COMP 3512 Assignment #3

Due Midnight-ish Saturday Dec 9
Version 1.1, Nov 15 2017 [Most recent updated text will be in yellow]

Overview

You can work in groups of two, three, or four for this assignment. It is also possible to work individually, but I do **strongly** discourage it; please talk to me about this if you are planning on working by yourself. In this assignment, you will expand your second assignment using JavaScript and jQuery (anywhere this assignment says do some task using JavaScript, you can also use jQuery).

Groups of four will have additional cases to complete. If working in a group, each member needs to take responsibility for and complete an appropriate amount of the project work. **Be sure to consult the instructor at least one week prior to the due date if your group is experiencing serious problems in this regard.**

I feel foolish saying this in a third-year university course, but it is your responsibility to read all the assignment instructions thoroughly and carefully. If you are unclear about something, ask me. But before you do, read the material in question again!

Beginning

You will want to create a new workspace for this assignment. You will likely want to clone your assignment two workspaqce. Each group member will have to be given RW access to the workspace via the Share button.

Submitting

You will need to share your workspace with me once it is complete. To do so, click the Share button in the upper-right part of the Cloud9 workspace. Invite me via my email (rconnolly@mtroyal.ca) and be sure to give me RW access. As well, you will need to add me as a collaborator to your GitHub repo when you have completed it.

Grading

The grade for this assignment will be broken down as follows:

Usability and visual design	20%
Program design **and** documentation	15%
Features	65%

USE CASE NAME:	**Assignment 2 Functionality**
DESCRIPTION:	Expected base functionality
1.	Your system must have ALL the functionality from assignment 2.

USE CASE NAME:	**Navigation**
DESCRIPTION:	The web site's navigation system.
1.	Add an Analytics link that will go to analytics.php (see Analytics use case below). Groups of four will have already implemented this functionality in the last assignment.

USE CASE NAME:	**Browse Universities**
DESCRIPTION:	System allows user to browse universities (groups of 4 will have already completed this in assignment 2)
1.	Extend the Browse Universities page from the first assignment by displaying a Google Map (https://developers.google.com/maps/documentation/javascript/) instead of displaying the latitude and longitude values. Display a marker of the university's location on the map. This will require a little bit of JavaScript. As well, your PHP will page will have to generate a few lines of JavaScript to insert the correct latitude and longitude from the database table into the JavaScript. Be sure to set the map zoom sufficiently large so that the maps shows only a few kilometers around the location.

USE CASE NAME:	**User Profile**
DESCRIPTION:	System allows user to edit their profile information. **This case is only for groups of four**.
1.	Display the information from the Users table (FirstName, LastName, Address, City, Region, Country, Postal, Phone, Email) in a sensible, attractive way.
2.	Allow the user to edit this information. Be sure to add JavaScript validation for the following fields: LastName (required), City (required), Country (required), Email (required, must be valid pattern: x@x.xx). Be sure to make use of a field highlighting system similar to that used in JavaScript lab homework.

USE CASE NAME:	**Register**
DESCRIPTION:	Add a new user to the Users and UsersLogin tables.
1.	Provide form to enter the following fields: FirstName, LastName, Address, City, Region, Country, Postal, Phone, Email, Password.
2.	Be sure to add JavaScript validation for the following fields: LastName (required), City (required), Country (required), Email (required, must be valid pattern: x@x.xx), password (user must enter it twice and both must match). Be sure to make use of a field highlighting system similar to that used in JavaScript lab homework.
3	You will have to programmatically add the following fields to the tables: UserName [use the email value], Salt [use: `MD5(microtime())` in PHP to generate 32 character random string], DateJoined [use current date in PHP], DateLastModified [use current date in PHP].
4	You will need to follow proper protection mechanisms when saving the password field to the database (i.e., `MD5(password . salt)`)

USE CASE NAME:	**Analytics**
DESCRIPTION:	System allows user to examine analytic information for the site. Groups of three will now have to complete this case. Groups of four will have to implement the new functionality in this case.
1.	This page will contain an Admin Dashboard displaying analytic information for the site (see https://envato.com/blog/admin-dashboard-design-trends/ and http://www.designyourway.net/blog/inspiration/how-to-design-and-code-an-admin-dashboard-like-these-examples/ for more information and examples of admin dashboards). Some partial sample analytic information is contained within the BookVisits and Countries tables. Analytics data can get really large. The BookVisits table contains about 10000 records detailing unique visitors to the Books pages in the month of June 2017.
2.	Your Admin Dashboard will need to display the following information: • A <select> list that contains a list of the names of the top 15 most visited countries (according to the BookVisits table). When the user selects a country from the list, it should then immediately (that is, use JavaScript event handling) display the country name and the number of visits for that Country. • A list/table displaying the following information: a count of the total number of visits in June, the total number of unique countries the site had visitors from, the total number of employee to-dos in June 2017, and the total number of employee messages in June 2017. These should be formatted as a series of four horizontal boxes; with each containing a relevant icon, the number, and a label describing the number. These should be calculated from the database and not hard-coded. • A table of the top ten adopted books. This table should contain thumbnail image of book cover, title, and a sum of the Quantity in AdoptionBooks. The title should be a link to the Single Book page with the ISBN as a querystring. I will expect this to be designed in a sensible and attractive way that is consistent with the design of the rest of the site.
3.	You must use JSON web services for this case (see next case for more information).

USE CASE NAME:	**Analytics JSON Web Services**
DESCRIPTION:	Implement a series of JSON web services that return information from the BooksVisits table.
1.	Each web service will be a PHP page that echoes JSON instead of HTML. To do this, you will need to first set the HTTP `content-type` header to `application/json` (via the `header()` function in PHP). You can then use the PHP function `json_encode()` to convert the associated array that will be returned from your gateway classes into a JSON string. You can simply then echo this JSON string. The web services you will need to create are described in the following steps.
2.	A web service named `service-topCountries.php`. This will return a JSON list of the top 15 country names and their country code. You will need to do a group query by CountryCode and count them and sort them by this count.
3.	A web service named `service-totals.php`. This will return a JSON object containing the following information: a count of the total number of visits in June 2017, the total number of unique countries the site had visitors from, the total number of employee to-dos in June 2017, and the total number of employee messages in June 2017.
4.	A web service named `service-topAdoptedBooks.php`. This will return a JSON object containing a list of the top ten adopted books, which should include the title, isbn10, and a sum of the Quantity in AdoptionBooks.
5.	A web service named `service-countryVisits.php`. This service will require a query string parameter that specifies the country code. It should then return a JSON object that contains the country name and the total number of visits.

USE CASE NAME:	**Additional Analytics JSON Web Services (for Groups of Four)**
DESCRIPTION:	Implement some additional JSON web services that return information from the BooksVisits table.
1.	A web service named `service-chartMonth.php`. This will return a JSON list that will be an array of two elements: the day number (1-30) and the total visits for that day.
2.	A web service named `service-chartCountryVisits.php`. This will return a JSON list that will be an array containing the country name and its visit count for all countries with more than 10 visits.

USE CASE NAME:	**Analytic Charts (for Groups of Four)**
DESCRIPTION:	Groups of four will have to extend their analytics dashboard from Assignment 2.
1.	Add the following charts to your dashboard. You are going to use Google Charts for these charts. These charts must use the JSON web services created in the previous case. Chart 1 – Area Chart The Visits Per Month area line chart must show daily web site visit counts for the month of June 2017. In this chart, the x-axis will be the day of the month (1,2,3,4 … 30). Chart 2 – Geo Chart The Web Site Visits map should display a geographic representation of the data. It will display the data returned from the `service-chartCountryVisits.php` service. The countries should be color-coded to indicate the relative number of visits. Also, the visit count and country name is visible, either as a label or tooltip for each country. Both of these are handled by the Google GeoChart component.

Note: these are not the actual numbers … they are just chart demos to show you.