Unit Testing ASP.NET Core Middleware, Filters and Service Registrations

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Coming Up

Unit testing middleware

Unit testing ASP.NET Core filters

Unit testing service registrations

Unit Testing Middleware

Test custom middleware, not built-in middleware

Unit Testing Middleware

Dependencies that are difficult to mock can lead towards an integration test

Mostly though, a unit test is advisable for middleware testing

Unit Testing Middleware

Typical concerns when unit testing middleware:

- Mock the `HttpContext` (or use `DefaultHttpContext`)
- Handle the `RequestDelegate`

Demo

Unit testing middleware

ASP.NET Core Filter

A filter allows code to run before or after specific stages in the request processing pipeline

Unit Testing ASP.NET Core Filters

Custom filters often handle cross-cutting concerns:

- Error handling
- Caching

Filters can be used to avoid code duplication

Unit Testing ASP.NET Core Filters

Filters run in the ASP.NET Core action invocation pipeline

Unit Testing ASP.NET Core Filters

Action filter

Authorization filter

Resource filter

Exception filter

Result filter

Unit Testing ASP.NET Core Filters

Action filters:

- Run immediately before and after an action method is called
- Can change the arguments passed into an action
- Can change the result returned from the action

Demo

Unit testing ASP.NET Core filters

Unit Testing Service Registrations

Services are registered on ASP.NET Core's included IoC container

- These registrations can be unit tested

Unit Testing Service Registrations

Approach:

- Create an `IServiceCollection`
- Register the services on it
- Build an `IServiceProvider`
- Verify whether the services were registered

Demo

Unit testing service registrations

Summary

Challenges with middleware and filter testing are related to test isolation

Test service registrations by building an `IServiceProvider` and testing whether you can get a service instance

Up Next:

Integrating Unit Tests in Your Development and Release Flows