Assignment 3

Start Assignment

Due Nov 13 by 11:59pm **Points** 70 **Submitting** a website url or a file upload

Summary

In this assignment you will use JavaScript to perform numeric calculations.

General Requirements

For this assignment, you will create a Web site made up of the following four pages:

- Index.htm
- Afford.htm
- CompoundInterest.htm
- Payment.htm

Each of the pages in the site should have a similar look and feel as always. I suggest copying / using / modifying styles from the previous assignment(s). Your site must have a color scheme and be reasonably formatted. The details are up to you.

You must create one external style sheet. It can be yours or a template or a framework, such as Bootstrap. You can also use both. That is, you can use both Bootstrap and add your own style sheet(s). That external style sheet must appear in a folder named CSS or be referenced externally.

General Formatting

Format all of the elements so that they adhere to the following requirements:

- Create prompts and input values such that they appear in two-columns - one for the prompts and another for the input values. You could one of the grid systems to do this, create a table, and / or write your own CSS.

- All calculated output should be displayed with 2 decimal places. The following link shows exactly how to do this http://stackoverflow.com/questions/4187146/display-two-decimal-places-no-rounding (http://stackoverflow.com/questions/4187146/display-two-decimal-places-no-rounding) . There are a couple of other ways to solve the problem.

- You should create clear headers and footers for these pages as you have been doing. Again you can recycle the menus, headers, and footers from the last assignment. In fact, I suggest that you do.

Index.htm

The first page does very little. On this page, create links to the other pages of the assignment. In the menu for the remaining pages, create links to the other pages of the assignment. Enclose the links inside of a navigation section. Make sure that you, on all of the other pages, create links to the other assignment pages. *I suggest that you just copy the menu from your previous assignment and change the titles and links.*

Afford.htm

On this page, you will write a JavaScript program that will estimate the maximum affordable house payment based on a family's gross income and expenses. This page should have a form with the following inputs (text boxes): You should set up the input text boxes so that the user can enter only numeric values.

Inputs:

- Gross monthly Income
- Total expenses

The formula calculates the maximum affordable monthly house payment. This is an actual rough-cut formula commonly used to determine affordability. The steps are as follows:

- Calculate of 29% of the gross income
- Calculate of 39% of (gross income - less expenses).
- Write an `if` statement to determine the lesser of the two results from the above. That's the maximum affordable payment.
- You should use the `parseFloat` function to convert input strings to numbers.

Display the maximum affordable payment value in another control (widget). I suggest that you use an output only label. *Your output must display the maximum affordable house payment and which percentage was used.* Again, format the output to two decimal places.

CompoundInterest.htm

On this form, you will write a JavaScript program that will calculate compound interest on an investment. Basically, you are implementing the Excel `FV` function. The program will have the following inputs:

- Initial Investment Amount
- Number of Periods
- Interest Rate Per Period

Again, display inputs with prompts in a two column table. Use the same CSS that you used in the previous page. That is, reference the same external StyleSheet.

Create a button on the form that, when clicked, will calculate the compound interest. You can either use the compound interest formula or create a loop based on the following pseudo-code. The compound interest formula is well-documented and available on the Web. You can also use Excel and the FV formula to test your answer. Here is a link to the compound interest formula. (https://qrc.depaul.edu/StudyGuide2009/Notes/Savings%20Accounts/Compound%20Interest.htm)

Here is the pseudocode for the compound interest formula using a loop.

Loop for the number of periods
*In the loop, calculate the interest (current balance) * (interest rate)*
In the loop, calculate the new current balance by adding the old current balance and the current interest.
The loop should execute for the total number of periods.

Display the output in another label with an appropriate prompt. Format the output to two decimal places.

To get full credit for this page, you must convert years (entered by the user) to months. That is, the user enters an annual interest rate and the number of periods also expressed annually. However, the calculations should be performed on monthly values. So the annual interest rate needs to be divided by 12 and the number of periods need to be multiplied by 12.

Payment.htm

On this form, you will calculate the payment on a loan. JavaScript does not have a PMT function like VB or Excel. Thus, you will have to use the formula to get the answer. If you don't remember the formula to calculate a payment, visit http://www.financeformulas.net/Loan_Payment_Formula.html (http://www.financeformulas.net/Loan_Payment_Formula.html)

So that you can check your work, the payment on a $100,000 loan for 10 years at 6% interest is $1,110.21. You need to convert annual values to monthly values to receive full credit. That is, the user enters 30 years and so the number of periods is 360 months. A 12% annual interest rate is a 1% monthly interest rate

Inputs

- Initial Loan Amount (Dollars)
- Number of Periods (Years)
- Interest Rate (Years)

Output

- Payment amount (Monthly)

When calculating the payment, the user enters the input values in years. However, the payment should be calculated using values expressed in months. Thus, you must multiply the number of periods by 12 to express the value in months. You need to divide the interest rate by 12 to express the annual interest rate as a monthly interest rate.

Deliverables

I'm assuming that the Web Server is not working for this assignment. I'm about ready to just give up on the Web server for the semester! To submit this assignment, please create a .zip file. The .zip file should contain all of your html files, CSS files, and images. DO NOT SUBMIT INDIVIDUAL FILES. MAKE SURE TO USE A .ZIP FILE. DON'T USE A RAR FILE.

Grading

The assignment is worth 70 points.

Item	Relevant Assessment Metrics	Points
General	Did the home page links properly reference the other pages? Is the assignment well-formatted.	10 points
Page 2 - Afford	Event handler works Input type conversion Math is correct Output is correct	20 points
Page 3 - Compound Interest	Event handler works Input type conversion Math is correct Output is correct	20 points
Page 4 - Payment	Event handler works Input type conversion Math is correct Output is correct	20 points

Assignment 4

Criteria	Ratings	Pts
General Is the URL correct? Did the home page links properly reference the other pages? Did you correctly use external style sheets		10 pts
Page 2 - Afford Event handler works Input type conversion Math is correct Output is correct		20 pts
Page 3 - Compound Interest Event handler works Input type conversion Math is correct Output is correct		20 pts
Page 5 - Payment Event handler works Input type conversion Math is correct Output is correct		20 pts
		Total Points: 70