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CS20 - Web Programming  
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Assignment 7: Extra Credit

### Online Links

Jump: <https://mattia-danese.github.io/CS20-EC/jump/index.html>

Amicable Numbers: <https://mattia-danese.github.io/CS20-EC/amicable/index.html>

Joe's Part 2: [https://mattia-danese.github.io/CS20-EC/joes\\_p2/index.html](https://mattia-danese.github.io/CS20-EC/joes_p2/index.html)

## **Jump**

### HTML Code

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Jump</title>

  <link rel = "stylesheet" href = "../style.css" />
  <style></style>
  <script src="../script.js"></script>
  <script src="https://code.jquery.com/jquery-3.6.0.js"
integrity="sha256-H+K7U5CnXl1h5ywQfKtSj8PCmoN9aaq30gDh27Xc0jk="
crossorigin="anonymous"></script>

  <script>
    var images = [
      {src: "../images/apple.png",      time: 2000},
      {src: "../images/banana.png",     time: 2000},
      {src: "../images/pear.png",       time: 2000},
      {src: "../images/peach.png",      time: 2000},
      {src: "../images/strawberry.png", time: 2000},
    ];

    var stopping = false;
    var nextIdx = 0;

    var show = function (i) {
      console.log("here4");
      $("img").attr('src', images[i].src);
```

```

        if (stopping){
            $("img").css('opacity','1.0');
            $("img").css('display','inline');

            return;
        }

        $("img").fadeIn(2000, function() {
            $("img").fadeOut(2000, function(){
                nextIdx = (i < images.length-1)? i+1 : 0;
                show(nextIdx);
            });
        });
    };

    var start = function () {
        stopping = false;
        $("img").fadeOut(2000, function(){
            setTimeout(show(nextIdx+1), 1);
        });
    };

    var stop = function () {
        console.log("stopping");
        stopping = true;
    };

    $(document).ready(function(){
        $("#start").click(start);
        $("#stop").click(stop);
        console.log("here");
    });
</script>

</head>
<body>
    <form id="form1">
        <input id="in1" name="in1" type="text" />
        <button id="but" type='button' onclick="jump();">JUMP > </button>
        <input id="in2" name="in2" type="text" />
    </form>

```

```
<form id="form2">
  <input type="checkbox" id="all" name="all" onclick="checking();"//>
  <label for="all" id="all_label"> Check all </label>

  <br>
  <br>

  <input type="checkbox" id="first" name="first" class="indiv"/>
  <label for="first"> first </label>

  <br>

  <input type="checkbox" id="second" name="second" class="indiv"/>
  <label for="second"> second </label>

  <br>

  <input type="checkbox" id="third" name="third" class="indiv"/>
  <label for="third"> third </label>

  <br>

  <input type="checkbox" id="fourth" name="fourth" class="indiv"/>
  <label for="fourth"> fourth </label>
</form>

<div id="part3">
  

  <button id="start">Start</button>
  <button id="stop">Stop</button>
</div>

</body>
</html>
```

### Javascript Code

```
function jump(){
    var direction = document.getElementById("but").innerHTML;
    var right = direction.indexOf('&gt;') != -1 ? true : false;
    var text;

    if(right == true){
        text = document.getElementById("in1").value
        document.getElementById("in1").value = "";
        document.getElementById("in2").value = text
        document.getElementById("but").innerHTML = "< JUMP";

    }
    else{
        text = document.getElementById("in2").value
        document.getElementById("in2").value = "";
        document.getElementById("in1").value = text
        document.getElementById("but").innerHTML = "JUMP >";
    }
}

function checking(){
    var label = document.getElementById("all_label");
    var check = label.innerHTML.indexOf("Un") == -1 ? true : false;
    var boxes = document.getElementsByClassName("indiv");

    if(check){
        for(i=0; i < boxes.length; i++){
            boxes[i].checked = true;
        }
        label.innerHTML = "Uncheck All";
    }
    else{
        for(i=0; i < boxes.length; i++){
            boxes[i].checked = false;
        }
        label.innerHTML = "Check All";
    }
}
```

## CSS Code

```
body{
    position: relative;
    width: 100vw;
    height: 100vh;
}

#form1{
    position: absolute;
    top: 25%;
    left: 50%;
    transform: translate(-50%, -50%);
    border: solid thin black;
    width: 60%;
    display: flex;
    padding: 15px;
}

#form1 input, #form1 button{
    flex: 1;
    font-size: x-large;
    padding: 5px;
    border-radius: 20px;
}

#form1 input{
    border: thin solid blue;
    width: 30%;
}

#form1 button{
    border: thin solid red;
    width: 30%;
}

#in1{
    margin-right: 5%;
}

#in2{
    margin-left: 5%;
}

/* ----- */
```

```
#form2{
  border: solid thin black;
  width: 10%;
}
/* ----- */
```

```
#part3{
  position: absolute;
  top: 60%;
  left: 50%;
  transform: translate(-50%, -50%);
}
```

```
img{
  width: 200px;
}
```

## Amicable Numbers

### HTML Code

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Amicable Numbers</title>

  <link rel = "stylesheet" href = "../style.css" />
  <style></style>
  <script src="script.js"></script>

</head>
<body>
  <h1>Amicable Numbers</h1>

  <form>
    <input id="num1" type="text" placeholder="  first number"/>
    <input id="num2" type="text" placeholder="  second number"/>

    <button type='button' onclick="initialize();">Submit</button>

    <div id="error">Please specify two numbers</div>

    <br>
    <br>

    <div id="content">
      <div id="result"></div>
    </div>

  </form>
</body>
</html>
```

### Javascript Code

```
function validInput(n1, n2){
    if(isNaN(n1) || isNaN(n2)){
        document.getElementById("error").style = "display: block;";
        document.getElementById("content").style = "display: none;";
        return false;
    }

    document.getElementById("error").style = "display: none;";
    document.getElementById("content").style = "display: block;";
    return true;
}
```

```
function isAFactor(x,y){
    if(y % x == 0){
        return true;
    }

    return false;
}
```

```
function getFactors(n){
    const factors = new Array();

    for(i=1; i <= (n/2); i++){
        if(isAFactor(i,n) == true){
            factors.push(i);
        }
    }

    return factors;
}
```

```
function sumArray(arr){
    total = 0;
    for(i=0; i < arr.length; i++){
        total += arr[i];
    }

    return total;
}
```



```

function updateDOM(num1, num2, num1_factors, num2_factors, num1_factors_sum,
num2_factors_sum){
    // checks if sum of factors equals the other number
    if(num1 == num2_factors_sum && num2 == num1_factors_sum){
        document.getElementById("result").innerHTML = "The numbers: " + num1 +
" and " + num2 + " are amicable";
    }
    else {
        document.getElementById("result").innerHTML = "The numbers: " + num1 +
" and " + num2 + " are not amicable";
    }

    alert("The factors of " + num1 + " are: " + num1_factors);
    alert("The factors of " + num2 + " are: " + num2_factors);

}

```

```

function initialize(){
    // gets user inputted numbers
    num1 = parseInt(document.getElementById("num1").value);
    num2 = parseInt(document.getElementById("num2").value);

    // checks if input specifies two numbers
    if(!validInput(num1, num2)){
        return
    }

    // populates arrays with all factors of each number (excluding the number
itself)
    num1_factors = getFactors(num1);
    num2_factors = getFactors(num2);

    // sums the arrays containing all factors of each number
    num1_factors_sum = sumArray(num1_factors);
    num2_factors_sum = sumArray(num2_factors);

    // populates the DOM with all needed information
    updateDOM(num1, num2, num1_factors, num2_factors, num1_factors_sum,
num2_factors_sum);
}

```

## CSS Code

```
body{
    height: 100vh;
    width: 100vw;

    text-align: center;
    background-color: azure;
    position: relative;
}

h1{
    text-decoration: underline;
    color: navy;
    font-size: 10vh;
    margin-bottom: 3.5vh;
}

form{
    position: absolute;
    top: 45%;
    left: 50%;
    transform: translate(-50%, -50%);
    height: 40vh;
}

#content{
    text-align: left;
    margin-top: 0%;
    width: 100%;
}

input {
    width: 15vw;
    height: 3vh;
    border-radius: 15px;
    font-size: large;
}

button{
    width: 15vw;
    height: 4vh;
    border-radius: 20px;
```

```
    font-size: large;
    font: black;
    background-color: lightgreen;
}
```

```
#error{
    display: none;
    color: red;
}
```

## Joe's Hotdogs Part 2

### HTML Code

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Joe's Part 2</title>

  <link rel = "stylesheet" href = "../style.css" />
  <style></style>
  <script src="../script.js"></script>

</head>
<body>
  <h1>Joe's Hotdogs</h1>

  <div id="everything">
    <form>
      <div id="hotdogs">
        <span>How many hotdogs?</span>
        <select name="hotdogs" id="selecthotdogs">
          <option value="0">0</option>
          <option value="1">1</option>
          <option value="2">2</option>
          <option value="3">3</option>
          <option value="4">4</option>
          <option value="5">5</option>
          <option value="10">10</option>
          <option value="15">15</option>
          <option value="20">20</option>
        </select>
        <span>Price per Hotdog: </span>
      </div>

      <div id="fries">
        <span>How many fries?</span>
        <select name="fries" id="selectfries">
          <option value="0">0</option>
          <option value="1">1</option>
          <option value="2">2</option>
```

```
        <option value="3">3</option>
        <option value="4">4</option>
        <option value="5">5</option>
        <option value="10">10</option>
        <option value="15">15</option>
        <option value="20">20</option>
    </select>
    <span>Price per Fries: </span>
</div>
```

```
<div id="sodas">
    <span>How many fries?</span>
    <select name="sodas" id="selectsodas">
        <option value="0">0</option>
        <option value="1">1</option>
        <option value="2">2</option>
        <option value="3">3</option>
        <option value="4">4</option>
        <option value="5">5</option>
        <option value="10">10</option>
        <option value="15">15</option>
        <option value="20">20</option>
    </select>
    <span>Price per Sodas: </span>
</div>
```

```
    <button type="button" onclick="add();">Add Items</button>
</form>
```

```
<div id="error" style="display: none;">Please select at least one item
to add to your order.</div>
```

```
<hr>
```

```
<div id="details">
    <div>Hotdogs:
        <span id="numhotdogs">0</span>
        ($<span id="moneyhotdogs">0</span>)
    </div>

    <div>Fries:
        <span id="numfries">0</span>
        ($<span id="moneyfries">0</span>)
```

```
</div>

<div>Sodas:
    <span id="numsodas">0</span>
    ($<span id="moneysodas">0</span>)
</div>

    <button type="button" onclick="reset();">Clear Added
Items</button>
</div>

<hr>

<div>Subtotal: $<span id="subtotal">0</span></div>
<div id="discount1">Please spend $20 to qualify for Joe's special
offer of a 10% coupon.</div>
<div>Discount Amount: $<span id="discount2">0.00</span></div>
<div>Tax: $<span id="tax">0</span></div>
<div>Total: $<span id="total">0</span></div>
</div>

</body>
</html>
```

### Javascript Code

```
function add(){
    var HOTDOG_PRICE = 3.75;
    var FRIES_PRICE = 2;
    var SODA_PRICE = 1.80;
    var TAX = 0.0625;
    var DISCOUNT_PRICE = 20;
    var DISCOUNT_RATE = 0.1;

    var num_hotdogs =
parseInt(document.getElementById("selecthotdogs").value);
    var num_fries = parseInt(document.getElementById("selectfries").value);
    var num_sodas = parseInt(document.getElementById("selectsodas").value);

    if(num_hotdogs == 0 && num_fries == 0 && num_sodas == 0){
        document.getElementById("error").style = "display: block;";
        return
    }
    else {
        document.getElementById("error").style = "display: none;";
    }

    num_hotdogs += parseInt(document.getElementById("numhotdogs").innerHTML);
    num_fries    += parseInt(document.getElementById("numfries").innerHTML);
    num_sodas    += parseInt(document.getElementById("numsodas").innerHTML);

    document.getElementById("numhotdogs").innerHTML = num_hotdogs;
    document.getElementById("numfries").innerHTML = num_fries;
    document.getElementById("numsodas").innerHTML = num_sodas;

    var hotdogs_cost = num_hotdogs * HOTDOG_PRICE;
    var fries_cost = num_fries * FRIES_PRICE;
    var sodas_cost = num_sodas * SODA_PRICE;
    var subtotal = hotdogs_cost + fries_cost + sodas_cost;

    document.getElementById("moneyhotdogs").innerHTML =
hotdogs_cost.toFixed(2);
    document.getElementById("moneyfries").innerHTML = fries_cost.toFixed(2);
    document.getElementById("moneysodas").innerHTML = sodas_cost.toFixed(2);
    document.getElementById("subtotal").innerHTML = subtotal.toFixed(2);

    var discount_cost;
```

```

    if(subtotal >= DISCOUNT_PRICE){
        discount_cost = (Math.round(((subtotal * DISCOUNT_RATE) +
Number.EPSILON) * 100) / 100);

        document.getElementById("discount1").innerHTML = "Congratulations!
Your order was above $20, so Joe's special offer of a 10% coupon was applied
to your order!";
    }
    else{
        discount_cost = 0;
        cost_left = (Math.round(((DISCOUNT_PRICE - subtotal) + Number.EPSILON)
* 100) / 100);

        document.getElementById("discount1").innerHTML = "Please spend $" +
cost_left.toFixed(2) + " more in order to qualify for Joe's special offer of
a 10% coupon";
    }
    document.getElementById("discount2").innerHTML = discount_cost.toFixed(2);

    var tax_cost = (Math.round((((subtotal - discount_cost) * TAX) +
Number.EPSILON) * 100) / 100);
    var total = (Math.round(((subtotal - discount_cost + tax_cost) +
Number.EPSILON) * 100) / 100);

    document.getElementById("tax").innerHTML = tax_cost.toFixed(2);
    document.getElementById("total").innerHTML = total.toFixed(2);
}

function reset() {
    document.getElementById("numhotdogs").innerHTML = "0";
    document.getElementById("numfries").innerHTML = "0";
    document.getElementById("numsodas").innerHTML = "0";

    document.getElementById("moneyhotdogs").innerHTML = "0.00";
    document.getElementById("moneyfries").innerHTML = "0.00";
    document.getElementById("moneysodas").innerHTML = "0.00";
    document.getElementById("subtotal").innerHTML = "0.00";

    document.getElementById("discount1").innerHTML = "Please spend $20 to
qualify for Joe's special offer of a 10% coupon.";
    document.getElementById("discount2").innerHTML = "0.00";

    document.getElementById("tax").innerHTML = "0.00";

```



```
    document.getElementById("total").innerHTML = "0.00";  
}
```

## CSS Code

```
body{
    width: 100%;
    height: 100%;

    text-align: center;
    background-color: bisque;
}

div, button{
    margin-bottom: 10px;
}

#everything{
    text-align: left;
    width: 30%;
    margin: auto;
}

h1{
    margin-bottom: 80px;
    font-size: 60px;
    text-decoration: underline;
}

#error{
    color: red;
}

@media only screen and (max-width: 1025px) {
    #everything{
        width: 50%;
    }
}

@media only screen and (max-width: 670px) {
    #everything{
        width: 70%;
    }
}
```