CSE 391: Programming for the Internet

Assignment 2: JavaScript Programming

Deadline: As Per Lab Instructor

Note: The specific look and feel of the pages described below is left intentionally vague, allowing considerable design freedom on your part. However, for full points the pages should have a nice look and its code should satisfy common standards (meaning, for example, that it would be easy for someone else to read your HTML, CSS, and JavaScript code and **understand** what the intention of the pages is, how the JavaScript code is supposed to operate, and **it should be relatively straightforward to maintain**).

Submission of work
Please remember to have your web pages online so that I can access them via a web browser **and** to submit them to the mail by midnight before the day they are due.

Remarks:

1. There's loads of information about JavaScript that's available online, more than I can possibly tell you about in the lectures.
2. The third part of this assignment is likely the most difficult (so do the other two parts <u>first</u>).
3. You are definitely able to do all these tasks using only JavaScript (and HTML, CSS of course).
4. The functionality of your pages (at least for the second and third parts) relies on writing appropriate event handlers to control the tasks that you want to perform.
5. You will likely want to remind yourself/read more about the JavaScript method called "[getElementById](#)" which can be very useful to retrieve various elements of a webpage (using the ids that you assign to them). This then allows you to extract the values from those elements (like input text boxes, check boxes, radio buttons, etc) and/or assign new values to them. (See my [JavaScript example](#) where I use this method for an example.)
6. It's also possible to use the "[innerhtml](#)" property to change values (but *this can sometimes not work correctly based on particular browers or versions*, so read more about it if you choose to use this way to alter page contents). An alternative method to alter webpage contents dynamically is to use the methods of creating and appending (or deleting) the nodes of the [Document Object Model](#).
7. For the quiz part (the third part), there are several ways in which you might approach this. If you don't want to worry about the varying number of questions, feel free to just create a quiz that has ten questions (but this won't get you all of the 35 points).
8. Whatever method you choose, whether it's a straightforward method, or a more complicated approach (by manipulating the DOM), my suggestion is to proceed slowly and test your code a lot along the way.

Part 1 (30 points)

Add a random "fortune generator" to your home page. That is, your page should contain a list of fortunes (stored as an array of strings), and should randomly select one of those fortunes to display each time the page is loaded. The fortune should be displayed just above the page footer, centered and enclosed in a box. Here's an example given below.

> True wisdom comes not from knowledge, but from understanding.

Part 2 (35 points)

You can find the (relatively) current exchange rates amongst several currencies in the table given below.
Note that conversions are given by reading down the table. For example, 1 USD = 69.4924 BDT, and 1 CAD = 1.01941 USD.

	USD	GBP	CAD	EUR	AUD
USD	1	2.03032	1.01941	1.41544	0.88297
GBP	0.49246	1	0.50221	0.69714	0.43497
CAD	0.98054	1.99169	1	1.38814	0.86613
EUR	0.70641	1.43448	0.72037	1	0.62382
AUD	1.13262	2.29964	1.15498	1.60329	1

Create a Web page named `convert.html` that can be used to convert some value in one currency to the respective values of the other currencies. That is, your page should include a form which consists of five currency fields, and on inserting a number in one of the fields, this number, taken as the respective value of the currency, be converted to the values of the other currencies. For example, a page of USD, EUR and GBP converter might look like this (the converted values don't match the values in the table above):

My first converter. Insert a number in one of USD, GBP or EUR currency fields, and this taken as its value will be respectively converted to the values of the other two currencies.

```
3506.38          USD
equals
2912.28          EUR
equals
2000             GBP
```

Part 3 (35 points)

In order to get all 35 points for this part, create a Web page named `quiz.html` that can be used to conduct multiple choice quizzes over the Web. The page should contain at least 10 potential quiz questions, each with three possible answers (A, B, and C). When loaded, the page should first prompt the person for the number of desired questions in the quiz, with a default of 5 questions. The page should then randomly select questions and prompt the user with each question and possible answers. Each answer entered by the user should be compared with the correct answer, and the result displayed within the page (either CORRECT or INCORRECT). At the end, the number and percentage of correct guesses should be displayed in the page.

Your page must be clear and understandable to the user, and support the following:

- It must be straightforward to add or remove potential questions, with a minimal amount of editing.
- It must display each question and all three potential answers as part of the prompt, and make it clear to the user how their answer should be formatted.
- The question, user's answer, and correctness of that answer must be displayed in the page. In the case of an incorrect answer, the correct answer must be identified.
- The number of correct answers, total number of questions, and correctness percentage must be displayed in a readable format.
- For extra credit, ensure that no question appears more than once in a specific quiz. Of course, this requires checking to make sure that there are enough potential questions to complete the quiz.

For example, the page might contain the following as a result of a 5-question quiz:

```
What is the capital of Missouri?
You guessed B) Jefferson City
CORRECT

How many ounces in a pound?
You guessed A) 10
INCORRECT: the correct answer is C) 16

Who was the first person to set foot on the moon?
You guessed C) Neil Armstrong
CORRECT

Who holds the Major League Baseball record for most home runs in a
season?
You guessed A) Barry Bonds
CORRECT

In what year was University of Liverpool founded?
You guessed A) 1250
INCORRECT: the correct answer is B) 1881

You answered 3 out of 5 questions correctly (60%).
```

Final mark

This assignment contributes 1/4 of the continuous assessment part of the course grade.