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Final Project
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Mist Connections Design

To accomplish its goal of allowing users to view and share location tagged posts, MistConnections.com utilizes JavaScript, PHP, and HTML in conjunction with the Google Maps API (v3) and the Facebook SDK for PHP. Broadly speaking, JavaScript works with the Google Maps API to provide mapping functionality, while PHP works with Facebook's servers to handle user authentication. PHP also controls the behavior of each page, including interaction with a SQL database. Bootstrap CSS stylesheets were used to achieve desirable formatting in an efficient manner, and simple CSS styling was added as necessary.

When a user generates a new post or views nearby posts, the Google Maps API is used to show them a map with a marker of their current location, and allow them to change that location by moving the marker. This functionality is invoked with JavaScript. The latitude and longitude of the user's location is set initially, and subsequently a JavaScript event listener updates the latitude and longitude after each time the location marker is moved by the user. The relevant JavaScript is included in each HTML document that shows a map. Since each HTML document has slightly different functionality, I felt it made sense to embed the JavaScript in the page rather than pulling it in to a separate file. More standardized files, such as styles.css, were pulled out and are linked to at the top of each page.

Users who have their location settings turned off, or whose devices do not support HTML5, will not be able to use the site. This is noted on each page that calls a map. I understand that the location functionality of HTML5 is superior to other options. I was concerned that using less accurate measures of location, or setting a default location for users, would reduce the quality of the site's content. Users could easily accept the default, which could result in posts that are not closely related to their location. I tested the site on several browsers on my OS 10.8 machine, on my several-year-old iPhone 4S, and on several testers' phones, including an Android device. I found the location functionality to work without a hitch; I therefore decided that the benefits of using exclusively HTML5 functionality should outweigh the loss of visitors who lack support for this technology.

Mist was designed with security in mind. The content of forms submitted by the user are transmitted via the PHP $_POST superglobal variable. A simple SQL query sanitizes the inputs and adds them to a SQL database. When a user views nearby posts, more calculations are necessary. First, a SQL query pulls only posts in the category specified, or all posts if no category was specified. It only pulls the latitude, longitude, and unique identifier for the post. It copies these variables in to a temporary SQL table, calculates the distance between the user's specified (usually current) location and each post, and finds the 10 closest posts. Remaining attributes of these 10 posts are then pulled from the original table using their unique identifiers. The posts are stored in a PHP variable for output. A JavaScript script then loops through each of the up to 10 posts, posts them to a map, and generates a map that is positioned and zoomed to contain all posts.

The site does not require users to log in to view nearby posts, in the hope that this will make the site more accessible and more widely used. However, users are required to log in to generate new posts because I feel that this will sharply reduce the amount of undesirable content on the site. I like Yelp's semi-anonymous system of showing names, and consciously adopted it. Integration with Facebook allows users to have fewer accounts, and know that their passwords are safe with Facebook rather than being entrusted to a little known site. It also lowers the barrier to entry of a new user. I like the fact that Facebook integration makes it harder for users to make up names, which again I hope is a feature that will prevent undesirable content from appearing on the site. Looking forward, I believe that this project will be readily expandable to include Facebook "likes," and could allow users to connect with each other on Facebook.

I certainly feel that the Mist site is relatively early on in its evolution, and I look forward to expanding its functionality. For now, I hope that it provides a clean and intuitive interface by which users can interact with each other, and thereby accomplishes its goal of bringing people together.