

Ch. 8 Written Assignment

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1. What does the <td> element correspond to on the game board?

Each <td> element (table cell) corresponds to a cell(square) on the gameboard. This allows us to use Javascript to grab the table elements and manipulate them as needed.

2. What is the collision function responsible for?

The collision function is responsible for grabbing a single ship object, and making sure that it does not share any locations with another ship. If there is a collision or if any ship objects share any locations, the collision function will return true and false otherwise.

3. How can you cheat and get the locations of the ships during runtime in the final game?

During runtime of the final game, you can cheat and get the locations of the ships by opening the browser developer tools, going to the console, and typing model.ships. Typing this into the console will display the three ship objects containing the locations and hits arrays.

4. We represent each ship in the game with a/an _____.

In the game, we represent each ship as an object that holds each of the locations(cells) it stands on, along with the amount of hits it has taken.

5. To add a “hit” to the game, what do we add to the corresponding <td> element?

To add a “hit” to the game, what we need to add to the corresponding <td> element is give it a class of “hit”. In order to do this, we use the dom to grab the corresponding <td> element by its id calling the getElementById() method on our document object, assigning the corresponding <td> element to a variable, then using the setAttribute() method on the variable that references our corresponding <td> element, and passing it the arguments of “class” for the first argument and “hit” for the second argument in order to set the corresponding <td> element’s class attribute to have a value of “hit”. However, a good safety measure would be to make sure that a class named “hit” is defined in our CSS/style beforehand.

6. What are the 3 objects that are used in Battleship 2.0?

The three objects that are used in Battleship 2.0 are model, view, and controller. Model keeps the state of the game. This means keeping track of ship locations, if a ship has been hit, or if a ship has been sunk. View takes care of displaying things to the end user. Displaying things such as messages to the user and updating the game board with hits and misses. The controller brings everything together and accesses the state it needs by accessing the model's properties. In our game Battleship 2.0, the controller gets a guess from the user, processes the guess, and gives said processed information to the model where it will update state for our view to use to display the state of our game.

7. What method is used to set the class of an element?

To set the class of an element, the `setAttribute()` method is used. This method accepts two arguments. The first argument is the attribute you wish to manipulate and the second argument is the value you wish to set it to.²

8. Each object in the game has _____ primary responsibility.

Each object in the game has its own primary responsibility. Allowing each object to take care of a different task or its own responsibility and not having to worry about other details about the program makes future debugging easier. This is an example of encapsulation in JavaScript, where we modularize our code.

9. **How would you implement chaining in JavaScript? Explain what chaining is and what it does. Show me an example in code from Battleship 2.0.**

Chaining is a shorthand for a longer series of steps to access properties and methods of objects and arrays. Chaining allows you to string together object references so that you don't have to create temporary variables. Chaining can be used with the dot notation. Although, chaining is a shorthand, it does not mean it is necessarily better, sometimes having too long of a chain can be hard to read and understand. An example of chaining in code from Battleship 2.0 is:

```
var ship = { locations: ["06", "16", "26"], hits: ["", "", ""]};

var locations = ship.locations;

var index = locations.indexOf(guess);

// With chaining we can skip using variable locations

// and initialize our index variable with

var index = ship.locations.indexOf(guess);
```

10. **How are do-while loops and while loops similar? How are they different?**

The do-while and while loops are similar in that they are both used for iteration. The only main difference between the while loop and the do-while loop is that the while loop will test a condition first and if said condition is true, the code following the while loop header will continue to execute until the condition evaluates to false. On the other hand, the do-while loop will execute its code within braces and then test its condition. This means that code within a do-while loop will execute at least once even if its condition evaluates to false.