

Final Project: Web Application Evaluation, Design, and Enhancement

The goal of the final project is to apply basic concepts of key web technologies surveyed in this course towards the evaluation of an existing advanced web application. The advanced web application you choose can be a full production system or beta application in development (this can of course include your own application/project). The web application you choose must be live and publicly accessible by the time of proposal.

An advanced web application entails some set of interactions between client-side user agents (i.e., desktop or mobile platform) and server-side scripts or applications. There are a broad set of technologies and web toolkits deployed today and any one web application will differ greatly from another. While there is no formal set of technologies that define what an advanced web application is, the application that you choose to evaluate should deploy an advanced level of client-side interaction using some combination of HTML 5.0, CSS 2.0+ DHTML (Javascript), AJAX (Jquery/JSON) as well as server-side processing of dynamic web objects (PHP, Ruby, Django, etc.) with a database component (Mysql, Postgres, Oracle etc.).

In many cases you will not have direct access to the server-side application scripting code by design but often you will be able to see the calls in the client-side scripts. In some cases sites such as Google or Yahoo! provide API's and/or detailed architecture descriptions for external developers. You are encouraged to choose websites that provide more open access to their interactions.

The goal of this project is to demonstrate that you understand the complex set of interactions that are commonplace in today's dynamic HTML 5.0 database driven web applications and the diversity (often times overly complex) of technologies deployed to create the look and feel of a native standalone application.

Example general types of web applications (not exhaustive):

- Google Maps
- Google Docs
- Gmail
- Google Calendar
- HTML 5 games (Facebook)
- Flickr
- Smugmug
- Evernote
- Dropbox

Project Group size: 2-3 (each group must choose a unique web app)

Part 1. Anatomy of a Web Application

Once you have chosen your website begin to reverse engineer the set of interactions entailed in the application(s). You can use any of the available view sources tools such as Firebug or Google chrome

developers tools to begin your forensic analysis. Once you have analyzed the complete set of interactions you must provide a software/data flow diagram and site map of the application or set of applications. In conjunction with the software/data flow diagram and site map provide a user interaction flow of the application. What types of user interactions is the website author trying to achieve? What techniques and technologies are used to achieve these dynamic interactions?

Part 2. Application Design

Once you have described the set of interactions in detail, compare and contrast the web application framework(s) used (Webkit, Prototype, Django, Ruby etc.) and specific web technologies to other possible frameworks and combination of web technologies that can be used to achieve similar dynamic interactions. Why have the particular site authors chosen to build their web application in their given framework and set of technologies? What alternative frameworks or new web technologies would you propose to improve the site's usability and performance?

Part 3. Application Enhancement

Take one dynamic interaction from the website application you have reverse engineered and reengineer that interaction in a functional prototype. How would you improve the interaction to make the site more usable and efficient? The goal is not to reengineer the entire complex set of interactions but one simple interaction. This can entail redesigning page navigation through DHTML and CSS or rewriting an AJAX prefetching component to make image loading more efficient. You must demonstrate how your enhancement differs and improves upon the production/beta website application you have chosen.

Group Proposals Due 10/17/2011 and will be listed on course website.(send proposals to dilanm@ischool and taibah@gmail)

Each group must provide a detailed report (5-10 page + flow diagrams) for Parts 1-3 along with a functioning web prototype of the reengineered web interaction component(s). Final report due EOD last class meeting.

Each group must give a 10-15min presentation of the website application evaluated,describing its interaction technologies, and the enhancement proposed with a prototype demonstration. Presentations will take place during the last two class meetings. (Presentation schedule TBD.)

Final Project is 40% of course total grade.