

Testing Plan (Phase 2)

Team 21

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- 1. App; Access game**
 - a. Severity 1
 - b. Launch .jar
 - c. Go to localhost:8080/
 - d. Game opens
- 2. App; Log in to game**
 - a. Severity 1
 - b. Go to website
 - c. Login with Google account
 - d. Game displays home menu
- 3. App; Logout of game**
 - a. Severity 1
 - b. Go to website
 - c. Click logout
 - d. Game should log the user out
- 4. App; Change to dark theme**
 - a. Severity 2
 - b. Go to game
 - c. Click Settings
 - d. Click Dark Theme Mode
 - e. Game changes to dark theme
- 5. App; Change to Light theme**
 - a. Severity 2
 - b. Go to game
 - c. Click settings
 - d. Click Dark Theme Mode
 - e. Click Dark theme mode
 - f. Game should go from dark theme mode back to light theme mode
- 6. App; Use game timer**
 - a. Severity 2
 - b. Go to game
 - c. Click settings
 - d. Click game timer
 - e. After starting a game, game should have a timer on top
- 7. App; Change to fullscreen mode**
 - a. Severity 2
 - b. Go to launched game
 - c. Click settings
 - d. Click fullscreen mode
 - e. Game should now be in fullscreen
- 8. App; Exit fullscreen mode**
 - a. Severity 2
 - b. Go to game

- c. Click settings
- d. Click option to exit fullscreen mode
- e. Game should exit fullscreen mode

9. App; Exit fullscreen mode using ESC

- a. Severity 2
- b. Go to game
- c. Click settings
- d. Click option to exit fullscreen mode using ESC
- e. Game should exit fullscreen mode

10. App; Play against default bot

- a. Severity 1
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Game begins with Normal Enemy AI

11. Attack Action; Attack Another Player (Hit)

- a. Severity 1
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Game begins with Normal Enemy AI
- g. Click until "hit" message is given on the left side of screen.
- h. Expected: Should fill spot clicked with the given hit indicator (Black)

12. Attack Action; Attack Another Player (Sunk Ship)

- a. Severity 1
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Game begins with Normal Enemy AI
- g. Click until "sunk" message is given on the left side of screen.
- h. Expected: Should fill spot clicked (and rest of ship's spaces) with the given hit indicator (purple)

13. Attack Action; Attack Another Player (Miss)

- a. Severity 1
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Game begins with Normal Enemy AI
- g. Click until "miss" message is given on the left side of screen.

- h. Expected: Should fill spot clicked with the given hit indicator (Yellow)

14. Attack Action; Visual Feedback (Hit)

- a. Severity 1
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Game begins with Normal Enemy AI
- g. Click until an opponent is "hit".
- h. Expected: The hit cell on the Enemy Grid should be the proper "hit color" (black)

15. Attack Action; Visual Feedback (Sunk)

- a. Severity 1
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Game begins with Normal Enemy AI
- g. Click until an opponent's ship is "sunk".
- h. Expected: The hit cells on the Enemy Grid for the sunk ship should be the proper "hit color" (purple)

16. Attack Action; Visual Feedback (Miss)

- a. Severity 1
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Game begins with Normal Enemy AI
- g. Click until player "misses" an enemy opponent
- h. Expected: The missed cell on the Enemy Grid should be the proper "miss color" (yellow).

17. Move Action; Player Can Move a Valid Ship Forward

- a. Severity 2
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Game begins with Normal Enemy AI
- g. Click on the "Move ship" option.
- h. Select a valid ship (not hit).
- i. Click "Move Forward".
- j. Expected: Ship should move "forward" based on its direction.

18. Move Action; Player Can Move a Valid Ship Backward

- a. Severity 2

- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Game begins with Normal Enemy AI
- g. Click on the "Move ship" option.
- h. Select a valid ship (not hit).
- i. Click "Move Backward".
- j. Expected: Ship should move "backward" based on its direction.

19. Move Action; Player Can't Move a Valid Ship out of bounds

- a. Severity 2
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Game begins with Normal Enemy AI
- g. Click on the "Move ship" option.
- h. Select a valid ship (not hit) on the border.
- i. Click "Move Forward/Backward".
- j. Expected: Ship should not move and you lose your turn.

20. Move Action; Player Can't Move an Invalid Ship Forward

- a. Severity 2
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Game begins with Normal Enemy AI
- g. Click on the "Move ship" option.
- h. Select an invalid ship (hit, or at the far edges of the board).
- i. Click "Move Forward".
- j. Expected: Ship should move "forward" based on its direction.

21. Move Action; Player Can't Move an Invalid Ship Backward

- a. Severity 2
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Game begins with Normal Enemy AI
- g. Click on the "Move ship" option.
- h. Select an invalid ship (hit, or at the far edges of the board).
- i. Click "Move Backward".
- j. Expected: Ship should move "backward" based on its direction.

22. Grid Size; User can change grid size to 15 x 15

- a. Severity 2
- b. Go to game
- c. Adjust Grid Size in options to 15 x 15.
- d. Click New Game
- e. Fill out information, setting Enemy as Normal
- f. Click Begin Game
- g. Expected: Game should begin with 15 x 15 grid sizes.

23. Grid Size; User can change grid size to 20 x 20

- a. Severity 2
- b. Go to game
- c. Adjust Grid Size in options to 20 x 20.
- d. Click New Game
- e. Fill out information, setting Enemy as Normal
- f. Click Begin Game
- g. Expected: Game should begin with 20 x 20 grid sizes.

24. Bot Gameplay; Player can Choose to play against a Normal Bot

- a. Severity 2
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Normal
- e. Click Begin Game
- f. Expected: Opponent bot should display and behave as "Normal" (not very difficult to play against).

25. Bot Gameplay; Player can Choose to play against a Hunter Bot

- a. Severity 2
- b. Go to game
- c. Click New Game
- d. Fill out information, setting Enemy as Hunter
- e. Click Begin Game
- f. Expected: Opponent bot should display and behave as "Hunter" (very difficult to play against).

26. Statistics; View Previously Played Games

- a. Severity 2
- b. Go to game.
- c. Click on "Statistics" Button.
- d. Expected: The Statistics page should be shown, displaying a table with the following information:
 - i. Number of Players - single digit
 - ii. Hit Percentage - in format 0.##
 - iii. Miss Percentage - added with hit percentage should = 1.00 ± .1
 - iv. Total Turns - whole number
 - v. Time - seconds
 - vi. Winner - player type of winner

- vii. Player Types - comma separated list with one comma and one whitespace character of player types w/no comma at end of list
- e. Expected: Any previously played matches should be displayed. If no matches have been played, there should be no data in the table.

27. Statistics; Play Game Then View Statistics

- a. Severity 2
- b. Go to game.
- c. Launch new game against 1 Normal AI.
- d. Play until the end of the game.
- e. Click on "Go Home" button.
- f. Click on "Statistics" button.
- g. Expected: The statistics page displays an entry for the game just played. The entry should have 2 for number of players, its turn number should match the number of turns taken, the correct winner should be displayed, and the Player Types should be "Player, NaivePlayer".

28. Statistics; Multiple Games Added to Statistics

- a. Severity 2
- b. Go to game.
- c. Launch new game against 1 Hunter AI.
- d. Play until the end of the game.
- e. Click on "Go Home" button.
- f. Launch new game against 1 Hunter AI and 1 Normal AI.
- g. Play until the end of the game.
- h. Click on "Go Home" button.
- i. Click on "Statistics" button.
- j. Expected: The statistics page displays an entry for both games played. The first entry should have 2 players, and Player Types "Player, HunterPlayer". The second should have 3 players, and Player Types "Player, HunterPlayer, NaivePlayer". Other information should also be correct.

29. Endgame; Single Opponent Win (Normal)

- a. Severity 2
- b. Go to game.
- c. Launch new game against 1 Normal AI.
- d. Play game until all of your opponent's ships are sunk. If you fail, restart the test.
- e. Expected: After the last ship of their opponent is sunk, a message appears telling the player that they've won. The game does not continue and the AI does not make more moves. Afterwards the game does not change to another screen automatically.

30. Endgame; Single Opponent Loss (Hunter)

- a. Severity 2
- b. Go to game.
- c. Launch new game against 1 Hunter AI.
- d. Play game until all of your ships are sunk.

- e. Expected: After the last of their ships were sunk, a message appears that telling player that they've lost. Afterwards, the game does not change to another screen automatically.

31. Endgame; Winning Against Multiple Opponents

- a. Severity 2
- b. Go to game.
- c. Launch new game against 3 Normal AI players.
- d. Play game until every opponent's ships are all sunk. If you fail, restart the test.
- e. Expected: While any opponent has a ship that is not yet sunk, the game continues. After an opponent has all of their ships sunk, they are eliminated and do not make more moves. After the last remaining opponent is eliminated, a victory message appears. Afterwards, the game does not change to another screen automatically.

32. Endgame; Loss Against Multiple Opponents

- a. Severity 2
- b. Go to game.
- c. Launch new game against 2 Hunter AI.
- d. Play game until all of your ships are sunk.
- e. Expected: If an opponent is eliminated before the user, they do not make more moves afterwards. When the user has their last ship sunk, a defeat message appears. The game does not change to another screen automatically after that.

33. New Game; Check for Input Grid

- a. Go to game.
- b. Click on "New Game" button.
- c. Fill out text fields and select 1 Normal AI opponent.
- d. Expected: The game displays a grid that is clickable to input the ships. Game requests ships in this order: Carrier (5 spaces), Battleship (4 spaces), Cruiser (3 spaces), Submarine (3 spaces), Destroyer (2 spaces)

34. New Game; Invalid input

- a. Severity 2
- b. Must Input Username and Victory Message and place all ships appropriately to start game

35. Ship Input; Valid

- a. Severity 1
- b. Go to game.
- c. Launch new game
- d. Input a ship in a valid position on the board
- e. Expected: The ship is placed in the position that you indicated.

36. Ship Input; Invalid

- a. Severity 1
- b. Launch new game
- c. Input a ship in an invalid position. Outside of the board.
- d. Expected: That placement is not allowed and no ship is put down.

37. Ship Input; Wrong Ship

- a. Severity 2
- b. Launch new game
- c. Input a ship of a certain length
- d. Expected: The ship that is placed in a valid location is given the correct length.

38. Play History; Valid

- a. Severity 3
- b. After playing a game
- c. Select play history button from main menu
- d. Check the player's history
- e. Expected: The game that has ended will show up in the history

39. Play History; Correct Winner

- a. Severity 3
- b. After playing a game
- c. Select play history button from main menu
- d. Check the player's history
- e. Expected: One single player who won should be specified as the winner

40. Play History; Formatting

- a. Severity 3
- b. After playing a game
- c. Select play history button from main menu
- d. Check the player's history
- e. Expected: The player types are separated by only one comma and one whitespace. With no comma at the end of the list.

41. Play History; Hit/Miss percentages

- a. Severity 3
- b. After playing a game
- c. Select play history button from main menu
- d. Check the player's history
- e. Expected: The hit and miss percentages will add up to 1 +/- .1.

42. Play History; Time

- a. Severity 3
- b. After playing a game
- c. Select play history button from main menu
- d. Check the player's history
- e. Expected: The time is displayed in seconds rounded to nearest whole second.

43. Play History; Number of players

- a. Severity 3
- b. After playing a game
- c. Select play history button from main menu
- d. Check the player's history
- e. Expected: The number of players equals the number of players who were actually in the game

44. Play History; Number of turns

- a. Severity 3
- b. After playing a game
- c. Select play history button from main menu
- d. Check the player's history
- e. Expected: The number of turns equals the number of turns that actually occurred.

45. Custom Settings

- a. Severity 3
- b. In main menu click on settings
- c. Create new settings for the game.
- d. Expected: Game is updated using the updated settings

46. Custom Settings; Save

- a. Severity 3
- b. In main menu click on settings
- c. Create new settings for the game.
- d. Save those settings
- e. Expected: At a later time coming back you will be able to access and choose saved settings to be current settings

47. Game Setup; Select number of AI opponents (1)

- a. Severity 2
- b. New Game.
- c. Fill out text fields and place ships legally.
- d. Choose 1 in the drop-down menu for "# of opponents"
- e. Click "Begin Game" and start playing the game.
- f. Expected: Game begins showing your grid and 1 other opponent grid. The opponent can correctly make moves after the player makes theirs.

48. Game Setup; Select number of AI opponents (2)

- a. Severity 2
- b. New Game.
- c. Fill out text fields and place ships legally.
- d. Choose 3 in the drop-down menu for "# of opponents"
- e. Click "Begin Game" and start playing the game.
- f. Expected: Game begins showing your grid and 2 other opponent grids. Each opponent is able to make a move during their turn. Opponents are able to attack each other instead of just the player.

49. Game Setup; Select number of AI opponents (3)

- a. Severity 2
- b. New Game.
- c. Fill out text fields and place ships legally.
- d. Choose 3 in the drop-down menu for "# of opponents"
- e. Click "Begin Game" and start playing the game.

- f. Expected: Game begins showing your grid and 3 other opponent grid. Each opponent is able to make a move during their turn. Opponents are able to attack each other instead of just the player.

50. Game Play; Game tells you what ship was hit/sunk

- a. Severity 3
- b. New Game
- c. Place ships legally
- d. Start shooting/sinking ships
- e. When you land a hit the left bar will tell you what ship was hit/sunk
- f. Make sure the ship name is correct (5-carrier, 4-battleship, 3-cruiser, 3-submarine, 2-destroyer)
- g. Test for all 5 ship types

51. Game Setup; Set AI Difficulty (Normal)

- a. Severity 2
- b. New Game.
- c. Fill out text fields and place ships legally.
- d. Choose Normal on the drop-down menu for "Select AI difficulty"
- e. Click "Begin Game" and start playing the game.
- f. Expected: Game starts with Normal AI difficulty. The AI should be fairly easy. It should be less difficult than the Hunter AI.

52. Game Setup; Set AI Difficulty (Hunter)

- a. Severity 2
- b. New Game.
- c. Fill out text fields and place ships legally.
- d. Choose Hunter on the drop-down menu for "Select AI difficulty".
- e. Click "Begin Game" and start playing the game.
- f. Expected: Game starts with Hunter AI difficulty. The AI should be more difficult than the Normal AI.

53. Game Play; Game tells you if you were eliminated

- a. Severity 1
- b. New Game.
- c. Launch new game with 2 Normal opponents.
- d. Play game until all of the player's ships have sunk.
- e. Expected: The game displays a message that the player has been eliminated. Also, the game ends.

54. Game Play; Game tells you if you eliminated another player

- a. Severity 2
- b. New Game.
- c. Launch new game with 3 Normal opponents.
- d. Play game until one computer player's last ship is sunk.
- e. Expected: The game displays a message that an opponent's ship is eliminated. That opponent can no longer make any moves. However, if there are remaining opponents, the game continues.

55. Game Play; View Opponent's Grid

- a. Use Case "Viewing another opponent's grid"
- b. Start Game
- c. User selects an opponent
- d. Options appear next to opponent's icon
- e. User selects 'View Grid' option
- f. Panel opens to reveal opponent's grid from the user's perspective (i.e. shows land and attacks made by any player on that grid)

56. Strategies; Create a strategy

- a. Use case "Create a strategy"
- b. Select create new strategy button
- c. Open modal view
- d. Present options to design strategy
- e. Select strategy design option
- f. Open corresponding interface

57. Game Play; Quit Game

- a. Use case "Quit Game"
- b. Select quit game button.
- c. Select either yes or no button as confirmation
- d. Indicate that user has successfully quit the game.

58. Game Play; View Results

- a. Use case "View Results"
- b. Select View Results button.
- c. Display result from the finished game.
- d. Select Done button when finished viewing results.
- e. Stop displaying results from finished game

59. Game Setup; Ship Placement Size

- a. Severity 2
- b. Place each ship with the correct size
- c. Carrier - 5 spaces; Battleship - 4 spaces; Cruiser - 3 spaces; Submarine - 3 spaces; Destroyer - 2 spaces

60. Game Setup; Ship Placement Direction

- a. Severity 2
- b. Place ships in horizontal or vertical lines
- c. You should not be able to place ships with gaps or in diagonal lines

61. Game Setup; Ship Placement Overlap

- a. Severity 2
- b. Place ships so that they overlap
- c. You should not be able to place ships that overlap