CIS 425 – Enterprise Web Technologies
Case Study

Total Points: 50 (User Interface Design: 20, Implementation: 30)

Purpose

To bring together your acquired skills from the HTML, CSS, and JavaScript subject areas into one publically available Web site. This assignment will require you to do some research to accomplish portions of this project.

Description

You will utilize your Web development skills to create a multi-function calculator site (see Figure 1). Use HTML and CSS features to design the calculator's User Interface (UI). To make your calculator stylish, all buttons must have the same background color. As the mouse moves over each button (hovers-in), the button's background color must change. When the mouse moves away from the button (hovers-out), its background color should revert to its default color. The "display" element (where the numbers appear) should be read-only. The relative positioning and layout of the buttons should be as shown in Figure 1. The entire calculator should be horizontally centered on the page and have a title above it.
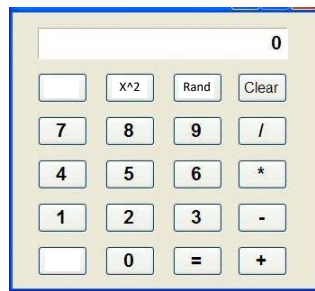

Figure 1. Sample Design

Use JavaScript/jQuery to implement the following functionality in your calculator:

A. Basic functions: Addition (+), Subtraction (-), Multiplication (x), and Division (/).

B. Additional functions: "Power of 2" (x^2 or x^2) and Random. The Power of 2 should take a given number and raise it to its second power (e.g. $5^2 = 25$). The Random function ("Rand") should display a number between 0.0 and 1.0 (with up to 5 decimal places, e.g. 0.43916).

C. Customary Operations: As is usual with all calculators, there should be a button to clear the display ("C" or "Clear") and an equality symbol button (=). Unlike other calculators, this special calculator will only deal with whole numbers (0 through 9), i.e. no need for a decimal button (.)

As a matter of functionality, the following sequence of sample "clicks" should produce the desired display and results:

Click Sequence	Display	Result
8, x^2	8 (nothing needs to display when x^2 is clicked)	64
Rand	Display should be cleared and a new value displayed	Calculated value
9, *, 6, =	9 * 6 (nothing needs to display when "=" is clicked)	54
7, +, 8, -, 3, =	7 + 8 – 3 (nothing needs to display when "=" is clicked)	12

Deliverable

Create a new folder in your local "…/CIS425/Assignments" folder and name it *CaseStudy*. Create your site and store your files in the newly created subfolder "…/CIS425/Assignments/CaseStudy".

For the **"User Interface" phase**, you will submit the design of your Multi-Function Calculator (MFC) site. To do so, make a zipped file named "*LastFirstName_CaseStudy_UserInterface.zip*" containing your HTML, CSS, and optional/possible image files. Your site does not need to be functionally operational at this stage; however, it does need to have its UI requirements in place (as described above).

For the **"Implementation" phase**, you will submit all the necessary files (HTML, CSS, JavaScript, etc.) for your MFC site in a zipped file named "*LastFirstName_CaseStudy_Implementation.zip*". Your site must be fully operational at this time.