



## Data Analysis Boot Camp

**Duration: 2 Days**    **Course Code: GK2397**

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### Overview:

Modern ASP.NET is an examination of Microsoft's latest web development framework. This course focuses on Microsoft's "One ASP.NET" strategy for a unified framework for architecting web applications. You will learn about MVC for building HTML based applications, OWIN and Katana for providing a common HTTP hosting infrastructure, ASP.NET Identity for securing user identities, Web API for building modern web services and SignalR for providing real-time push notifications to client applications. Come and explore Microsoft's compelling server-side stack for developing modern web applications and services.

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### Target Audience:

Modern ASP.NET is for developers who want to design and build modern ASP.NET web applications, want to stay current on the latest web development technology available from Microsoft, have a basic knowledge of .NET (prerequisite), and have a basic understanding of HTTP and HTML (prerequisite)

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### Objectives:

- What is MVC and how to properly utilize the MVC pattern?
  - How can I use jQuery and Ajax with MVC and Web API?
  - What are controllers and actions, how do they get invoked and how do they accept input?
  - How can I secure my web applications?
  - How do I write views using Razor to render HTML dynamically?
  - How does SignalR provide real-time push notifications to the browser?
  - How can I build validation into my application?
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### Prerequisites:

- Have a basic knowledge of .NET
  - Have a basic understanding of HTTP and HTML
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## Content:

### •Day 1

#### •MVC Introduction

•This module provides an introduction to the ASP.NET MVC framework. We will provide an overview of the MVC architecture including how a controller processes requests, communicates with the model layer and chooses a view to generate a response. Part of this overview will include looking at URL routing, model binding and the Razor view engine.

#### •MVC Actions

•Controllers and actions are the centerpiece of an MVC application. In this module we will examine the look at how requests utilize attribute routing to map onto action methods. We will also explore the various action results which are used to generate a response.

#### •MVC Views

•In this module we will examine Razor which is the view engine used in MVC. It is designed to provide a streamlined syntax for creating dynamic views. This module covers the Razor syntax and its support for reusable templates with partial views and layout templates. We will conclude with Html helpers, which are APIs to encapsulate rendering common markup such as input fields, hyperlinks, forms and URLs.

### •Day 2

#### •MVC Model Binding

•Model binding is an important part of the MVC framework to ease input processing for controllers. We will see how data is mapped from the request to parameters of action methods and how complex objects can also be model bound.

#### •MVC Validation

•In this module we examine how MVC provides a complete framework for validation. We'll see how it uses validation helpers, ModelState, data annotations and the IValidatableObject interface to provide server-side validation. Then we will illustrating how MVC's validation framework can also be used to perform client-side validation.

#### •OWIN and Katana

•OWIN is a fairly new specification for modelling a HTTP server API for hosting web applications. The intent is to decouple the host from the application with the goal of providing a simpler programming model with potentially better performance than traditional web servers. While OWIN is a specification, Katana is Microsoft's implementation of an OWIN host. In this session we will discuss OWIN, Katana and how to write applications and middleware that take advantage of this new and exciting hosting environment.

### •Day 3

#### •MVC Security

•Security is crucial for online applications. This session on security discusses the basics of web security and then the internals of authentication in Microsoft's OWIN framework called Katana. We will see how the new cookie authentication middleware manages user authentication and supports rich identity information using claims. We will then examine how external authentication is implemented for social media logins such as Google and Facebook. We conclude with MVC's authorization support using authorization filters.

#### •ASP.NET Identity

•Identity management is the unglamorous (yet extremely important) task of managing account information for users (including passwords). Identity management in ASP.NET has had an interesting and somewhat tumultuous history, but in this session we will focus on Microsoft's newest framework called ASP.NET Identity. We will discuss the important characteristics of proper identity management and then we'll survey the pros and cons of ASP.NET Identity. We will see how ASP.NET Identity provides support for password management,

### •Ajax

•Ajax is a style of writing browser-based application to leverage JavaScript and XMLHttpRequest callbacks to the server. This lecture covers MVC's basic support for Ajax as well as using jQuery to develop more sophisticated Ajax applications.

#### •Web API

•This module provides an introduction to Web API which is the new framework for building HTTP-based RESTful services. We will cover the motivation for HTTP oriented services as an alternative to SOAP-based services. We'll examine the major tenets including the importance of URIs, HTTP methods and status codes, content negotiation and hypermedia. We'll conclude with the new client-side programming model for HTTP services with the HttpClient API.

#### •Web API Security

•Web API is the framework for building HTTP-based services and these services will need to be secured. This session introduces how security (confidentiality, integrity and authentication) is typically performed for HTTP-based services. We'll also look at the modern approaches to authentication and authorization using OAuth and how to implement these approaches in your Web API application using Microsoft's Katana authentication middleware. Once authentication has been established we'll then turn to authorization and how you can control access to the resources your Web API is exposing.

### •Day 5

#### •Knockout

•Knockout is Microsoft's unofficial client-side JavaScript framework for building client-side applications. Its main feature is its two-way data binding support. This allows developers to be more productive when building rich browser-based applications.

#### •SignalR

claims-based identity, external login providers, custom validation as well as customized storage.

- jQuery

- jQuery is a popular open source JavaScript library used to enhance AJAX style web pages and improve developer productivity. jQuery was chosen by Microsoft as the library for MVC's client-side capabilities. In this module we will introduce the query and document manipulation capabilities of jQuery.

- Day 4

- SignalR is a framework that makes developing real-time web functionality easy. SignalR allows bi-directional communication between server and client. Servers can now push content to connected clients instantly as it becomes available. In this module we will see how to build hubs to model communication endpoints and how those can communicate to all connected clients. We'll also look at some of the other features of SignalR including connection management, grouping connections, and authorization.

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### Additional Information:

Hardware requirements: Any machine capable of running Windows 7 or Windows 8. 4GB RAM or more preferred. Internet connection required

Software requirements: Windows 7 with SP1 or Windows 8/8.1. Adobe Reader. Visual Studio 2013 (with latest update) (Note: You must ensure that you have the latest version of NuGet. Run Visual Studio, go to Tools > Extensions and Updates > Choose updates and make sure there are none for NuGet.). Latest versions of (all 3): Chrome, Firefox Internet Explorer

Student account should be configured as local Administrator

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### Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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