CS 696 - Emerging Web and Mobile Technologies
Spring Semester 2011
San Diego State University

Instructor: Dr. Roger Whitney

Time: 7:00 - 8:15 pm

Location: P 144

Registration Site: http://www.ces.sdsu.edu/Pages/FindCourse.aspx?id=1&subjectId=8&ProgramInTermId=5853

Emerging Web and Mobile Technologies is a topics course. Each time the course is offered some or all of the topics covered will change. The goal is to cover new and interesting technologies in the Web and mobile areas. The course will normally cover 3-4 technologies. This is a hands-on course. Students will be using all the technologies covered in the course in assignments.

The first technology to be covered is HTML 5, the next version of HTML. HTML 5 includes support for drag-and-drop, a canvas for 2D drawings, timed media playback and client-side database access. This allows the features of Flash or Silverlight to be reproduced directly in html. As many mobile devices don't support Flash HTML 5 makes it possible to develop Flash like web pages for mobile devices.

The second area to look at will be web pages optimized for mobile devices. While some current mobile devices have the ability to render standard web pages complex pages are not very usable on such devices. Using CSS and Javascript it is possible to develop web pages optimized for a mobile device and have the native look and feel of the mobile device's OS. The course will look jQuery mobile a touch-optimized web framework for smartphones and tablets. Using jQuery mobile and features of

HTML 5 it is possible to develop web applications that work off-line. Such web applications can reside on a smartphone desktop and act like a native app.

The third area the course will examine is developing cross-platform native apps for mobile devices. Developing a high quality app for a mobile device is expensive. Android, iPhone, Blackberry and Nokia phones all require completely different programming languages and use completely different APIs to develop native applications. Thus developing the same application for multiple phones requires completely separate development efforts, making it very expensive. There are a number of approaches used to allow developers to write one application that will run as a native application on multiple devices and provide access to core features of the device. The course will look at PhoneGap a development framework that uses HTML and JavaScript to produce cross-platform mobile applications.

The last topic the course will cover is developing native applications for Android. Googles OS for mobile phones has become the second most popular OS for smart phones behind Nokia's Symbian. Native Android applications are written in Java. Students are expected to know Java.

Prerequisites. Given that the content of the course changes it is not possible to produce general prerequisites for the course. In this offering of the course students will be using HTML, CSS, JavaScript and Java. Its is assumed that students either know Java and HTML or can learn them on their own. An extremely short introduction will be given for CSS and JavaScript.

More important than knowing particular languages or technologies is the ability to learn material quickly. The course will cover a number of technologies and frameworks. Some of the topics covered will lack good documentation. So students will have to be able come up to speed quickly on technologies and frameworks.

This course will be a fair amount of work, but the material is not that difficult. So a competent graduate student should not have any trouble mastering the topics covered.

Books

HTML5 and CSS3: Develop with Tomorrow's Standards Today, Brian P. Hogan, Pragmatic Bookshelf, January 7, 2011, 1934356689

Building iPhone Apps with HTML, CSS, and JavaScript: Making App Store Apps Without Objective-C or Cocoa, Stark, O'Reilly Media, January 19, 2010, ISBN 0596805780

        or

Building Android Apps with HTML, CSS, and JavaScript, Stark, O'Reilly Media, September 27, 2010, ISBN 1449383262

The last two books are nearly identical. We will be building both Android and iPhone apps.