Visualize History

Computer Science 490

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Previous Work

Visualize History is a web-based software application that enables easy presentation of historical data. It allows a user to navigate through time and space and to imagine and recall the complex relationships between historical events.

The goal of the front end of the web site is to allow average, non-technical users to navigate through history. It needs to support at least the two major browsers, Mozilla Firefox and Microsoft Internet Explorer. The user interface should be simple and recognizable, though not exactly like anything that exists already, since there is no interface for an application like Visualize History.

The user interface should allow for navigation through space using the familiar drag-and-drop interface that most mapping applications currently use, and it should allow for navigation through time, using its own addition to the existing mapping interface. The piece that allows a user to scroll forward and back in time is called the Time Slider and is the key UI piece in Visualize History. As part of this interface, the front end displays the actual historical data. It shows a title located at the time and place that the event took place. When the user focuses on the event by putting their mouse on top of it, the UI displays more information about the event, including its date, location and a short description.

Visualize History uses two APIs: Google Maps API and the Yahoo! User Interface (YUI) API[1]. The Google Maps API provides a map that enables dragging and zooming. Customized markers, lines and polygons can be added to the map at certain geographical points. The markers are themselves DOM nodes so any HTML and JavaScript can be used. The maps API also provides a way to add custom controls that lay on top of the map and control the map. Visualize History uses the YUI's slider component to implement the Time Slider which controls the user's navigation through time.

Proposal for Second Semester

The first goal for this semester will be to fix the bugs left from the fall semester. The two major fixes are in the slider's UI, which allows overlaps and in the displaying of events, which does not currently use the DOM at all.

There is a long feature list in the future. The key features are:

- Display more than one topic at one time
- Display relationships between events, with arrows and lines

[1] For more on the APIs, see the **Error! Reference source not found.** section

- Display regions as highlighted polygons
- Assigns different colors and icons to topics and events
- Display maps appropriate to the historical period being studied
- Make different types of maps available (political, physical, topographical etc.)

I will focus mainly on the back end, and when it is clear that the data allows for some of the above features, I will sketch them out and implement them. The biggest limitation in the design of the UI phase this semester was the lack of data to explore. As more data becomes available, the UI will add more features.

Back End

According to the original proposal, I would spend second semester creating an automated way to mine historical data from various places on the internet and to then upload that data to the visualizehistory.com servers. By controlling the data, the site would have fine-grained control on exactly what data was stored and its format.

Currently there is a MySQL database running on visualizehistory.com that stores events, locations, titles and descriptions. All the data on the site right now has been uploaded by hand. The server loads and returns the data and does not know anything about the JavaScript representation. A key component of the site is and will be for a user to upload any historical data, so the database schema has to allow for any abstract historical data to be uploaded.

During the last semester, I modified the original plan slightly. The back end of the project will now link with external sites to provide the data. The server will still need to manipulate and sanitize that data into a format that can be presented in this visual, historical manner. Many trustworthy sites exist with historical data, and those sites are maintained and updated for more frequently than Visualize History could hope to be. By leveraging the data from trusted sites, Visualize History can lift the burden of acquiring and storing the massive amount of historical data that is available. Wikipedia and the Library of Congress are the two sites that I will start with, but an emphasis will be placed on the ability to extend the list of extended sites.

Another place for research to start will be on file formats and standards. One such format is called Keyhole Markup Language (KML), which includes the idea of a place with a title, geographic location and a description, much like in Visualize History. It may have to be extended to include time, which will be part of the research of the upcoming semester. Other places to start research include Geographic Information Systems, geodatabases, and Geographic Markup Language (GML). It would be better to use one of these standardized formats than to try to scrape and interpret html from existing web pages.

Deliverables

By the end of the semester, I will have a website that takes historical data from 3rd-party, trustworthy sites and displays it intuitively. The data will be in kml files, trusted web pages and uploaded to the site by hand.