Write Test cases for Battleship

Pre-condition the game is running but there is no active missiles on the screen

Test Cases

Verify that user can successfully be able to access game (aka precondition phase)

Verify that user can initiate game (i.e. starting game with shooting missile) (Action Phase)

Verify that ship and missile collision logic are handled (Postcondition)

Verify that ships spawn in

Verify that ships show in the upper 2/3 of screen and not on lower half of screen

Verify that ships move side to side

Speed of ship is based on type of ship

It is possible for one test to test multiple requirements

Testing Team name

Missile Launch Test Cases

TC-1: Launch missile with right mouse

Precondition: Game is running. Active missiles <= 5.

Action: User right-clicks mouse.

Expected Result:

- A missile launches from the center bottom of screen
- Missile moves upward at constant speed
- Missile is added to active missile list

TC-2: Maximum active missiles limit

Precondition: 5 missiles are currently active.

Action: User attempts to launch another missile.

Expected Result:

- No additional missile is created
- Active missile count remains at 5

TC-3: Missile removed when off screen

Precondition: Missile is traveling upward.

Action: Missile reaches top of screen boundary. Upper 2/3 of screen

Expected Result:

- Missile is removed from active list
- Active missile count decreased by 1

Collision Tests Cases

TC-1: Missile hits ship

Precondition: Missile and ship overlap.

Action: Collision detection runs.

Expected Result:

- Ship is destroyed or removed
- Missile is removed
- Score increases
- Explosion animation

TC-2: Missile misses ship

Precondition: Missile does not intersect ship.

Action: Missile travels off screen.

Expected Result:

- No score increase
- Missile removed

Ship Logic Test cases

TC-1: Ship moves across screen

Precondition: ship is spawned

Action: Game loop updates position

Expected result:

- Ship moves horizontally at constant speed
- Ship remain with screen bounds until exit

TC-2: Ship respawns after leaving screen

Precondition: Ship exits right side of screen

Action: Game state updated

Expected Result:

- Ship resets to starting position
- Ship continues moving across screen