Lottery:

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Lucky for Life</title>
    <link rel="shortcut icon" href="./images/lottery.png" type="image/x-icon">
    <link rel="stylesheet" href="./css/lottery.css">
    <script language="javascript">
        var lott_num = [];
        var powerball;
        function drawLottery() {
            // create array and store numbers
            for (var i = 0; i < 5; i++) {
                lott_num[i]   = Math.floor(1 + (Math.random() * 48));
            }
            powerball = Math.floor(1 + (Math.random() * 18));

            // display numbers
            display(lott_num, 0, powerball);

            // sort numbers
            lott_num.sort(function(a, b){return a - b});

            // display again
            display(lott_num, 1, powerball);
        }
        function display(num, row, powerball) {
            width = 6;
            for (var i = 0; i < 5; i++) {
                div_num = parseInt(row*width + i);
                var x = document.getElementById("num" + div_num);
                x.innerHTML = num[i];
            }
            var index = row*width + 5;
            var x = document.getElementById("num" + index);
            x.innerHTML = powerball;
        }
        function reportWinnings() {
            //read in values and store into array
            var x = document.getElementById("user_vals").value;
            var user_vals = x.split(" ", 5);
            user_vals[user_vals.length] =
document.getElementById("user_pb").value;

            // Print numbers to screen
            document.getElementById("result").innerHTML = " ";
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            for (var i = 0; i < user_vals.length; i++) {
                document.getElementById("result").innerHTML +=
user_vals[i] + " ";
            }

            var num_matched = 0;
            var winnings = " ";
            // iterate through lottery numbers
            for (i = 0; i < lott_num.length; i++) {
                // iterate through user numbers
                for (j = 0; j < user_vals.length; j++) {
                    if (lott_num[i] == user_vals[j])
                        num_matched += 1;
                }
                winnings += "<hr>";
            }

            var winnings = "Sorry, no winnings";

            // display winnings
            if (user_vals[user_vals.length - 1] == powerball) {
                switch(num_matched) {
                    case 5:
                        winnings = "$7,000 a WEEK for LIFE!";
                        break;
                    case 4:
                        winnings = "$5,000";
                        break;
                    case 3:
                        winnings = "$150";
                        break;
                    case 2:
                        winnings = "$25";
                        break;
                    case 1:
                        winnings = "$6";
                        break;
                    case 0:
                        winnings = "$4";
                        break;
                }
            } else {
                switch(num_matched) {
                    case 5:
                        winnings = "$25,000 a YEAR for LIFE!";
                        break;
                    case 4:
                        winnings = "$5,000";
                        break;
                    case 3:
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                                winnings = "$20";
                                break;
                        case 2:
                                winnings = "$3";
                                break;
                }
            }
            document.getElementById("result").innerHTML = winnings;
            document.getElementById("result").style.display = "block";
            window.location.hash = "result";
        }
    </script>
</head>
<!----------------------------------------------------------->
<body>
    <!-- headings -->
    <header>
        Massachusetts Lottery
    </header>
    <nav>
        <ul>
            <li><a href="#">Previous Winners</a></li>
            <li><a href="#">Today's Numbers</a></li>
            <li><a href="#">Claim Prize</a></li>
        </ul>
    </nav>

    <!-- main content -->
    <h2 style="text-align:center; margin-top: 1em;">Today's Numbers</h2>
    <div class="drawing">
        <div id="ball"><div id="num0"></div></div>
        <div id="ball"><div id="num1"></div></div>
        <div id="ball"><div id="num2"></div></div>
        <div id="ball"><div id="num3"></div></div>
        <div id="ball"><div id="num4"></div></div>
        <div id="ball"><div id="num5"></div></div>
    </div>
    <div class="button">
        <button onclick="drawLottery()" class="draw-button">
            Draw Numbers
        </button>
    </div>
    <br>
    <hr>
    <br>

    <!-- Sorted Numbers -->
    <h2 style="text-align:center">Today's Numbers <br> (In Sorted Order)</h2>
```

```html
    <div class="drawing">
        <div id="ball"><div id="num6"></div></div>
        <div id="ball"><div id="num7"></div></div>
        <div id="ball"><div id="num8"></div></div>
        <div id="ball"><div id="num9"></div></div>
        <div id="ball"><div id="num10"></div></div>
        <div id="ball"><div id="num11"></div></div>
    </div>
    <br>
    <hr>
    <br>

    <!-- Test Your Luck! -->
    <h2 style="text-align:center">Test Your Luck!</h2>
    <form>
        <h3 style="text-align:center">Enter 4 numbers between 1 - 48</h2>
        <input type="text" name="user_vals" required="required" id="user_vals"> <br>

        <h3 style="text-align:center">Enter 1 powerball number between 1 - 18</h2>
        <input type="text" name="user_pb" required="required" id="user_pb"> <br>

        <input type="button" value="Submit" onclick="reportWinnings()">
    </form>
    <div id="result">
        FILLER
    </div>
</body>
</html>


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Amicable:
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="shortcut icon" href="./images/counter.png" type="image/x-icon">
    <link rel="stylesheet" href="./css/factors.css">
    <title>isAmicable()</title>

    <script language="javascript">
        function isAmicable() {
```

```javascript
            num1 = parseInt(document.getElementById("num1").value);
            num2 = parseInt(document.getElementById("num2").value);
            outfile = document.getElementById("result");

            if ((num1 == 0) || (num2 == 0)) {
                display(0, outfile, num1, num2);
                return; /* no need to check other numbers */
            }
            /* check if factors of num1 sum to num 2 */
            /* first: adds all factors to array if factors of number
*/
            num1_factors = [];
            for (i = 0; i < num1; i++) {
                if (isFactor(i, num1)) {
                    num1_factors[num1_factors.length] = i;
                }
            }
            /* adds up all factors */
            num1_sum_factors = addFactors(num1_factors);

            if (num1_sum_factors != num2) {
                display(0, outfile, num1, num2);
                return;
                /* no need to check other number*/
            }
            /*******************************/
            /* check if factors of num2 sum to num 1 */
            num2_factors = [];
            for (i = 0; i < num2; i++) {
                if (isFactor(i, num2)) {
                    num2_factors[num2_factors.length] = i;
                }
            }
            /* adds up all factors */
            num2_sum_factors = addFactors(num2_factors);

            if (num2_sum_factors != num1) {
                display(0, outfile, num1, num2);
            } else {
                display(1, outfile, num1, num2);
            }
        }
        function display(bool, outfile, num1, num2) {
            if (bool == 1) {
                outfile.style.backgroundColor = "rgb(121, 239, 121)";
                outfile.innerHTML = num1 + " and " + num2 + " are
amicable!";
            } else {
                outfile.style.backgroundColor = "rgb(239, 135, 121)";
                outfile.innerHTML = num1 + " and " + num2 + " are not
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amicable!"
            }
            document.getElementById("result").style.display = "block";
        }
        function isFactor(num, test_num) {
            if ((test_num % num) == 0)
                return 1;

            return 0;
        }
        /*function test_isFactor() {
            var x = 3;
            // should print out all multiples of 3
            // between 0 and 30. i.e. 0, 3, 6, 9... 30
            for (var y = 0; y <= 30; y++) {
                if (isFactor(x, y))
                        console.log(y);
            }
            window.alert("function done! check console");
        }*/
        function showFactors(array) {
            loc = document.getElementById("factors");
            loc.innerHTML = "Factors: ";
            for (i = 0; i < array.length; i++)
                loc.innerHTML += " " + array[i];
        }
        /*function test_showFactors() {
            array = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10];
            showFactors(array);
        }*/
        function addFactors(array) {
            sum = 0;
            for (i = 0; i < array.length; i++)
                sum += array[i];
            return sum;
        }
        /*function test_addFactors() {
            //should sum to 20, works...
            array = [1, 2, 3, 4, 5, 5];
            sum = addFactors(array);
            console.log(sum);

            //should sum to 650, works...
            array = [120, 150, 180, 20, 60, 40, 80];
            sum = addFactors(array);
            console.log(sum);
        }*/
        function getFactors(num) {
            array = [];
            for (i = 1; i <= num; i++) {
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                if ((num % i) == 0)
                    array[array.length] = i;
            }
            return array;
        }

        /*function test_getFactors() {
            // should log all factors of 20:
            // 1, 2, 4, 5, 10, 20
            array = getFactors(20);
            for (i = 0; i < array.length; i++)
                console.log(array[i]);

            console.log("**************")

            // should log all factors of 7:
            // 1, 7
            array = getFactors(7);
            for (i = 0; i < array.length; i++) {
                console.log(array[i]);
            }
        }*/
    </script>
</head>
<body>
    <header>
        <h1>
            isAmicable( )
        </h1>
    </header>
    <main>
        <div class="form-container">
        <form>
            Number 1: <input id="num1" type="text">
            Number 2: <input id="num2" type="text"> <br>
            <!-- TESTER CODE: TEST IFFACTOR -->
            <!-- <input type="button" value="test: isFactor"
onclick="test_isFactor()"> -->

            <!-- TESTER CODE: TEST SHOWFACTORS -->
            <!-- <input type="button" value="test: showFactors"
onclick="test_showFactors()"> -->

            <!-- TESTER CODE: TEST ADDFACTORS -->
            <!-- <input type="button" value="test: addFactors"
onclick="test_addFactors()"> -->

            <!-- TESTER CODE: TEST GETFACTORS -->
            <!-- <input type="button" value="test: getFactors"
onclick="test_getFactors()"> -->
```

```
                <input type="button" value="check" onclick="isAmicable()">
            </form>
            </div>
            <div id="result"></div>
            <div id="factors"></div>
        </main>
    </body>
</html>
```