Pare 2 Interactive Online Game—Storyboard

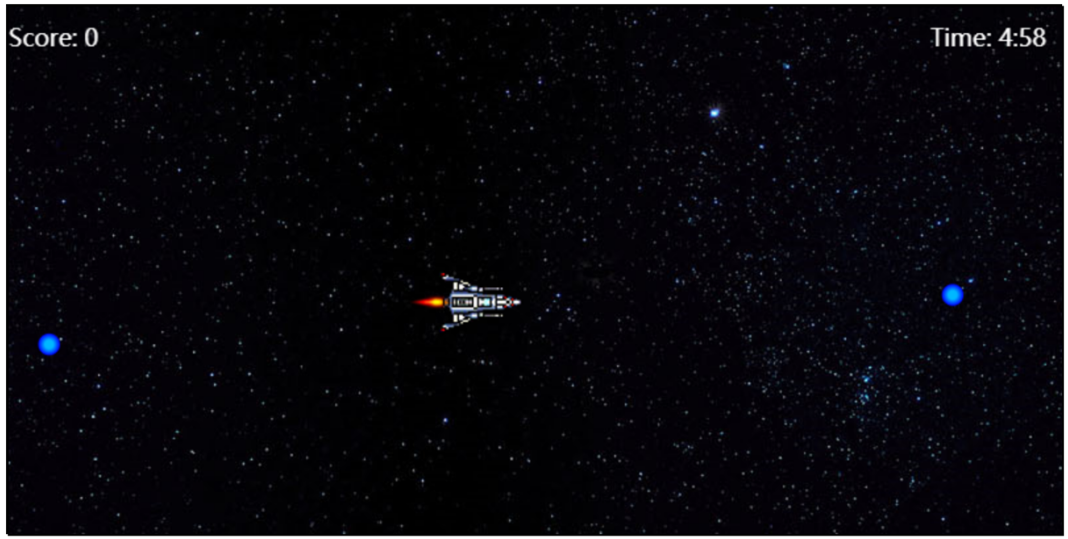
1. Start Page of Game (index.html)

The interface of game displays in the middle of the index page. The volume can be changed from mute to maximum volume during the game. The duration of the game can be selected as 1,3,5,6 minutes. The default time of the single round of game is 5 minutes. User can start game by pressing “Start” button. The game will start.

2. Game Starts

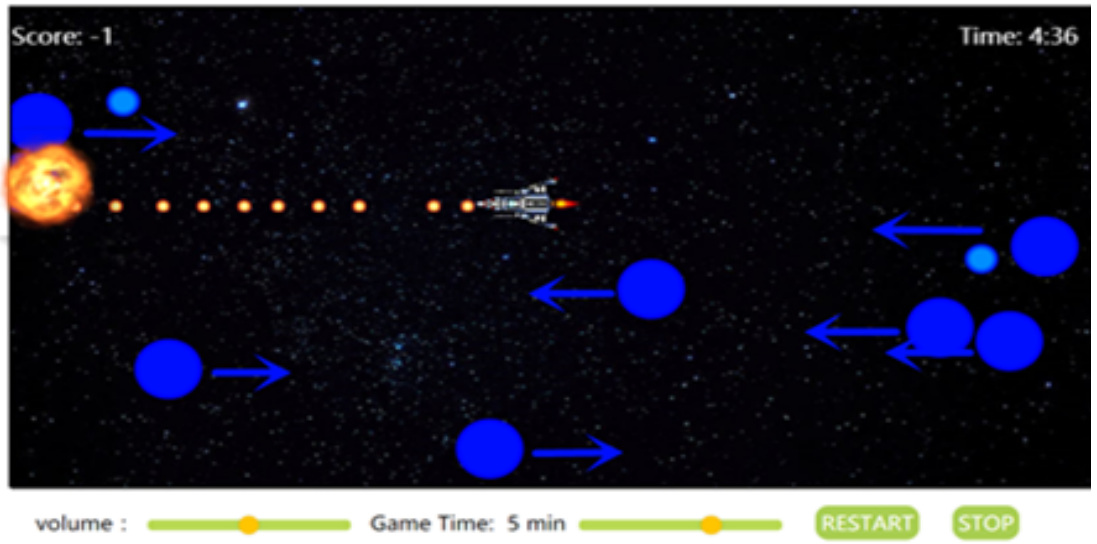
The volume and game duration should be changed at this page. The “Restart” button can restart the game and “Stop” button could stop the current game by displaying points,“Game Over” and “Play Again” button. The default point is 0.

3. Storyboard

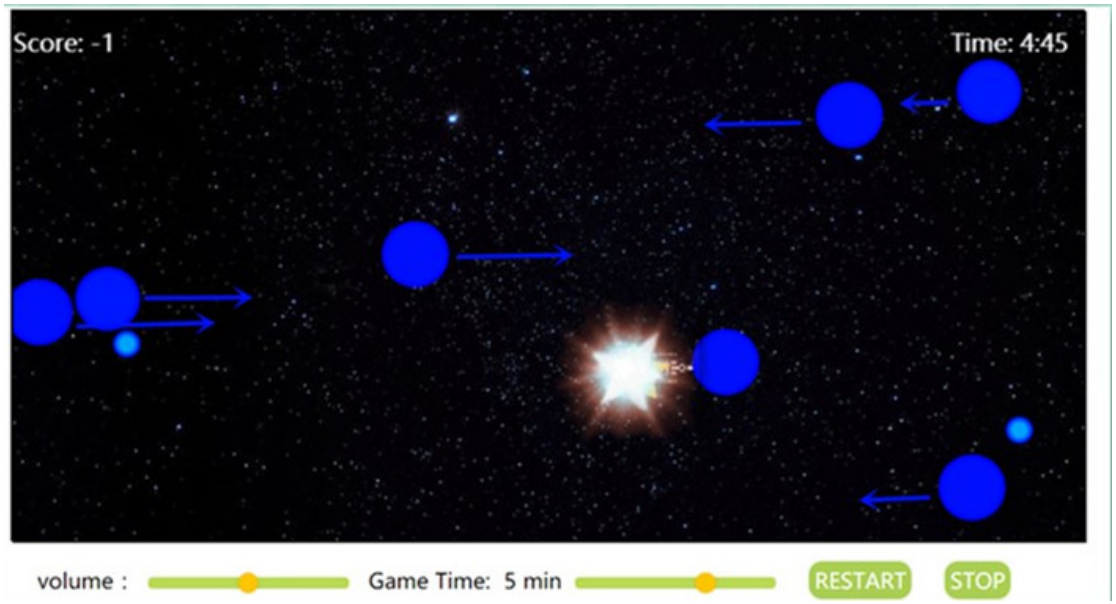


Description	When the user starts the game, background music should be played. The hero plane is on the left side and can be controlled by keyboard	**Elements**	Space background, Hero plane, light blue enemy, blue enemy, score, left time of game, volume range, game time range, “RESTART” button, “STOP” button
Duration	5 seconds	**Elements animation**	The radius of each enemy is growing from 5px to 25px.The color is from light blue to blue. If the game starts, the enemy should come from both sides of the hero plane. The time is running. The background music is playing. The background is moving. The tail of the plane was breathing fire.

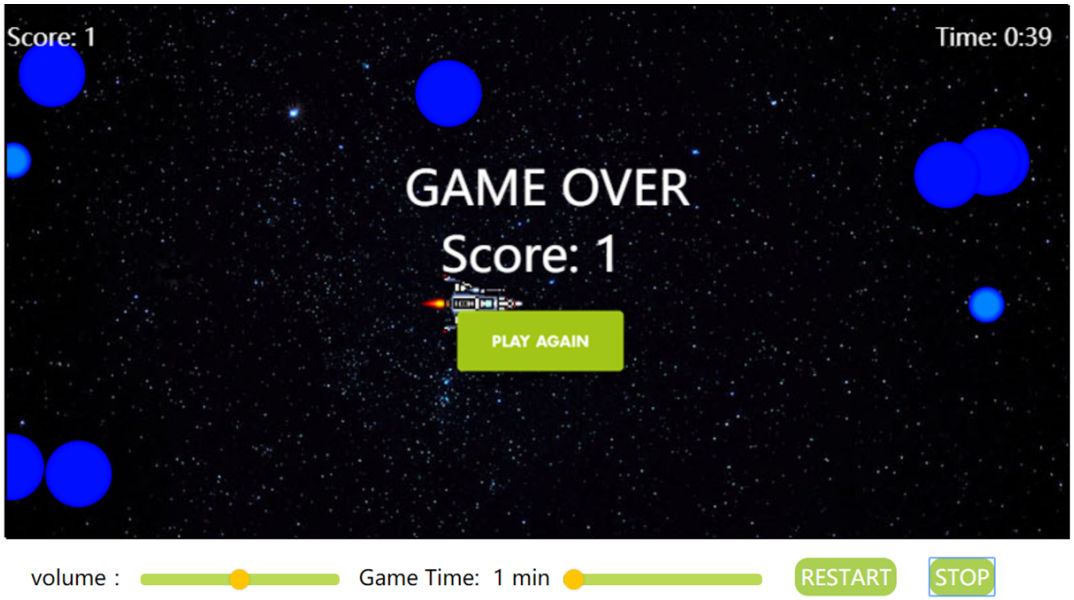
Description	The enemy moves after 3seconds waiting. The hero plane should be controlled by “up”, “down”, “left” and “right” key arrow to move around. The direction should be changed by pressing “left” and “right” key.	**Elements**	Space background, Hero plane, light blue enemy, blue enemy, score, left time of game, volume range, game time range, “RESTART” button, “STOP” button
Duration	3 seconds	**Elements animation**	After 3 seconds waiting, the enemies move to hero plane. the hero plane should be able to change direction by using “left” and “right” key. The time is running. The background music is playing. The background is moving. The tail of the plane was breathing fire.



Description	The enemy is moving. The hero plane begins to shoot the enemy. If the enemy is hit by hero plane, the score will increase one and the “happy” music plays. The enemy and bullet will disappear concurrently.	**Elements**	Space background, Hero plane, light blue enemy, blue enemy, bullet, score, left time of game, volume range, game time range, “RESTART” button, “STOP” button
Duration	6 seconds	**Elements animation**	Enemy moves from two sides. Enemy is exploded. The bullet is flying. The hero plane should be controlled to change the direction. The point is changed, The time is running. The background music is playing. The background is moving. The tail of the plane was breathing fire.

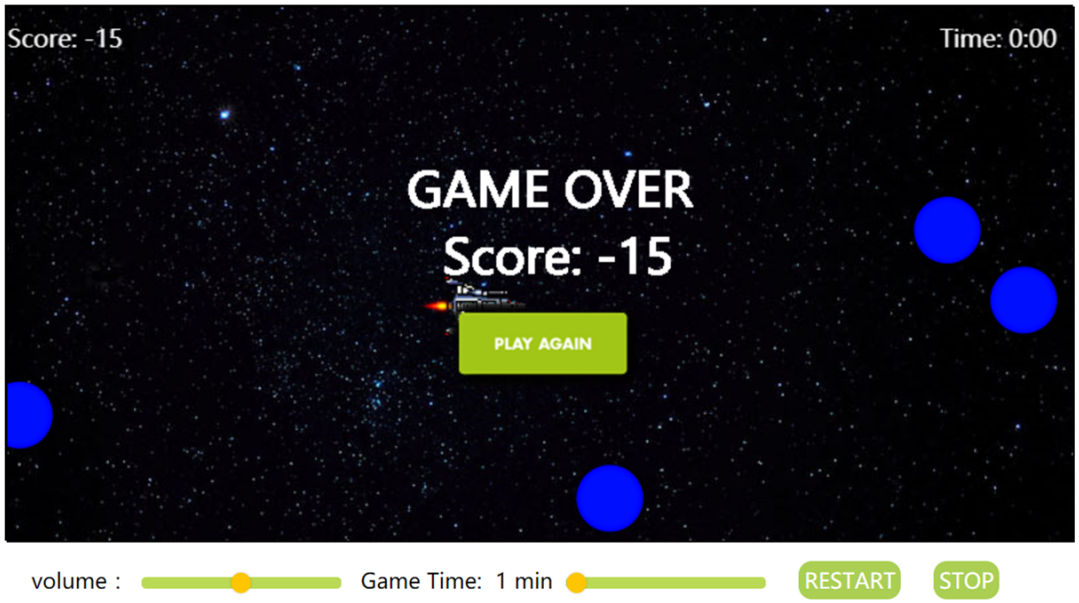


Description	The enemy is moving. The hero plane begins to shoot the enemy. If the hero plane is hit by enemy, the score is deducted by one, and the “unhappy” music plays.	**Elements**	Space background, Hero plane, light blue enemy, blue enemy, bullet, score, left time of game, volume range, game time range, “RESTART” button, “STOP” button
Duration	6 seconds	**Elements animation**	Enemy moves from two sides. Hero plane is exploded. Bullet is flying. The hero plane should be controlled to change the direction. The point is changed. The time is running. The background is moving. The tail of the plane was breathing fire.



Description	If the “STOP” button is clicked	**Elements**	Space background, Hero plane, light blue enemy, blue enemy, score, left time of game, volume range, game time range, “RESTART” button, “STOP” button
Duration		**Elements animation**	All elements should stop and the current score and the rest of time should be displayed. The “PLAY AGAIN” button displays under the score.

Description	If the “RESTART” button is clicked	**Elements**	Space background, “Start” button, volume range, game time range, “RESTART” button, “STOP” button.
Duration		**Elements animation**	All elements should be reset. The index page will display. User can start the game by pressing the “Start” button.



Description	Time is up	**Elements**	Space background, Hero plane, score, left time of game , light blue enemy, blue enemy, volume range, game time range, “RESTART” button, “STOP” button
Duration		**Elements animation**	All elements should be stopped moving. A text of “GAME OVER”, score record and “PLAY AGAIN” button should display on the screen.

4. Test Case

Requirement to test	Test Data Input	Expected Outcomes	Actual Outcomes
1.1 Spaceship movement is controlled by using the keyboard arrow keys (up, down, left, right).	1. On the game page, select the "Start" button to begin the game. 2. Use the keyboard arrow keys to control the ship to move round.	The ship moves up if the user pressing the "Up" arrow key. The ship moves down if the user pressing the "Down" arrow key. The ship turns to left if the user pressing the "left" arrow key. The ship will keep moving to left side if the user keep pressing "left" arrow key. The ship turns to right if the user pressing the "right" arrow key. The ship will keep moving to right side if the user keep pressing "right" arrow key.	The ship moves up if the user pressing the "Up" arrow key. The ship moves down if the user pressing the "Down" arrow key. The ship turns to left if the user pressing the "left" arrow key. The ship will keep moving to left side if the user keep pressing "left" arrow key. The ship turns to right if the user pressing the "right" arrow key. The ship will keep moving to right side if the user keep pressing "right" arrow key.
1.2 Additional key to turn the shouting device (for example- blank space).	1. Continue with test case 1.1. 2. The user presses the space key.	The ship will fire a bullet if the user pressing the space key.	The ship will fire a bullet if the user pressing the space key.

Requirement to test	Test Data Input	Expected Outcomes	Actual Outcomes
1.3 Spaceship direction changes, when Spaceship moves left or right. Each time Spaceship changes direction the shouting device should be in front of Spaceship.	1. Continue with test case 1.1. 2. Continue with test case 1.2.	The ship direction will change to left if the user pressing the “left” arrow key. The bullet will be fired in front of ship. The track of the bullet is from right to left. The ship direction will change to right if the user pressing the “right” arrow key. The bullet will be fired in front of ship. The track of the bullet is from left to right.	The ship direction will change to left if the user pressing the “left” arrow key. The bullet will be fired in front of ship. The track of the bullet is from right to left. The ship direction will change to right if the user pressing the “right” arrow key. The bullet will be fired in front of ship. The track of the bullet is from left to right.
1.4 Spaceship movement is restricted inside the canvas.	1. Continue with test case 1.1. 2. The user keeps pressing each of the arrow key (up, down, left, right) on the keyboard.	The ship will move in one direction until to the boundary of the canvas. The ship moves inside the canvas.	The ship will move in one direction until to the boundary of the canvas. The ship moves inside the canvas.
1.5 Every time Spaceship successfully catches an enemy, a score of one is added to the current score and a ‘happy’ sound is played.	1. Continue with test case 1.1. 2. Continue with test case 1.2.	If the bullet hits the enemy, a “happy” sound is played. One score is added to the current total score.	If the bullet hits the enemy, a “happy” sound is played. One score is added to the current total score.

Requirement to test	Test Data Input	Expected Outcomes	Actual Outcomes
1.6 Define and implement Spaceship animation (light flashing, tail movement, projectors movement)	1. On the game page, select the "Start" button to begin the game. 2. Move the ship by pressing each of the arrow key (up, down, left, right) on the keyboard.	The ship's tail is flaming during the game.	The ship's tail is flaming during the game.
2.1 An enemy touch on Spaceship, an "unhappy" sound will be played, and current score will be deducted by one.	1. On the game page, select the "Start" button to begin the game. 2. Use the keyboard arrow keys to control the ship to move round.	If the ship hits the enemy, an "unhappy" sound will be played. The current total score will be reduced by one.	If the ship hits the enemy, an "unhappy" sound will be played. The current total score will be reduced by one.
2.2 A small light blue enemy with a radius = 5px will appear randomly on the any side of canvas.	1. On the game page, select the "Start" button to begin the game.	The small light blue enemy with a 5px radius will display randomly on both left and right side of the canvas.	The small light blue enemy with a 5px radius will display randomly on both left and right side of the canvas.
2.3 Growing time for each enemy is 5 seconds. Each enemy grows to size of radius = 25px	1. On the game page, select the "Start" button to begin the game.	The small light blue enemy with a 5px radius will display randomly on both left and right side of the canvas. The small light blue enemy will grow until the radius become to 25px. The duration of the growing is 5 seconds.	The small light blue enemy with a 5px radius will display randomly on both left and right side of the canvas. The small light blue enemy will grow until the radius become to 25px. The duration of the growing is 5 seconds.

Requirement to test	Test Data Input	Expected Outcomes	Actual Outcomes
2.4 Enemy's color changes gradually from light blue to blue in a duration of 4 seconds. Use radial gradient in diagonal direction for the color change.	1. On the game page, select the "Start" button to begin the game.	The small light blue enemy will take 4 seconds to grow. The color will change from light blue to blue.	The small light blue enemy will take 4 seconds to grow. The color will change from light blue to blue.
2.5 Each blue enemy will stay on the side for a duration of 3 seconds and will then start move.	1. On the game page, select the "Start" button to begin the game.	Each blue enemy which appears randomly on both sides of the canvas will start to move until wait 3 seconds after growing.	Each blue enemy which appears randomly on both sides of the canvas will start to move until wait 3 seconds after growing.
2.6 Movement time for each enemy is 6 seconds.	1. On the game page, select the "Start" button to begin the game.	Each of the enemy will take 6 seconds to cross the canvas.	Each of the enemy will take 6 seconds to cross the canvas.
2.7 Enemy moves fly out of vision if Spaceship is unable to shout it. Or if it moves on the any side of Spaceship it should create explosion	1. On the game page, select the "Start" button to begin the game.	If an enemy is not hit by the bullet, it will fly out of the canvas. If an enemy hit the ship, the ship will explode. The "unhappy" sound plays. The current score will reduce by one.	If an enemy is not hit by the bullet, it will fly out of the canvas. If an enemy hit the ship, the ship will explode. The "unhappy" sound plays. The current score will reduce by one.

Requirement to test	Test Data Input	Expected Outcomes	Actual Outcomes
3.1 Minimum 4 different sounds in the game and users should be able to control the volume of the sounds.	1. On the game page, select the "Start" button to begin the game. 2. Move the volume slider to control the volume of sound effect. 3. Stop the game by pressing the "STOP "button.	The volume is able to be controlled by user. Different sound effect will be played when the collision occurs. The sound effect will be played according to the different sort of collision. The "ending" sound will be played when the game is stopped.	The volume is able to be controlled by user. Different sound effect will be played when the collision occurs. The sound effect will be played according to the different sort of collision. The "ending" sound will be played when the game is stopped.
3.2 Provide feedback with appropriate text messages and sound to the player. For example, a mechanism to display the score to the player or text message in the end of game.	1.On the game page, select the "Start" button to begin the game. 2.Stop the game by pressing the "STOP "button. 3. Time is up.	The "GAME OVER" message, final score and "PLAY AGAIN" button will display on the canvas when the user stop the game by clicking the "STOP" button. If the time is up for the current round of game, the "GAME OVER" message, final score and "PLAY AGAIN" button will display on the canvas.	The "GAME OVER" message, final score and "PLAY AGAIN" button will display on the canvas when the user stop the game by clicking the "STOP" button. If the time is up for the current round of game, the "GAME OVER" message, final score and "PLAY AGAIN" button will display on the canvas.
3.3 Start button and Restart button	1. On the game page, select the "Start" button to begin the game. 2 User is able to restart the game by clicking the "RESTART" button which is below the canvas.	The game will be started if the user clicking the "Start" button. The game will be restarted if the user clicking the "RESTART" button.	The game will be started if the user clicking the "Start" button. The game will be restarted if the user clicking the "RESTART" button.