MET CS 651 -- Web Development with .NET

Instructor

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Course Description

This course provides a comprehensive introduction to building state-of-the-art Web sites, Web applications, Web services, and Web-connected devices on Microsoft platforms, with an emphasis on Open Source Microsoft server-side technologies and best-of-breed Open Source client-side technologies. Microsoft's shift to open source technologies and the enabling of these technologies on non-Microsoft platforms such as on OSX and iOS means that you do not need Microsoft Windows anymore to leverage .NET, and this is exciting. The ability to run bash shells on Windows and the Windows subsystem for Linux (WSSL), which allows one to run (almost) any Linux program on Windows, foreshadows OS convergence and Microsoft's end game for Windows as the best dev box for developers. I have always maintained that big Web technology frameworks are comparatively equal in capability; the advantage of .NET is that it's the easiest one of the lot to learn and grow on. Add Azure capabilities such as CosmosDB to the mix, and one person can accomplish today what took a team of developers just a few years ago.

Server-side technologies covered in class will be drawn from the .NET foundation. We'll use a number of open source technologies on the client side such as Google's Angular, Facebook's React, Meteor, and Electron. Specifically, server-side technologies covered include the C# programming language, the ASP.NET system for developing web sites and web apps, REST-based and SOAP-based web services, ADO.NET and LINQ (Language INtegrated Query) for data access, with AJAX and jQuery presentation technologies on the client side. Architectures covered include Model View Controller (MVC) and ModelView-ViewModel (MVVM), Windows Communication Framework (WCF), and the ASP.NET Web API. We'll end the class with special topic classes on Internet-of-Things (IoT) devices such as the Kinect device and the Arduino microprocessor, and Web gaming. Bring your laptop to class, it does not matter if it's Microsoft, Apple, or Linux. This class requires

programming experience in either Java, C#, or C++, but it does not require you to be an expert. Rather, it is an opportunity to become an expert Web developer.

Programming will be based on Microsoft Visual Studio 17 Community Edition, and Microsoft Code.

Course Grading Policy

The course grade will be based on active class participation (10%), assignments (30%), mid term exam (30%), and final project (30%). Although not a requirement of the class, the instructor will encourage you and help you to upload your project on the Web.

Course Web Site

All course materials will be posted using BU's Blackboard site. This requires all students to have an account with the BU computer system.

Textbooks (optional, class will be based on slides provided by instructor)

1. Laurence Moroney, Beginning Web Development, Silverlight, and ASP.NET AJAX: From Novice to Professional, Apress
2. Pro ASP.NET MVC Framework by Steven Sanderson

Student Conduct Code

Please review the academic conduct code

Tentative Course Schedule

Module 1 Introduction: The Web App, setting up your laptop for Web development - Week 1
Module 2 Server-side technologies, C# 7.0 and .NET CLR 4.6 - Week 2
Module 3 Server-side frameworks and client-side engines, ASP.NET and AJAX - Weeks 3, 4
Module 4 Web-based data access technologies, ADO.NET, LINQ and JQuery - Weeks 5, 6 **Mid Term** Week 7
Module 5 Connecting to Web-based data pipelines, .NET Web Services, SOAP and REST - Week 11
Module 6 Web-based application architectures, .NET MVC and MVVM - Week 12
Module 7 Web-based devices, Microsoft Kinect®, Mixed Reality, Arduino®, and Node.js - Week 13
Module 8 Web Futures, Web Gaming and Mobile development - Week 14
Module 9 Final Project presentations - Week 15