



МОСКОВСКИЙ ПОЛИТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ

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ЛАБОРАТОРНАЯ РАБОТА № 7

Дисциплина: Backend разработка

Тема:

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Замечания:

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Практическое занятие 7: Логирование веб-приложения на ASP.NET Core

1. Настройка логирования в ASP.NET Core

1.1. Логирование через встроенный ILogger

В Program.cs:

```
var builder = WebApplication.CreateBuilder(args);

// Настройка провайдеров логирования

builder.Logging.ClearProviders();

builder.Logging.AddConsole(); // Консоль

builder.Logging.AddDebug();   // Отладка

builder.Logging.AddFile("Logs/myapp-{Date}.txt"); // Файл (через сторонний
пакет, например, Serilog или Microsoft.Extensions.Logging.File)

var app = builder.Build();

// Пример использования ILogger

var logger = app.Services.GetRequiredService<ILogger<Program>>();

logger.LogInformation("Приложение запущено");

logger.LogWarning("Это предупреждение");

logger.LogError("Ошибка при выполнении операции");

app.MapGet("/", () => "Hello World!");

app.Run();
```

1.2. Использование Serilog для расширенного логирования

1. Установите пакеты через NuGet:

```
Serilog.AspNetCore
Serilog.Sinks.Console
```

Настройка в Program.cs:

```
using Serilog;

Log.Logger = new LoggerConfiguration()

    .MinimumLevel.Debug()

    .WriteTo.Console()

    .WriteTo.File("Logs/myapp.log", rollingInterval: RollingInterval.Day)

    .CreateLogger();

var builder = WebApplication.CreateBuilder(args);

builder.Host.UseSerilog();

var app = builder.Build();

app.MapGet("/", (ILogger<Program> logger) =>
{
    logger.LogInformation("Обработка запроса к /");

    return "Hello Serilog!";
});

app.Run();
```

Применение уровней логирования

Уровень	Назначение
Trace	Детальная отладочная информация
Debug	Информация для разработчиков
Information	Основные события работы приложения
Warning	Потенциально опасные ситуации
Error	Ошибки приложения
Critical	Критические ошибки, требующие немедленного реагирования

Пример в контроллере:

```
[ApiController]

[Route("[controller]")]

public class WeatherController : ControllerBase
{
    private readonly ILogger<WeatherController> _logger;

    public WeatherController(ILogger<WeatherController> logger)
    {
        _logger = logger;
    }

    [HttpGet]
    public IEnumerable<string> Get()
    {
        _logger.LogTrace("Начало метода Get");
        _logger.LogInformation("Запрос погоды получен");
        _logger.LogWarning("Используются устаревшие данные");
        _logger.LogError("Ошибка при получении данных");
        _logger.LogCritical("Сбой сервиса погоды");

        return new[] { "Sunny", "Cloudy", "Rainy" };
    }
}
```

3. Пользовательские форматы сообщений

С помощью Serilog можно создавать кастомные шаблоны логов:

```
Log.Logger = new LoggerConfiguration()

    .WriteTo.Console(outputTemplate: "[{Timestamp:HH:mm:ss} {Level:u3}] {Message:l}{NewLine}{Exception}")
```

```
.CreateLogger();
```

Пример формата лога:

```
[12:45:30 INF] Приложение запущено
```

```
[12:45:35 ERR] Ошибка при выполнении операции
```

4. Тестирование и анализ логов

1. Запускаем приложение и выполните несколько запросов.
2. Проверяем записи логов в консоли и в файле.

Скриншоты/Примеры логов

```
19:50:04 DBG] Hosting starting
19:50:05 INF] Now listening on: https://localhost:7055
19:50:05 INF] Now listening on: http://localhost:5052
19:50:05 DBG] Loaded hosting startup assembly 7
19:50:05 DBG] Loaded hosting startup assembly Microsoft.AspNetCore.Mvc.WebViewHost
19:50:05 DBG] Loaded hosting startup assembly Microsoft.WebTools.BrowserLink.Net
19:50:05 INF] Application started. Press Ctrl+C to shut down.
19:50:05 INF] Hosting environment: Development
19:50:05 INF] Content root path: E:\Ynik\Backend\7
19:50:05 DBG] Hosting started
19:50:05 DBG] Connection id "0HNG8SOTB3AJ9" accepted.
19:50:05 DBG] Connection id "0HNG8SOTB3AJ8" accepted.
19:50:05 DBG] Connection id "0HNG8SOTB3AJ9" started.
19:50:05 DBG] Connection id "0HNG8SOTB3AJ8" started.
19:50:05 DBG] Connection id "0HNG8SOTB3AJ9" received FIN.
19:50:05 DBG] Connection id "0HNG8SOTB3AJ8" received FIN.
19:50:05 DBG] Failed to authenticate HTTPS connection.
System.IO.IOException: Received an unexpected EOF or 0 bytes from the transport stream.
   at System.Net.Security.SslStream.ReceiveHandshakeFrameAsync[TIOAdapter](CancellationToken cancellationToken)
   at System.Net.Security.SslStream.ForceAuthenticationAsync[TIOAdapter](Boolean receiveFirst, Byte[] reAuthenticationData, CancellationToken cancellationToken)
   at System.Net.Security.SslStream.ProcessAuthenticationWithTelemetryAsync(Boolean isAsync, CancellationToken cancellationToken)
   at Microsoft.AspNetCore.Server.Kestrel.Https.Internal.HttpsConnectionMiddleware.OnConnectionAsync(ConnectionContext context)
19:50:05 DBG] Failed to authenticate HTTPS connection.
System.IO.IOException: Received an unexpected EOF or 0 bytes from the transport stream.
   at System.Net.Security.SslStream.ReceiveHandshakeFrameAsync[TIOAdapter](CancellationToken cancellationToken)
   at System.Net.Security.SslStream.ForceAuthenticationAsync[TIOAdapter](Boolean receiveFirst, Byte[] reAuthenticationData, CancellationToken cancellationToken)
   at System.Net.Security.SslStream.ProcessAuthenticationWithTelemetryAsync(Boolean isAsync, CancellationToken cancellationToken)
   at Microsoft.AspNetCore.Server.Kestrel.Https.Internal.HttpsConnectionMiddleware.OnConnectionAsync(ConnectionContext context)
19:50:05 DBG] Connection id "0HNG8SOTB3AJ9" stopped.
19:50:05 DBG] Connection id "0HNG8SOTB3AJ8" stopped.
19:50:05 DBG] Connection id "0HNG8SOTB3AJ9" sending FIN because: "The Socket transport's send loop completed gracefully."
19:50:05 DBG] Connection id "0HNG8SOTB3AJ8" sending FIN because: "The Socket transport's send loop completed gracefully."
19:50:06 DBG] Connection id "0HNG8SOTB3AJA" accepted.
19:50:06 DBG] Connection id "0HNG8SOTB3AJA" started.
19:50:06 DBG] Connection 0HNG8SOTB3AJA established using the following protocol: TLS13
19:50:06 INF] Request starting HTTP/2 GET https://localhost:7055/ - null null
19:50:06 DBG] Wildcard detected, all requests with hosts will be allowed.
19:50:06 DBG] 1 candidate(s) found for the request path '/'
19:50:06 DBG] Request matched endpoint 'HTTP: GET /'
19:50:06 INF] Executing endpoint 'HTTP: GET /'
19:50:06 INF] Executed endpoint 'HTTP: GET /'
19:50:06 INF] Request finished HTTP/2 GET https://localhost:7055/ - 200 null text/plain; charset=utf-8 120.890ms
19:50:06 INF] Request starting HTTP/2 GET https://localhost:7055/favicon.ico - null null
19:50:06 DBG] No candidates found for the request path '/favicon.ico'
19:50:06 DBG] Request did not match any endpoints
19:50:06 INF] Request finished HTTP/2 GET https://localhost:7055/favicon.ico - 404 null null 4.7962ms
19:50:06 INF] Request reached the end of the middleware pipeline without being handled by application code. Request path: GET https://localhost:7055/favicon.ico, Response status code: 404
```

```
myapp20251011.log  Controller.cs  NuGet 7  7: 06:50  app-20251011.log  6.csproj  Middleware.cs  Startup.cs  ProductProvider.cs  launchSettings.json  HomeController.cs

2025-10-11 19:50:04.799 +03:00 [DBG] Hosting starting
2025-10-11 19:50:05.005 +03:00 [INF] Now listening on: https://localhost:7055
2025-10-11 19:50:05.007 +03:00 [INF] Now listening on: http://localhost:5052
2025-10-11 19:50:05.008 +03:00 [DBG] Loaded hosting startup assembly 7
2025-10-11 19:50:05.009 +03:00 [DBG] Loaded hosting startup assembly Microsoft.AspNetCore.Watch.BrowserRefresh
2025-10-11 19:50:05.010 +03:00 [DBG] Loaded hosting startup assembly Microsoft.WebTools.BrowserLink.Net
2025-10-11 19:50:05.012 +03:00 [INF] Application started. Press Ctrl+C to shut down.
2025-10-11 19:50:05.013 +03:00 [INF] Hosting environment: Development
2025-10-11 19:50:05.013 +03:00 [INF] Content root path: E:\Vnik\Backend\7
2025-10-11 19:50:05.015 +03:00 [DBG] Hosting started
2025-10-11 19:50:05.341 +03:00 [DBG] Connection id "0HNGBSOTB3A39" accepted.
2025-10-11 19:50:05.341 +03:00 [DBG] Connection id "0HNGBSOTB3A38" accepted.
2025-10-11 19:50:05.342 +03:00 [DBG] Connection id "0HNGBSOTB3A39" started.
2025-10-11 19:50:05.343 +03:00 [DBG] Connection id "0HNGBSOTB3A38" started.
2025-10-11 19:50:05.353 +03:00 [DBG] Connection id "0HNGBSOTB3A39" received FIN.
2025-10-11 19:50:05.353 +03:00 [DBG] Connection id "0HNGBSOTB3A38" received FIN.
2025-10-11 19:50:05.360 +03:00 [DBG] Failed to authenticate HTTPS connection.
System.IO.IOException: Received an unexpected EOF or 0 bytes from the transport stream.
    at System.Net.Security.SslStream.ReceiveHandshakeFrameAsync[TIOAdapter](CancellationToken cancellationToken)
    at System.Net.Security.SslStream.ForceAuthenticationAsync[TIOAdapter](Boolean receiveFirst, Byte[] reAuthenticationData, CancellationToken cancellationToken)
    at System.Net.Security.ProcessAuthenticationWithTelemetryAsync(Boolean isAsync, CancellationToken cancellationToken)
    at Microsoft.AspNetCore.Server.Kestrel.Https.Internal.HttpsConnectionMiddleware.OnConnectionAsync(ConnectionContext context)
2025-10-11 19:50:05.360 +03:00 [DBG] Failed to authenticate HTTPS connection.
System.IO.IOException: Received an unexpected EOF or 0 bytes from the transport stream.
    at System.Net.Security.SslStream.ReceiveHandshakeFrameAsync[TIOAdapter](CancellationToken cancellationToken)
    at System.Net.Security.SslStream.ForceAuthenticationAsync[TIOAdapter](Boolean receiveFirst, Byte[] reAuthenticationData, CancellationToken cancellationToken)
    at System.Net.Security.ProcessAuthenticationWithTelemetryAsync(Boolean isAsync, CancellationToken cancellationToken)
    at Microsoft.AspNetCore.Server.Kestrel.Https.Internal.HttpsConnectionMiddleware.OnConnectionAsync(ConnectionContext context)
2025-10-11 19:50:05.383 +03:00 [DBG] Connection id "0HNGBSOTB3A39" stopped.
2025-10-11 19:50:05.383 +03:00 [DBG] Connection id "0HNGBSOTB3A38" stopped.
2025-10-11 19:50:05.387 +03:00 [DBG] Connection id "0HNGBSOTB3A39" sending FIN because: "The Socket transport's send loop completed gracefully."
2025-10-11 19:50:05.387 +03:00 [DBG] Connection id "0HNGBSOTB3A38" sending FIN because: "The Socket transport's send loop completed gracefully."
2025-10-11 19:50:06.331 +03:00 [DBG] Connection id "0HNGBSOTB3A3A" accepted.
2025-10-11 19:50:06.332 +03:00 [DBG] Connection id "0HNGBSOTB3A3A" started.
2025-10-11 19:50:06.355 +03:00 [DBG] Connection 0HNGBSOTB3A3A established using the following protocol: "Tls13"
2025-10-11 19:50:06.393 +03:00 [INF] Request starting HTTP/2 GET https://localhost:7055/ - null null
2025-10-11 19:50:06.406 +03:00 [DBG] Wildcard detected, all requests with hosts will be allowed.
2025-10-11 19:50:06.495 +03:00 [DBG] 1 candidate(s) found for the request path '/'
2025-10-11 19:50:06.496 +03:00 [DBG] Request matched endpoint 'HTTP: GET /'
2025-10-11 19:50:06.502 +03:00 [INF] Executing endpoint 'HTTP: GET /'
2025-10-11 19:50:06.504 +03:00 [INF] Ограбтка започа н /
2025-10-11 19:50:06.507 +03:00 [INF] Executed endpoint 'HTTP: GET /'
2025-10-11 19:50:06.589 +03:00 [INF] Request finished HTTP/2 GET https://localhost:7055/ - 200 null text/plain; charset=utf-8 120.8946ms
2025-10-11 19:50:06.569 +03:00 [INF] Request starting HTTP/2 GET https://localhost:7055/favicon.ico - null null
2025-10-11 19:50:06.572 +03:00 [DBG] No candidates found for the request path '/favicon.ico'
2025-10-11 19:50:06.573 +03:00 [DBG] Request did not match any endpoints
2025-10-11 19:50:06.570 +03:00 [INF] Request finished HTTP/2 GET https://localhost:7055/favicon.ico - 499 null null 4.7962ms
2025-10-11 19:50:06.576 +03:00 [INF] Request reached the end of the middleware pipeline without being handled by application code. Request path: GET https://localhost:7055/favicon.ico, Response status code: 499
```

