Mattia Danese
CS20 - Web Programming
Professor DiOrio
Assignment 6: Amicable Numbers

Online Link
https://mattia-danese.github.io/CS20-hw6/

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>
           <br>
           <div id="factors1"></div>
           <div id="factors2"></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";
   }

   // displays factors of each number
   document.getElementById("factors1").innerHTML = "The factors of " + num1 +
" are: " + num1_factors.join();
   document.getElementById("factors2").innerHTML = "The factors of " + num2 +
" are: " + num2_factors.join();
}


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;
}

#factors1, #factors2{
   word-wrap: break-word;
}
```