at the correct point	Pass	https://youtu.be/9owEq5hzSbq	Ayyesha
9	BoatMoved	Boat.moveBoat	To check that the boat moves when the speed > 0.	Run the game on any difficulty and see if the boat moves	n/a	Boat moves forward	Boat moved forward	Pass	https://youtu.be/szhmpVjja9w	Ayyesha
10	TimePenalty	Game.UpdatePenalties	Test that when the boat moves outside of the lane that a penalty is given.	Start the game on any difficulty and deliberately move the boat outside of the lane then move back and stay in the lane for the rest of the race.	D key to move outside the lane. A key to move back into lane.	When the race ends, the player's penalties should be for how long they were outside the lane	The player's penalties were 58.645824	Pass	https://youtu.be/fdcYlq8d6LQ	Ayyesha
11	PodiumScreen	UI.GameOverUI	To test the game displays a podium screen after the final race.	Complete the game on any difficulty to see if the podium screen is displayed at the end	n/a	Podium screen is displayed with the final scores	Podium screen was displayed with the final scores	Pass	https://youtu.be/_el9i5FbZc8	Ayyesha
12	Fatigue	Game	To test whether the stamina bar of the player goes down over time.	Play the game on any difficulty, check to see that as the player moves, the stamina bar decreases	n/a	Stamina bar decreases as the player moves	Stamina bar decreased as the player moved	Pass	https://youtu.be/cQEQ-vjt4e8	Ayyesha

13	Robustness	Game.render	To test whether the game registers when robustness goes below 0.	Run the game and deliberately collide with as many obstacles as possible	Collide with as many obstacles	Game ends when player's robustness goes below 0	Game ended when player's robustness went below 0	Pass	https://youtu.be/cQQEQ-yjt4e8	Ayyesha
14	ToolsBonus	Game.render	To test that colliding with a tool bonus causes the player's boat robustness to increase	Play the game on easy difficulty (more bonuses spawn on easy mode) and select any boat. Collide with a tool bonus and see if the boat's robustness increases	n/a	Boat's robustness will increase	Boat's robustness increased	Pass	https://youtu.be/TfHZiB5qQqg8	Ayyesha
15	Lightning Bonus	Game.render	To test that colliding with a lightning bonus causes the player's stamina to increase	Play the game on easy difficulty and select any boat. Collide with a lightning bonus and see if the player's stamina increases	n/a	The player's stamina will increase	The player's stamina increased	Pass	https://youtu.be/XpUEvICOA9E	Ayyesha
16	Wheel Bonus	Game.render	To test that colliding with a wheel bonus improves the boat's maneuverability	Play the game on easy difficulty, and select any boat. Then collide with a wheel bonus and see if the boat is easier to maneuver	n/a	The boat will become easier to maneuver	The boat became easier to maneuver	Pass	https://youtu.be/UZc7iJFQ-qU	Ayyesha
17	DrinkBonus	Game.render	To test that colliding with a drink bonus provides an immediate speed increase	Play the game on easy difficulty, and select any boat. Then collide with a drink bonus and see if the boat gets a speed boost	n/a	The boat will get a speed boost	The boat got a speed boost	Pass	https://youtu.be/y0ARDMSyfxY	Ayyesha
18	WindBonus	Game.render	To test that colliding with a wind bonus increases the player's acceleration	Play the game on easy difficulty, and select any boat. Then collide with a wind bonus and see if the boat accelerates faster	n/a	The boat's acceleration increases	The boat's acceleration increased	Pass	https://youtu.be/DEP9x3xaXHQ	Ayyesha

