Improving the Application's Behavior

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Overview

Handling errors in the API

Adding logging capabilities

Authenticating users

Handling Errors in the API

Handling Exceptions

Using custom exceptions

Defined in the Core project
Derive from Exception

Middleware in API

Converts the exception for use by the client

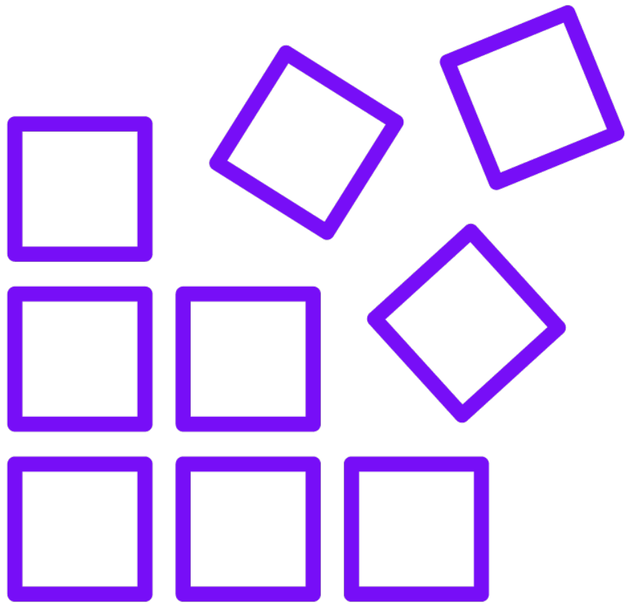
```
public class NotFoundException : Exception
{

     public NotFoundException(string name) : base($"{name} is not found")
     {

     }

}
```

Defining a Custom Exception

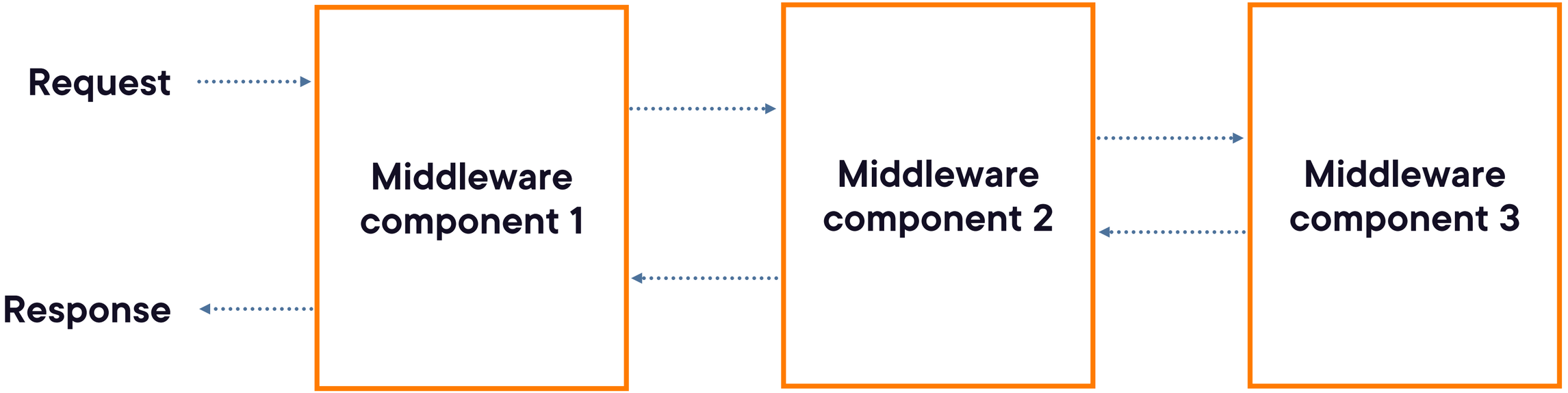


ASP.NET Core middleware

- Component
- Plugged into pipeline
- Works on request or response
- Can decide to short-circuit the request
- Order is important

Configured in Program.cs

Middleware Request Pipeline



```
public class RequestCultureMiddleware
{
    private readonly RequestDelegate _next;
    public RequestCultureMiddleware(RequestDelegate next)
    {
        _next = next;
    }
    public async Task InvokeAsync(HttpContext context)
    { ... }
}
```

Writing Custom Middleware

Demo

Creating custom exception classes

Throwing exceptions from Core code

Converting exceptions using middleware

Adding Logging Capabilities

Steps to Enable Logging in the Application

Configure logging

Program.cs

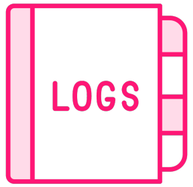
Write log statements

Ilogger<T> in code

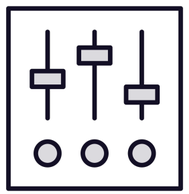
Plug in Serilog

Configure in Program and AppSettings.json

Logging in ASP.NET Core



Built-in logging API



Provider-based

LogLevel

```
private readonly ILogger<CreateEventCommandHandler> _logger;
public CreateEventCommandHandler (ILogger<CreateEventCommandHandler> logger)
{
    _logger = logger;
}
    ...
_logger.LogError("Something went wrong…");
```

Writing Log Information

Log Levels

Trace

Debug

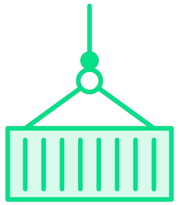
Information

Warning

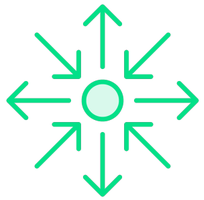
Error

Critical

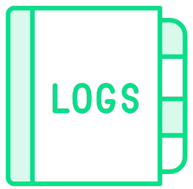
Adding Serilog



NuGet package



Different log destinations



Structured logging

```
<PackageReference Include="Serilog.AspNetCore" Version="8.0.0" />
<PackageReference Include="Serilog" Version="3.1.1" />
<PackageReference Include="Serilog.Extensions.Logging" Version="8.0.0" />
<PackageReference Include="Serilog.Sinks.File" Version="5.0.0" />
<PackageReference Include="Serilog.Settings.Configuration" Version="8.0.0" />
```

Adding Serilog

Demo

Adding Serilog

Configuring the logger

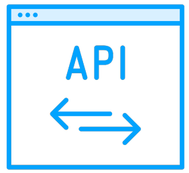
Logging from the application code

Authenticating Users

API authentication

- Using cookie or token
- ASP.NET Core Identity is extended with .NET 8
  - Support for tokens
  - Set of API endpoints

Introducing the New Identity API Endpoints



Set of minimal API endpoints is included

SPA can use these

Support for access tokens

Included API Endpoints

Demo

Exposing the Identity API endpoints on the API

Demo

Adding authentication to the Blazor application

Summary

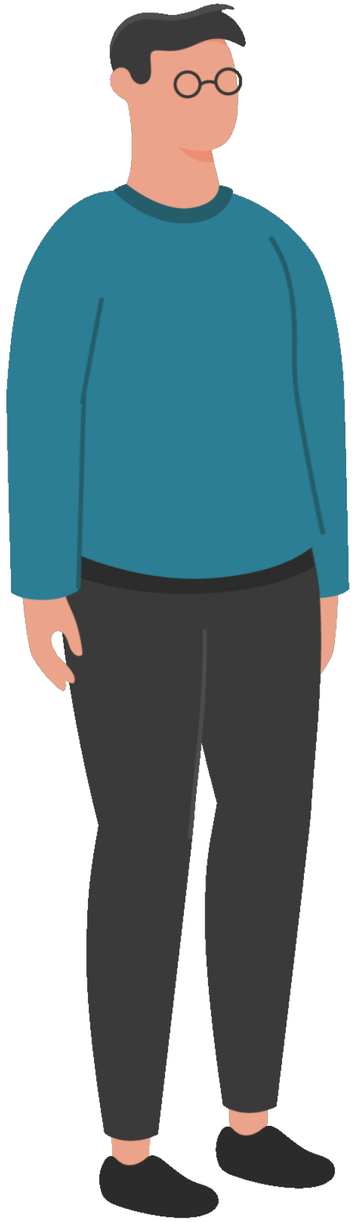
Cross-cutting concerns added

- Exception handling
- Logging
- Authentication

“It’s great to see all the
different building blocks that have
now come together.

The architecture is lending itself
well to be tested and maintained.

This will help us tremendously!”



“This is great!

We can now use this as the foundation for all future projects.”

Congratulations

on finishing this course!