Advanced Features in MVC5

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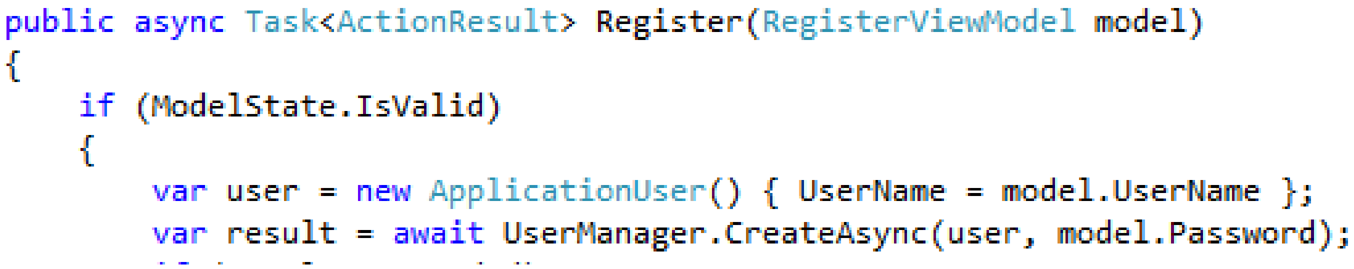
Agenda

- Asynchronous Controllers
- Areas
- Custom HTML Helpers
- Custom Action Filters
- Custom model binder
- Dependency Resolution
- Caching
- Globalization
- Diagnostics
- T4 Templates
- Unit Testing

Asynchronous Controllers

- Controllers with async action methods
- Async methods behaves asynchronously
- Async and await keywords.

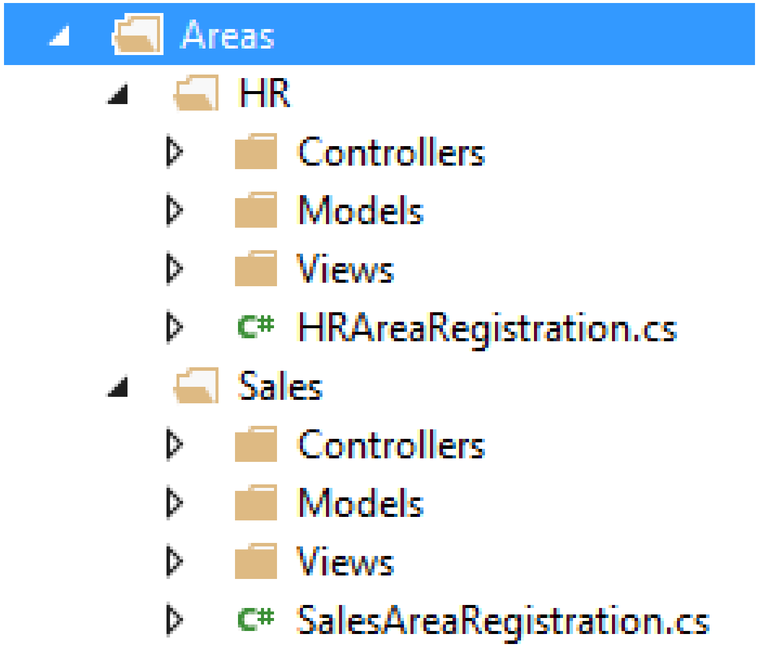


```
public async Task<ActionResult> Register(RegisterViewModel model)
{
    if (ModelState.IsValid)
    {
        var user = new ApplicationUser() { UserName = model.UserName };
        var result = await UserManager.CreateAsync(user, model.Password);
```

Demo

Areas

- Dividing large application into logical areas



Areas
- HR
  - Controllers
  - Models
  - Views
  - HRAreaRegistration.cs
- Sales
  - Controllers
  - Models
  - Views
  - SalesAreaRegistration.cs

Demo

MVC Filters

- ASP.NET MVC framework supports four different types of filters

- **Authorization filters** – Implements the IAuthorizationFilter attribute.
- **Action filters** – Implements the IActionFilter attribute.
- **Result filters** – Implements the IResultFilter attribute.
- **Exception filters** – Implements the IExceptionFilter attribute

- Create your own Customer Filters

Demo

HTML Helpers

- HTML helpers generate required HTML
- Helps you to create
  - Hyperlinks
  - Text boxes
  - Drop downs
  - HTML Forms etc
- Create your own custom helpers

Demo

Model Binder

- MVC provides default model binder
  - Binds your action parameters with incoming data from http requests
- Create your own custom model binder.

Demo

Dependency Injection

- The Dependency Injection is a design pattern
- Inversion of Control or IoC means
  - Objects do not create other objects on which they rely
  - Instead they get the objects from an outside source
- The DI is a implementation of IoC
- The Dependency Injection means
  - Objects are not created, as that will be hardcoded
  - Instead framework components passes constructor parameters and set properties

Advantages of DI Pattern

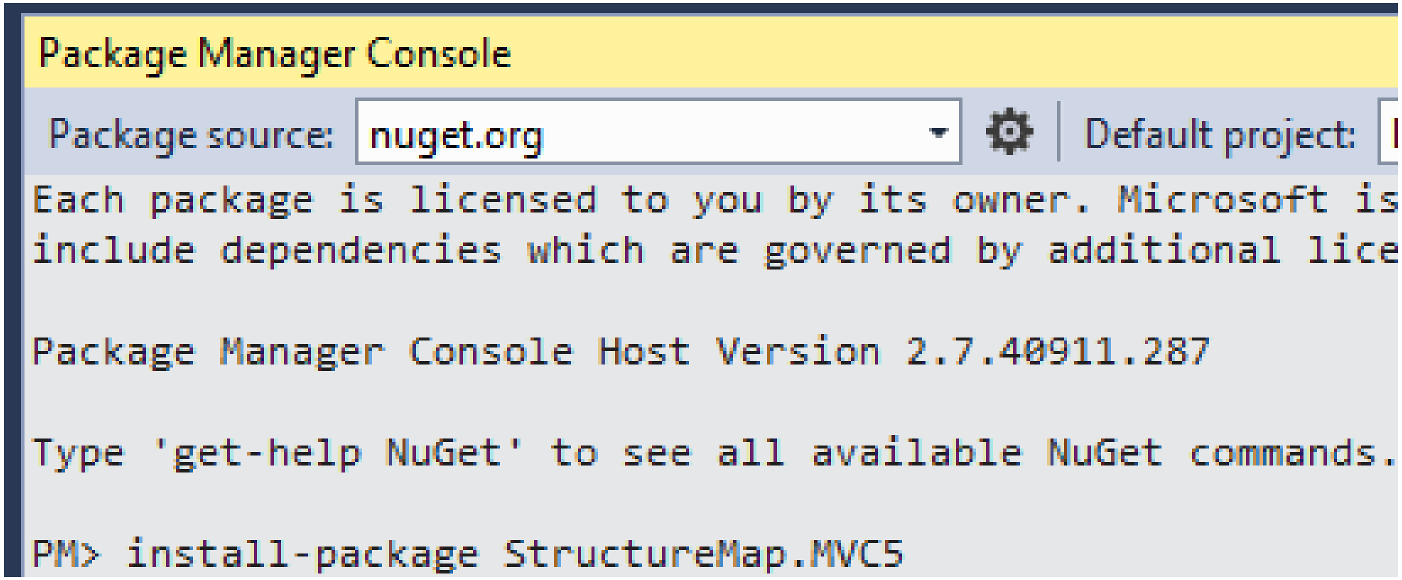
- Reduces class coupling
- Increases code reusing
- Improves code maintainability
- Improves application testing

Dependency Injection Containers

- StructureMap
- Ninject
- Unity
- Castle Windsor
- Spring.NET

Using StructureMap Container

- Install StructureMap as Nuget package



Package Manager Console

Package source: nuget.org

Default project:

```
Each package is licensed to you by its owner. Microsoft is
include dependencies which are governed by additional lice

Package Manager Console Host Version 2.7.40911.287

Type 'get-help NuGet' to see all available NuGet commands.

PM> install-package StructureMap.MVC5
```

Demo

Caching in MVC App

- Store frequently accessed data
- Reduce hosting server round-trips
- Reduce database server round-trips
- Reduce network traffic
- Maximize reusability
- Improve performance

Types of Caching

- Output Caching
  - Cache the content returned by a controller action
  - If same action invokes again, the server returns content from cache

- Application Caching
  - Instead of storing entire page, it stores data objects
  - It stores the object in a key-value based cache

Cache Location

- Any (Default)
  - Cached in 3 locations, web server, proxy server and client browser
- Client
- Server
- ServerAndClient
- None

Demo

Globalization

- Internationalization
  - Globalization – designing apps to support different culture
  - Localization – customizing apps for a specific culture

- Culture
  - Determines date, number and currency formatting

- UICulture
  - Determines which resources are to be loaded

Demo

Diagnostics

- Logging Tools
  - ASP.NET Health Monitoring
  - P&P Application Logging Block (Microsoft)
  - Log4net (Appache)
  - Elmah (Google)
  - Glimpse

Demo

T4 Templates

- Scaffolding generates boilerplate code
- T4 templates are used by scaffolding
- The templates can be customized.

Demo

Unit Testing

- Testing controllers actions
  - Arrange
  - Act
  - Assert
- Testing views
  - Install RazorGenerator.Mvc from NuGet in MVC project
  - Install RazorGenerator.Tesing from NuGet in UnitTest project.

Demo

Bibliography, Important Links

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- http://www.asp.net/mvc/tutorials/hands-on-labs/aspnet-mvc-4-dependency-injection
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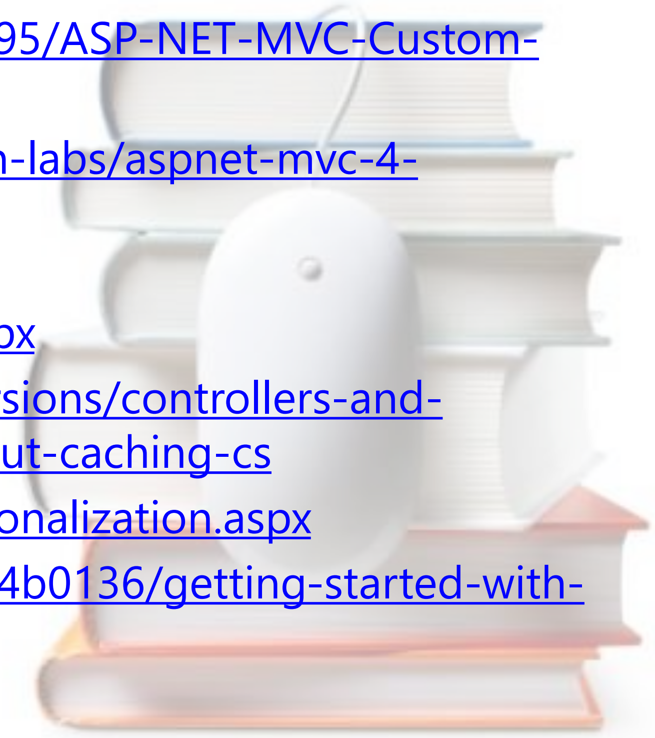

Summary

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- Custom Action Filters
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Any Questions?

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Thank you!