System and Unit Tests

System Tests:

Sprint 1:
1. As a player I want cool sprites to represent atoms, molecules, and in between phases so that I will have a fun play experience - 10 points
    ○ Open up any level of the game
    ○ There should be sprites representing atoms
2. As a player I want an interesting start page with a cool background and logo so that it will catch my attention and make me want to play this game - 3 points
    ○ Open up the game their should be a start page with buttons for 'start' and 'instructions'
3. As a player I want a start button to take me to the first level so that I can start to play the game - 1 point
    ○ Select 'start'
    ○ The game should open up the first level
4. As a player I want an interesting game layout for the levels so that I will have fun playing the game - 2 points

Sprint 2:
1. As a player I want the drag and drop feature to be implemented so I can play the game and complete levels properly - 5 points
    ○ Select 'start'
    ○ Open up the first level in the game
    ○ Click on an atom and drag it with the mouse
2. As a player I want the collider to be implemented so I can play the game and complete levels properly - 5 points
    ○ Select 'start'
    ○ Open up a level in the game
    ○ Click on atom and drag it to another atoms
    ○ If they can fuse they appear as fused
    ○ If they can't fuse they bounce off each other
    ○ If they hit a barrier or obstacle they bounce off of it
    ○ If they form a completed molecule then they should disappear from the screen
3. As a player I want more levels to make the game more fun - 5 points

- Press 'start'
- Open up first level of game
- Connects all atoms together to form molecules
- Button should appear with 'Go to next level' on it
- Click on 'Go to next level'
- Level two should open

Sprint 3:

1. As a player I want a retry button in case I fail a level so I won't have to start over - 5 points
   - Press 'start'
   - Open up first level of game
   - Press 'retry'
   - Level should reset with timer also resetting
2. As a player I want a timer to make the game more challenging and exciting for me - 3 points
   - Press 'start'
   - Open up first level of game
   - Timer should start counting down
3. As a player I want a way to win the game - 3 points
   - Press 'start'
   - Complete fist level with time left
   - Press 'go to next level'
   - Complete second level with time left
   - Press 'go to next level'
   - Complete third level with time left
   - You Win! Screen appears
4. As a player I want some instructions to teach me how to play the game, so that I learn more about chemistry in a new way - 2 points
   - Open up the game
   - Press 'instructions'
   - List of instructions should appear on screen
   - Press 'Back to menu'
   - Main menu should appear again

Unit Testing:

Ryan Saefong:

- tested Molecule collisions scripts with Thomas and Kevin
  - I made sure that the correct atoms collided and produced the appropriate molecules by playing the simulation and colliding the different combinations of atoms.
- Tested button scripts with Julia
  - I made sure all of the buttons went to their correct links by pressing all of the buttons.
- Tested You Win! message
  - I beat the game to make sure the You Win script worked (There is a rare instance where the You Win! Screen won't appear as specified in the Working Prototype Report).
- Tested Game Over screen
  - I also purposely timed out in the simulation of the game in order to test the game over screen which works fine.
- Tested molecule list script
  - The molecule list testing required choosing the correct path of molecules that players would need to finish each level.
  - I simulated the game with the molecule list function in the HUD script and made sure those molecule combinations represented the correct molecules to pass each level

Julia Sales:

- I tested the game on the web page to see if there are any glitches
  - I first tested to see what browsers the webpage worked on. It only worked on a couple browsers like Firefox and Microsoft Edge. But a local host is needed in order to play on all browsers. I tested the local host by typing it in on all the browsers I had to make sure my game is playable.
    - To fix this I had to put the game on a web server and tested it by pasting the link onto all browsers.
  - I then tested the game on the webpage by playing the game and making sure all the elements of the game showed up.
  - I played through the game multiple times to make sure all the elements we had worked.

- - I also made sure the dimensions were the correct size or else the game would not appear correctly on the webpage.
  - I also tested the button scripts with Ryan.
    - We made sure that they worked correctly and went to the right pages and did the right actions by pressing on them.

Kevin Raja:

- Tested the collision scripts with Thomas and Ryan
  - I tested each collider script for each atom by making sure that it can fuse with other atoms to form the molecules specified in its script.
  - I also tested each collider script to make atoms that cannot fuse bounce off each other.
  - I also formed each possible molecule combination so that the completed molecule would disappear
  - We initially set it so that the completed molecule disappear after 5 seconds to determine if the collider scripts work and then we reduced it to 2 seconds for the actual game.
- Tested the timer
  - Implemented the timer in level one of the game
  - Set the start time in the countdown timer script to 10 seconds
  - Opened level one to see if the timer counted down
  - Changed the time to 30 seconds for the actual game

Thomas Do:

- I tested the drag script for the atoms
  - I tested the drag script by giving the atom the script as a component and by clicking the mouse on the atom I could move it by dragging the mouse. I took around an hour to implement this part of the script but once it was done we were able to test the rest of the game.
- I tested the collision scripts with Ryan and Kevin
  - The collision was the most difficult of the scripts to make for the atoms so it took multiple heads to think of a way to get the collision to work.
- One of the last things I created was the counter script for counting the atoms, which was a small part of a different script, and that allowed us to set a boolean to decide whether the player could move on to the next level or not.