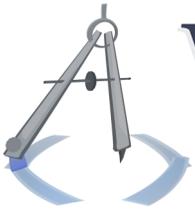# Website Architecture

Project Specification

Project 1

The specification for Project 1, which tests proficiency with writing in client-side languages, including HTML, CSS, and JavaScript.

Michael Serritella

Summer 2012

Website Architecture

Project Goals

This project tests your proficiency in writing HTML, CSS, and JavaScript, as they will typically be needed in a real-life environment. You don't have to design a site's content or organization; that has already been done. The layout, look and feel, and functionality have already been designed.

The HTML you write will not be an exercise in using obscure tags or attributes, and it will be the most simple component; it should serve the purpose of enabling well-styled CSS and JavaScript (e.g. appropriately dense tag structure; nice classes and/or IDs). The CSS you write will exercise principles common in site layouts and content formatting. The JavaScript you write will exercise control over event-driven behavior and DOM manipulation, such as enabling/disabling/replacing HTML elements, creating new elements from event handlers, and managing program state.

General Description

The project consists of one Web page. It is a small game, or widget, in which a user explores a graphical map of a territory and describes its regions using text and controls. A basic markup document will be given to you, which may be incomplete or incorrect by standards of the markup grammar. You will have to add text and markup in order to achieve the goal; you can add anything you like, so long as it doesn't break a requirement. No CSS or JavaScript has been written for you.
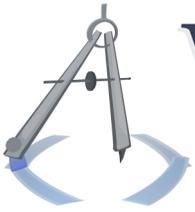
The project must generally conform to the images shown in the Diagrams section of this document.

The user experience may be described as follows:

The user sees a 2D map of an illustrated world. The user may click on a point in the map and write a detailed description of that place, which may then be submitted and shown on another part of the page.

The map has two buttons: Zoom In/Out and Flag. The Zoom In/Out button changes the map view from the largest scale to a reduced scale (such as 25% of largest) and back. The reduced scale shall be fully visible in the page; there should be no scrolling or panning for that map. The large-scale map shall not be completely visible on the page, and only a cropped section shall be shown. Scrolling and panning controls are not required; users may choose the area by interacting with the reduced-scale map. Upon pressing the Flag button, the user may click on the map and mark a location to be described. There should be a means of providing visual feedback as to where the user clicked.

Near the map, there is a set of controls which let the user describe a location. These include:

Name: one line of text; required

Danger: perceived risk of harm to visitors; a choice in {1, 2, 3, 4, 5}; required

Wildlife: perceived density or abundance of wildlife; a choice in {1, 2, 3, 4, 5}; required

Treasure: perceived chance of finding treasure; a choice in {1, 2, 3, 4, 5}; required

Description: multiple lines of text; not required

Below these controls is a submission button, such as one that reads "Mark", which would collect and submit the data. Some fields are required. If a user omits a required field, he/she shall be notified upon submission and the data shall not be sent until it is sufficiently complete.

Elsewhere on the page, such as above or below the map, is a display of the explored territories. This shall list three groups of information:

Number: index of the territory in the list of territories yet explored

Location: an (x,y) coordinate representing the point on the map, and a thumbnail or reduced-scale version of the image of the particular location

Description: a representation of the five fields completed by the user
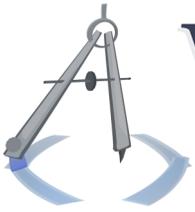
Provided Materials

All provided materials are on the course website in a file called "CIS4930_WAM_2012Su_Project1_Provided.zip". This includes:

- The markup document, called "Project1_WorldExplorer.html"

- The blank CSS file, in the folder "includes", called "Project1_WorldExplorer.css"

- The blank JavaScript file, in the folder "includes", called "Project1_WorldExplorer.js"

- Its sundry images, in the folder "images"

Requirements

This section details the components of your project along with their requirements, followed by general requirements which apply to the whole project.

HTML & Document Structure

All HTML code must be version 4.01 with a Strict doctype. All HTML code must validate without any errors or warnings according to the W3C Markup Validation Service when uploaded as a file. If the code validates when submitted as text, except for a charset/content-type warning, that is fine.

The required parts of the project must not use `<table>` elements.

Pro tip: Search for "div tables" or "CSS tables"; see the documentation for the `display` property. This method is not required but is an option.

Page layout

The page shall have at least two principal sections, not considering headings or incidental elements: the map area and the explored-territories area. They shall both be comfortably visible and legible on a browser whose viewport is 800px wide; they need not be visible simultaneously. Aside from these requirements, the sections may be in any order or arrangement.

Text & images

Any on-page text (e.g. headings) shown in this specification may be represented as text or as an image. If text is encoded as an image, its equivalent plaintext should exist somewhere in the document so that a screen reader or search engine could read it.
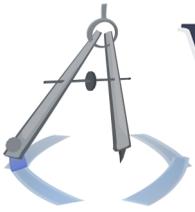
Order of markup

The page content shall be arranged in the markup document in a natural way, meaning that it should not be significantly reordered when displayed using CSS. This helps to ensure that users with screen readers can read the site naturally.

Form controls

The territory-description form controls shall be within a `<form>` element, although the form might not be submitted in the typical sense (the "submit" event may not fire).

The controls for interacting with the map may be any elements and need not be within a `<form>` element.

Use any appropriate form controls; they must only serve the purpose of gathering the required data. Therefore, jQuery UI's pseudo-controls may be preferred for style and you may use them, even if they are not form-control elements in HTML.

Pro tip: Investigate the `<button>` element, especially for buttons with images.

CSS & Layout/Formatting

All CSS code must be version 2.1[1]. All CSS code must validate without any errors or warnings according to the **W3C CSS Validation Service** when uploaded as a file. If the code validates when submitted as text, except for a charset/content-type warning, that is fine.

All CSS code must reside in files separate from the HTML. All further requirements apply to the page as it is viewed on a typical browser (i.e. "screen" media; not a mobile device; not printed) unless stated otherwise.

Overall page aesthetics

The page title ("World Explorer!" or something which is clearly the title) shall be the most prominent text on the page. There shall be a nice amount of whitespace between sections and around the edges of the page (at least 8px). The layout shall demonstrate the hierarchical relationships within the document, such as with indentations.
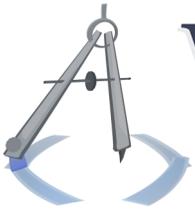
Explored-territories area

The index of each row of data (the visible ordinal/cardinal number) shall be vertically centered in the row; so shall the coordinates and thumbnail. The text and descriptive data shall be aligned to the top of the row.

The name of each territory shall be the most prominent text in the row, such as by a change font size and/or boldness. Names of data fields shall have different styling from the values in the fields.

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[1]Browsers may implement part of version 3, which is in draft. Use the version 2.1 specification as a reference for all code you use. Do not use version 3 except for value-added features.

When the user hovers the mouse over a row of territory data, the whole row of data shall be highlighted in some distinguishing manner, such as a change of background color; the highlighting mechanism shall not displace the content.

The thumbnail preview images shall have the same aspect ratio as the map control, and the image scale shall be no larger than the zoomed-out/small-scale version within the map control.

As the list of explored territories grows, each row may simply be added to the end of the list; there is no requirement to have a scroll bar or any such data management.

Map view

The map and form controls shall be completely visible simultaneously, and you may use whatever method for arranging them that way, as long as it works for browsers with viewports 800px wide and above.

There shall be a faint Cartesian grid overlayed on top of the map, the scale of which is different for zoomed-in and zoomed-out mode. This grid shall not be visible in the thumbnails in the table of explored territories.

After the user clicks the Flag button and is able to mark a location on the map, the mouse cursor shall change to show more of a crosshair or a single point. During this time, the button must also appear different, such as looking like it is pressed down while the flag is being planted.
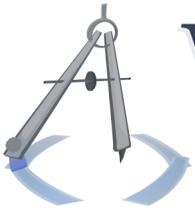
Territory-description controls

Controls may either take up the full width of the controls area or a partial width. All partial-width controls must be aligned so that their left edges are on the same vertical line. The submit ("Mark") button shall be clickable within the full width of the controls area.

JavaScript & Dynamic User Experience

The JavaScript may be any version and may use any version of jQuery and jQuery UI. They are not necessary, of course, but they are helpful and they are pervasively used in real-world projects, so using them is encouraged.

Map interaction

The Zoom In/Out button may be changed or rephrased to reflect whether the map is currently zoomed in or out; this is not requried. When the map is zoomed out, clicking on the Zoom In/Out button shall allow the user to choose an area on the map to view in full scale. When the map is zoomed in, clicking on the Zoom In/Out button shall zoom back out to the reduced-scale map. The Zoom In/Out button shall have no effect when the Flag button is active.

Clicking on the Flag button allows the user to choose a coordinate with the mouse and begin describing that area. When the button is clicked, the form will reset, so that the user's choices are cleared.

Data submission

When the user clicks the submit ("Mark") button, the page shall check if the required fields are complete. If the form data is not satisfactory, the user should be alerted by any reasonable means and the data shall not be processed in the same way as correct data.

Upon submission of correct data, the controls shall be reset and the data shall be used to build a new row of information which is dynamically added to the list of explored territories.

General requirements

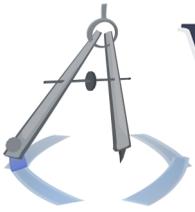These requirements apply to the project overall.

Value-added content

For fun or education, any benign content may be added to that which is required - except that which is required to not exist - and it would not incur a penalty.

In particular, you may use any map image; the included one is just a suggestion. You may also have the page load with some territories already identified. If you do this, consider making your JavaScript so that adding an arbitrary row of data is as easy as one function call.

Code validation

All of your code in the project must be recognized by all modern browsers and must not depend on browser-specific features.

Submission

This project has a preliminary due date of **Saturday, June 23, 2012, at 11:59:59 PM EDT**. In order to retain the privilege of resubmitting the project and improving your score, you must submit at least some of your own work by this time.

You may submit your work in one of three ways; choose the first option which is available at the time you wish to submit:

1. A form on the CIS4930.com course website

2. A Blackboard site for the course

3. Email; **mas04m@my.fsu.edu**

The project must be contained within a folder called "Project1_*[Surname]*", where *[Surname]* is your surname, using only alphabetic characters, without spaces, with the first letter of each word in your surname capitalized within the representation. That folder must be contained within a .zip file, such that the folder is the top-level element in the zip file. The zip file must be named "Project1_*[Surname]*.zip".
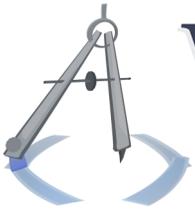
In Linux, you can achieve this by navigating to the parent of your project directory and executing the command: **zip -r Project1_*[Surname]*.zip Project1_*[Surname]***

Future Work

This project has a great potential for expansion. Here are some ideas for your future work which are not required for this submission.

- Printing the page results in a printer-friendly list of the territories, possibly without images of any kind. Similar accommodations for mobile devices.

- The map keeps persistent markers of territories that have been explored, possibly with icons that link to descriptions.

- The map is darker in areas that are not explored.

- When the user clicks on a thumbnail in the explored-territories row, the map then shows that area. Or a dialog/"lightbox" area shows the full-size region of the map image.
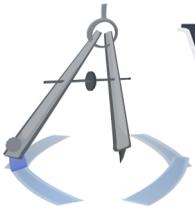
- Font embedding and more fancy aesthetics.

- Drag the map to pan around the territory.

- Background music ("Gilder's Theme").

- Collapsing/expanding rows of data (perhaps one-line view to detail view; perhaps several rows hidden and then shown ("Show Next 5").

- Option to delete rows.

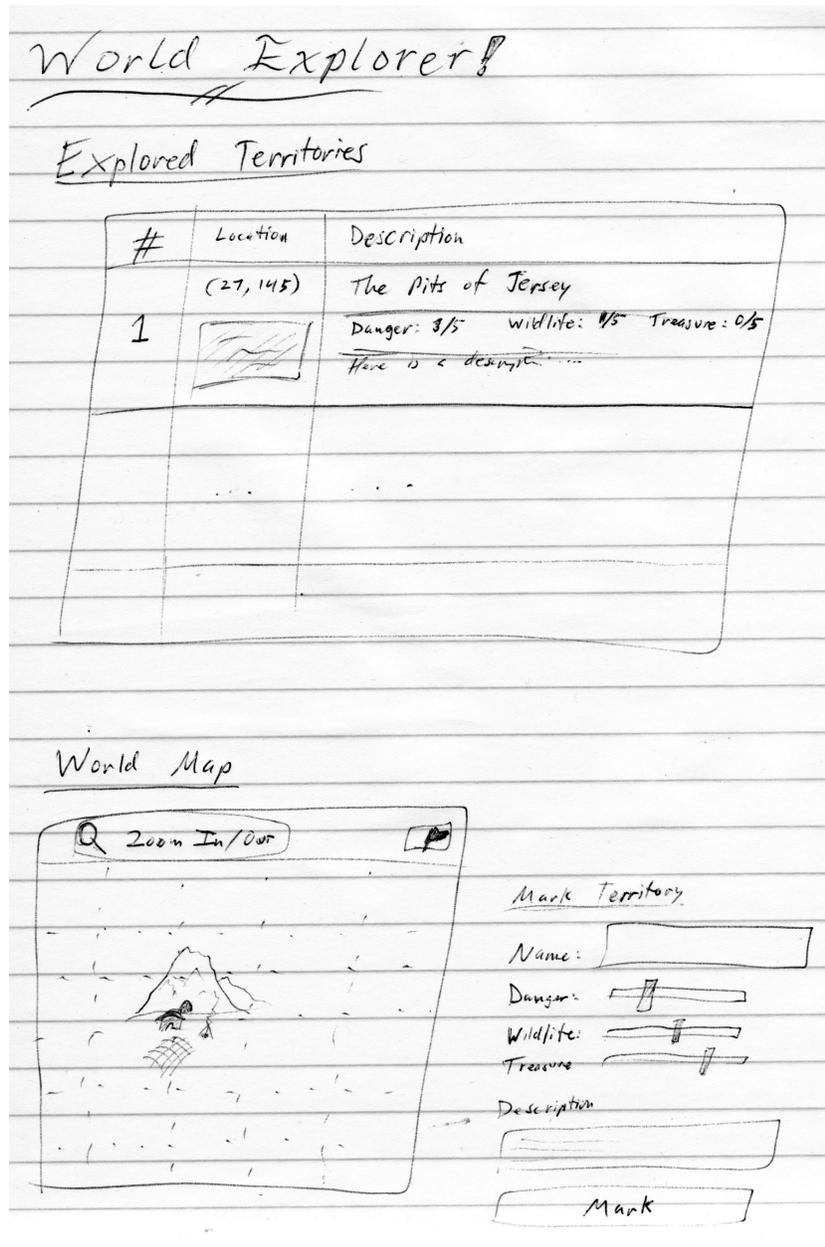- Intra-page/anchor links to go to the map, data rows, and to go to the row just recently entered.

Diagrams

The overall look of the page. You may zoom in for small details.