

COEN396 – Web Infrastructure

Assignment #4

REST Web Service Client and User Interfaces

Introduction:

In this assignment, you will create a website that uses JavaScript to obtain input from a remote source and display this input.

Part #1:

In this part, you will create and add a subdomain named “BART” to your domain that you created in Assignment 1. (for example: BART.mydomain.com) . This subdomain will point to a new web directory tree on your Amazon WS’s webserver.

- Create a sub directory to host the new web site
 - Make sure you change the ownership and permissions on the subdirectory using the following commands:
 - `sudo chown ubuntu bartdir (Ubuntu)`
 - `sudo chmod -R o+r bartdir`
- To create a subdomain, login to your domain manager and create a subdomain
- Configure your apache virtual hosts to link to the subdomain’s directory
 - Edit `/etc/httpd/conf/httpd.conf`
 - Enable name-based virtual hosting by uncommenting the line: `NameVirtualHost *:80`
 - Link your subdomain by adding in the following lines:

```
<VirtualHost *:80>
DocumentRoot /var/www/html/bartdir
ServerName bart.yourdomain.com
</VirtualHost>
```
 - Save your changes and restart Apache for your changes to take effect.

Part#2: Obtaining and parsing XML

In this task, you should use the [BART API \(Links to an external site.\)](#). Using its [API documentation \(link\)](#), find the resource that enables you to access BART's real-time departure estimates. Using this resource, create a website that:

- 1) Uses the modern HTML Symantec tags. The following HTML5 elements must be included in the page:
 - a) Header
 - b) Section
 - c) Aside
 - d) Headings (h1, h2, etc.)
 - e) Footer
- 2) Use BART general-use API key: **MW9S-E7SL-26DU-VV8V**
- 3) Get a list of BART stations using BART API
- 4) Have the user select a departure station and arrival station
- 5) Display a list that includes
 - a) Real Time Departure time for trains to the destination station
 - b) Fare (for each train route listed)
 - c) Time of arrival
- 6) Display a countdown (in steps of seconds) until the next train leaves toward arrival station.
- 7) Your website should update itself by re-loading the latest information from the BART API every 30 seconds.

Part#2: I know you

When loaded, your web page will display a message welcoming a user back to your site if he or she has visited your page on the browser before. In that case the welcome message will include the number of times this user visited your site.

- Hint: use `localStorage.setItem` / `localStorage.getItem()`

Part#3: Display Google route map

- 1) Register for API google maps key (you can choose the standard plan for free)
- 2) Use google maps JavaScript API and research how to do routing maps using public transit
 - a) <https://developers.google.com/maps/documentation/javascript/directions>
- 3) On the page in part#2, display a google map of the route taken by the next departing train from departure station. You will need:
 - a) the departure time of next train that you got in previous step
 - b) The longitude & latitude of both stations (see [Station Information](#) BART API)

Hints:

- The BART API provides its data in XML format. Use an appropriate library to parse the responses, a good tutorial about this is available at [W3CSchools \(Links to an external site.\)](#).
- Your application should run in Firefox and Chrome.
- You can make use of the jQuery library for simplifying HTTP requests and parsing of the XML.

The Same-Origin Policy

The JavaScript same-origin policy ([Links to an external site.](#)) aims to prevent cross-site request forgery by limiting how resources on different hosts can interact with each other. Knowing this, why is it possible for your website to load and display data from the BART API? **Include your answer as a comment within the HTML markup of your created website.**

Optional: A jQuery Counter

Visualize the remaining time until the next train using the Countdown widget from the jQuery library.

Deliverables:

- 1) Upload all your code to Camino dropBox for assignment#4. Your code needs to be documented and entries that need changing for testing is clearly shown at the beginning of the code
- 2) As in assignment#1: all login information needed to assess your setup, installation, etc.