Course Project Report: Calculator

* I first started by using basic HTML to make the buttons and basic format of all the HTML code using sublime 2 text editor.
  + For the sake of context, let it be known that several variables are created first: display, equals, nums, ops, currentNum, oldNum, resultNum, and operator.
  + I made a division for the text area where the calculator digits will be shown as well as a division for all of the buttons
* Next, I began to implement the Javascript code to make the buttons actually functional.
  + I first started with what happens when you click a number button.
    - The number should be passed to the text area.
    - A function called setNum will do the job.
    - In order to get the button to do the action, on-click event handlers are implemented using a loop.
    - So when the button is pressed, set num is called.
      * I later found out that implementing a button for “.” was as simple as including it as another button of the num class.
  + To implement multiple digits entered, I modified setNum so that it will first check if the display is zeroed first to write a new number or if it already has numbers to concatenate the new numbers entered to the ones already in display.
    - I later realized that after implementing the operations that setNum should also check is resultNum is empty before concatenating more digits. If it’s not empty then the digits in the display are overwritten and resultnum value is cleared.
* Implementing the operators was similar to the number buttons in terms of just implementing the buttons.
  + I first used a for loop to add on-click even handlers to the operation buttons.
    - The for loop calls the operate function
      * The operate function works by setting oldNum to the currentNum and then clears currentNum. Then the operation class is stored in the operator variable.
      * The calculator is ready for the other operand.
* The operation is carried out when the equal button is clicked.
  + The event handler for the equal button calls the function displayNum.
    - displayNum is the primary function that carries out the operation.
    - First, oldNum and Current num are parsed to numbers.
    - Then the operation is carried out.
      * A switch is used and checks the cases with the name of the operation. The result is stored into resultNum.
      * Before the result is written to the display, Math.round makes sure that only the right amount of numbers are written to the display.
      * The display is overwritten to display the result.
      * oldNum is set to 0.
* In order to prevent the calculator from breaking, I included an if statement in displayNum to make sure resultNum is finite and that is is not NaN. If any of the conditions are not met, result num is set to “Error” and that is what is displayed to the user. This prevents any division-by-0 operations.

* I added a clear button to clear the calculator. When clicked, it calls the function to clear the calculator. The function sets all of the variables to “” or 0 and then updates the display.
  + Clickevents were added to the button.
* Apart from the clear button, I added a reload button that reloads the webpage when clicked. I calls a function that does window.location = window.location;
  + The button’s clickevent contains the function implementation.
* CSS and Style Implementation:
  + For a background I used a nice gradient. I used a website to generate the code for the gradient: <http://www.colorzilla.com/gradient-editor/>
  + I set the body text to a green and the buttons to a blue with a white outline.
  + For the text in the display, I first used @font-face to import a custom font.
  + I rearranged the buttons in the HTML and separated them into separate div’s to resemble an actual calculator as opposed to having all the buttons in just one row across the page.
    - Each row has its own set margin to separate the buttons from each other.
    - Border-radius allowed me to round off the corners of all the panels and buttons.
  + I later thought it would be cool to add sounds to the button when they are clicked.
    - I added two sound files and made 2 audio elements. The functions to play the audio files are called when the buttons are clicked.