

Test 1: Launch the main interface

Implementation: Started the game application

Correct feedback:

1. The background image is loaded
2. Scores and upgrade points are indicated at the right up corner

Tested feedback:

1. The background image was loaded
2. Scores and upgrade points were indicated at the right up corner

Result: Passed

Test 2: Enter the game interface

Implementation: Clicked the “play” button

Correct feedback:

1. Enters the gameplay interface
2. The player’s ship appears on the left side with health and shield bars under it.
3. There are 4 moving enemy ships that appear on the right side with health and shield bars under them.
4. The second type of enemies may occasionally shoot cannons (orange bar) to the left side of the screen with a “cannon” sound.
5. The third type of enemies may occasionally shoot lasers(long orange bar) to the left side of the screen with a “laser” sound.
6. There are 2 arrow buttons that appear under the player ship.
7. There are 2 weapons buttons that appear at the right bottom of the screen.
8. There are 4 weapon upgrade buttons at the middle bottom of the screen.
9. There are values that include scores, health, shield, cannon, laser, and upgrade level values on the screen as well.

Tested feedback:

1. Entered the gameplay interface.
2. The player’s ship appeared on the left side with health and shield bars under it.
3. There are 4 moving enemy ships that appeared on the right side with health and shield bars under them.
4. Some second type of enemies (yellow ones) shot cannons (orange bar) to the left side of the screen with a “cannon” sound.
5. Some third type of enemies (purple ones) shot lasers (long orange bar) to the left side of the screen with a “laser” sound.
6. There are 2 arrow buttons that appeared under the player ship.
7. There are 2 weapons buttons that appeared at the right bottom of the screen.

8. There are 4 weapon upgrade buttons at the middle bottom of the screen.
9. There are values that included scores, health, shield, cannon, laser, and upgrade level values displayed on the screen as well.

Result: Passed

Test 3: Move up button

Implementation: Clicking the up button

Correct feedback:

1. The Player's ship moves up, should not fly out at the top edge of the screen.
2. The first type of enemy (green one) may horizontally alter their positions towards the player's ship.

Tested feedback:

1. The Player's ship moved up, did not fly out at the top edge of the screen.
2. The first type of enemy (green one) horizontally altered its positions towards the player's ship.

Result: Passed

Test 4: Move down buttons

Implementation: Clicking the down button

Correct feedback:

1. The Player's ship moves down, should not fly out at the bottom edge of the screen
2. The first type of enemy (green one) may horizontally alter their positions towards the player's ship.

Tested feedback:

1. Player's ship moved down, did not fly out at the bottom edge of the screen
2. The first type of enemy (green one) horizontally altered its positions towards the player's ship.

Result: Passed

Test 5: Shoot Cannon

Implementation: Clicking the Cannon button

Correct feedback:

1. The Player's ship shoots out a canon (yellow bar) moving to the right and the "cannon" sound is played, one flame (yellow circle) appears on the ship.
2. If an enemy is hit by the player's cannon, a "hit" sound will be played.
3. There is one flame that appears on the ship.
4. The enemy ship should turn to blue color if it has enough shield values, partial of its shield bar should become white color.
5. The enemy ship should not turn to blue color if it has not had enough shield values, partial of its health bar should become red color.
6. The cannon fly out at the right edge of the screen it does not hit anything.
7. The transparency of the button should become lower, which means loading the next cannon and cannot fire for a moment.

Tested feedback:

1. The Player's ship shot out a canon (yellow bar) moving to the right and the "cannon" sound was played, one flame (yellow circle) appeared on the ship.
2. After an enemy was hit by the player's cannon, a "hit" sound was played.
3. There is one flame that appeared on the ship.
4. The enemy ship turned to blue color after it had enough shield values, partial of its shield bar became white color.
5. After an enemy ship that does not had enough shield value did not turn to blue color and part of its health bar became red color.
6. The cannon flew out at the right edge of the screen it does not hit anything.
7. The transparency of the button became lower, which means loading the next cannon and there was no reaction when pressing the button.

Result: Passed

Test 6: Shoot Laser

Implementation: Clicking the Laser button

Correct feedback:

1. The Player's ship shoots out a laser (long yellow line) across to the right of the screen for a few seconds and the "laser" sound is played, some flame (yellow circle) appears on the ship.
2. If an enemy is hit by the player's laser, a "hit" sound will be played.
3. There are some flames that appear on the ship.
4. The enemy ship should turn to blue color if it has enough shield values, partial of its shield bar should become white color.

5. The enemy ship should not turn to blue color if it has not had enough shield values, partial of its health bar should become red color.
6. The transparency of the button should become lower, which means loading the next cannon and cannot fire for a moment.

Tested feedback:

1. The Player's ship shot out a laser (long yellow line) across to the right of the screen for a few seconds and the "laser" sound is played, some flame (yellow circle) appeared on the ship.
2. After an enemy was hit by the player's cannon, a "laser" sound was played.
3. There are some flames that appeared on the ship.
4. The enemy ship turned to blue color after it had enough shield values, partial of its shield bar became white color.
5. The enemy ship that does not have enough shield value did not turn to blue color and part of its health bar became red color.
6. The transparency of the button became lower, which means loading the next cannon and there was no reaction when pressing the button.

Result: Passed

Test 7: Enemy flow out the screen

Condition: Enemy's ship flow out the screen

Correct feedback:

Enemy respawns at the right edge of the screen by a random type and initialized status

Tested feedback

Enemy respawned at the right edge of the screen by a random type with initialized status

Result: Passed

Test 8: Enemy is killed by the player's ship

Condition: Enemy's ship is killed by player's weapon or crushed on player's ship

Correct feedback:

1. There are some flames that appear on the ship's body and there is a "explode" sound.
2. Enemy respawns at the right edge of the screen by a random type and initialized status.
3. If the player reaches a certain experience point, then the player's level will be increased and there will be a "level up" sound.

Tested feedback:

1. There were some flames that appeared on the ship's body and there is a "explode" sound.
2. Enemy respawned at the right edge of the screen by a random type with initialized status.
3. When the player reaches a certain experience point, the player's level is increased and there was a "level up" sound.

Result: Passed

Test 9: Upgrading Ship's body

Implementation: Press the upgrade body button when at least 1 upgrade points are available.

Correct feedback:

1. The player's body of the ship is upgraded, the value of health and moving speed are increased.
2. The transparency of the button should become lower if the upgrade point is 0.

Tested feedback:

1. The player's body of the ship was upgraded, the value of health and moving speed were increased.
2. The transparency of the button became lower when the upgrade point is 0.

Result: Passed

Test 10: Upgrading Ship's shield

Implementation: Press the upgrade shield button when at least 1 upgrade points are available.

Correct feedback:

1. The player's shield of the ship is upgraded, the value of the shield and speed of recreation are increased.
2. The transparency of the button should become lower if the upgrade point is 0.

Tested feedback:

1. The player's body of the ship was upgraded, the value of shield and moving speed were increased.
2. The transparency of the button became lower when the upgrade point is 0.

Result: Passed

Test 11: Upgrading Ship's cannon

Implementation: Press the upgrade cannon button when at least 1 upgrade points are available.

Correct feedback:

1. The player's canon of the ship is upgraded, the value of the damage is increased.
2. The transparency of the button should become lower if the upgrade point is 0.

Tested feedback:

1. The player's canon of the ship is upgraded, the value of the damage is increased.
2. The transparency of the button became lower when the upgrade point is 0.

Result: Passed

Test 12: Upgrading Ship's laser

Implementation: Press the upgrade cannon button when at least 1 upgrade points are available.

Correct feedback:

3. The player's laser of the ship is upgraded, the value of the damage is increased.
4. The transparency of the button should become lower if the upgrade point is 0.

Tested feedback:

3. The player's laser of the ship is upgraded, the value of the damage is increased.
4. The transparency of the button became lower when the upgrade point is 0.

Result: Passed

Test 14: Pause button

Implementation: Click pause button

Correct feedback:

1. The game is paused, everything stops moving or changing.
2. Only the pause button and upgrade buttons could be clicked

Tested feedback

1. The game is paused, everything stopped moving or changing.
2. Only the pause button and upgrade buttons could be clicked

Result: Passed

Test 15: Attacked by enemy's ship

Condition: The player's ship is hit by weapons of enemies or crushed by enemy's ship

Correct feedback:

1. A "hit" sound will be played.
2. There are some flames that appear on the ship.
3. The player ship should turn to blue color if it has enough shield values, partial of its shield bar should become white color.
4. The enemy ship should not turn to blue color if it has not had enough shield values, partial of its health bar should become red color.

Tested feedback:

1. A "hit" sound will be played.
2. There are some flames that appeared on the ship.
3. The player ship should turn to blue color if it has enough shield values, partial of its shield bar should become white color.
4. The enemy ship should not turn to blue color if it has not had enough shield values, partial of its health bar should become red color.

Result: Passed

Test 16: Player lost the game

Condition: Player's health point is lower or equal than 0

Correct feedback:

1. The game is ended
2. Scores are displayed
3. The highest score is updated

Tested feedback:

1. The game was ended
2. Scores were displayed
3. The highest score was updated

Result: passed

Test 17: The player won the game

Condition: The enemy respawn time reaches the winning condition

Correct feedback:

1. The game is ended, the "won" sound is played
2. Scores are displayed
3. The highest score is updated
4. 200 scores are awarded

Tested feedback:

1. The game was ended
2. Scores were displayed
3. The highest score was updated
4. 200 scores were awarded

Test 18: replay the game

Implementation: tap the screen when the game is ended

Correct feedback:

1. The game is started as same as the Test 2
2. Player has additional upgrade points if the player received rewarded upgrade points in previous game play.

Test feedback:

1. The game was started as same as the Test 2
2. Player had additional upgrade points when the player received rewarded upgrade points in previous game play.