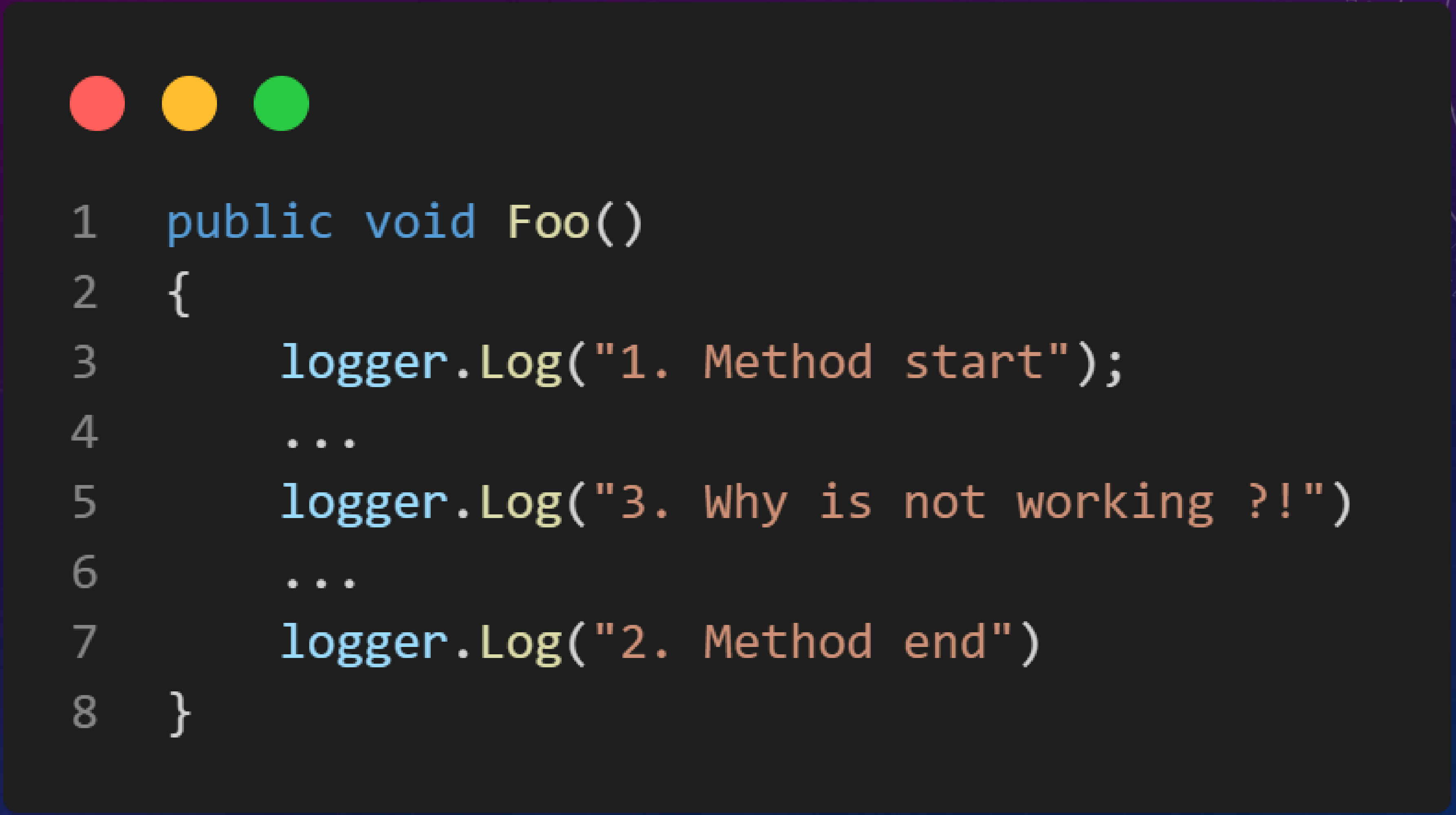
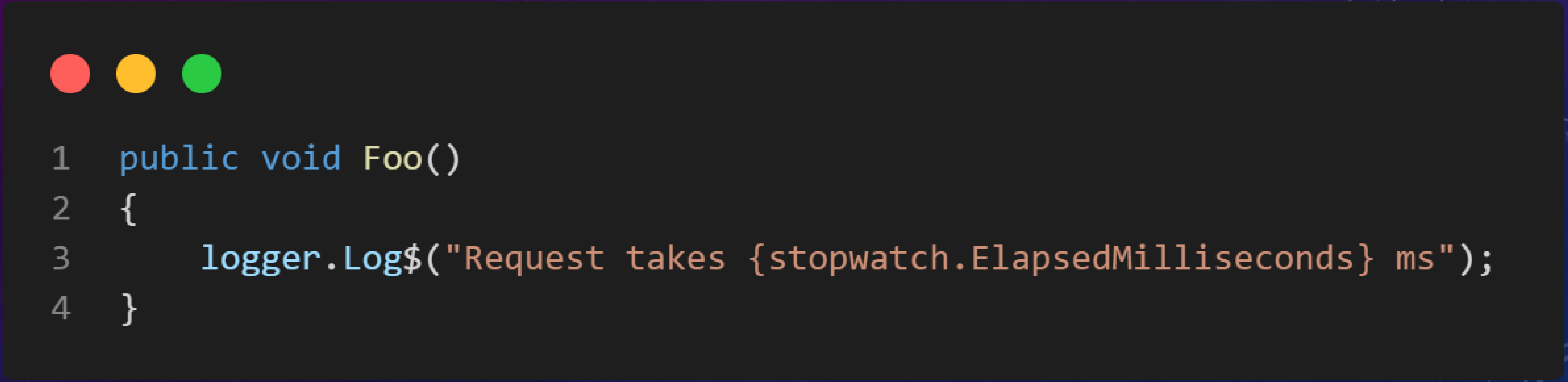
LOGGING

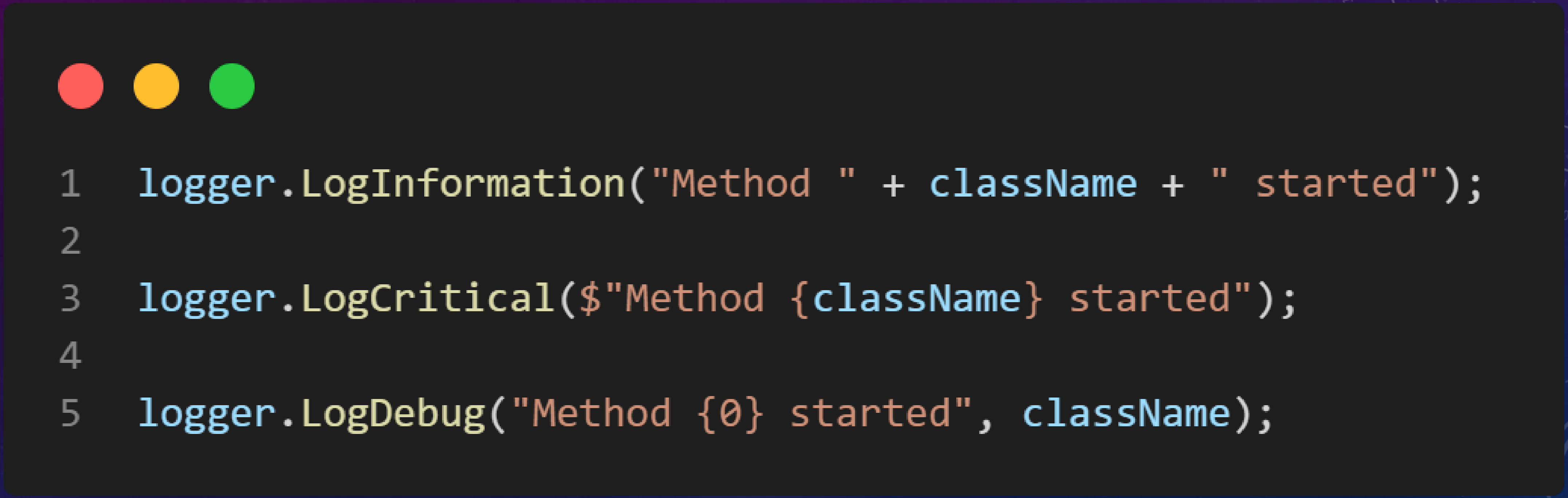
HOW TO GET IT RIGHT



```
public void Foo()
{
    logger.Log("1. Method start");
    ...
    logger.Log("3. Why is not working ?!")
    ...
    logger.Log("2. Method end")
}
```



```
public void Foo()
{
    logger.Log$("Request takes {stopwatch.ElapsedMilliseconds} ms");
}
```



```
logger.LogInformation("Method " + className + " started");

logger.LogCritical($"Method {className} started");

logger.LogDebug("Method {0} started", className);
```

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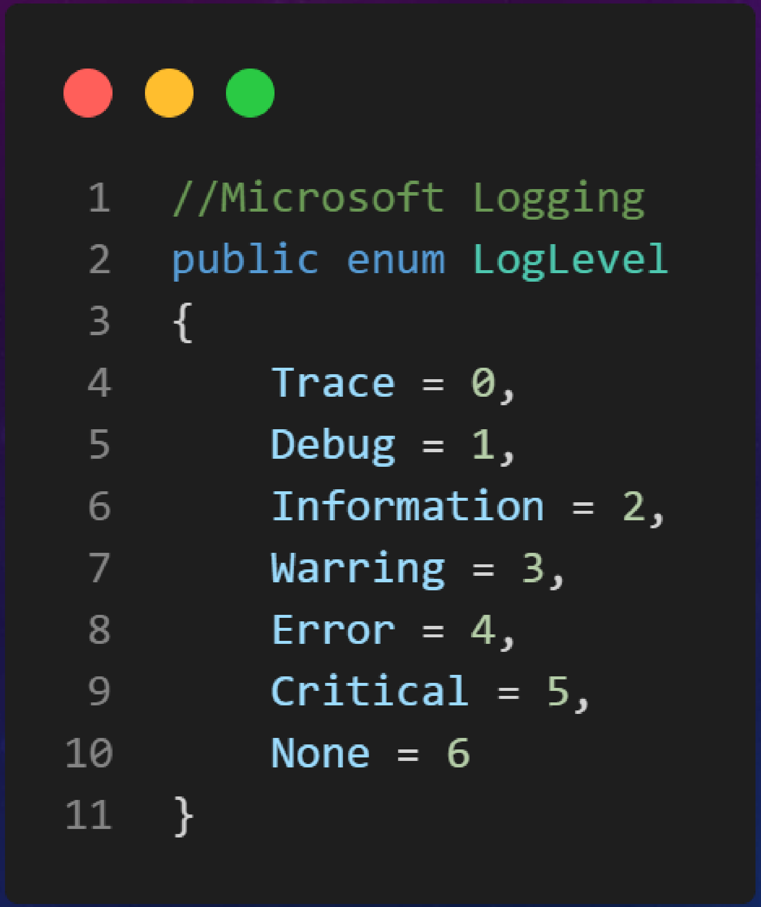
https://github.com/mdurajewski

EXP: 10+

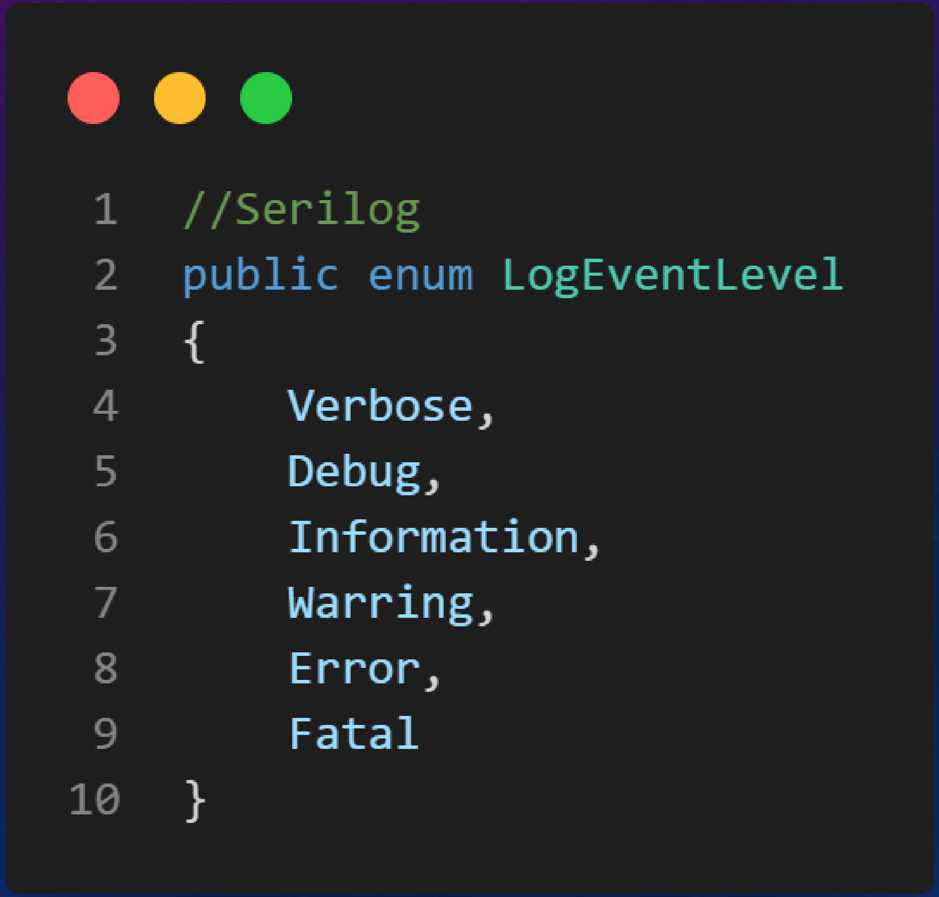
NO!

- OpenTelemetry
- Monitoring aplikacji
- Rozwiązania chmurowe np. Azure Application Insights etc.
- Performance

LOG LEVEL

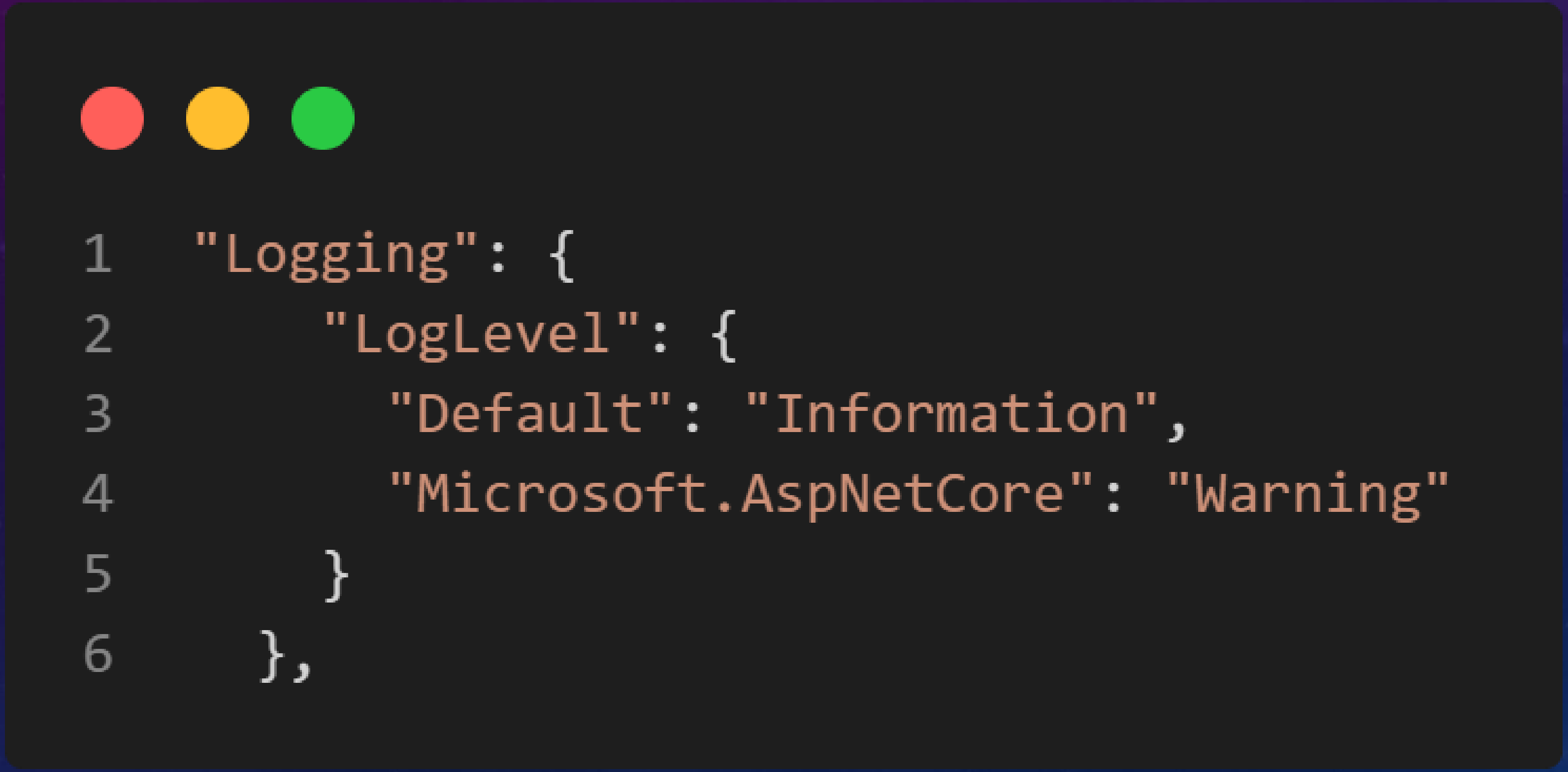


```
//Microsoft Logging
public enum LogLevel
{
    Trace = 0,
    Debug = 1,
    Information = 2,
    Warring = 3,
    Error = 4,
    Critical = 5,
    None = 6
}
```



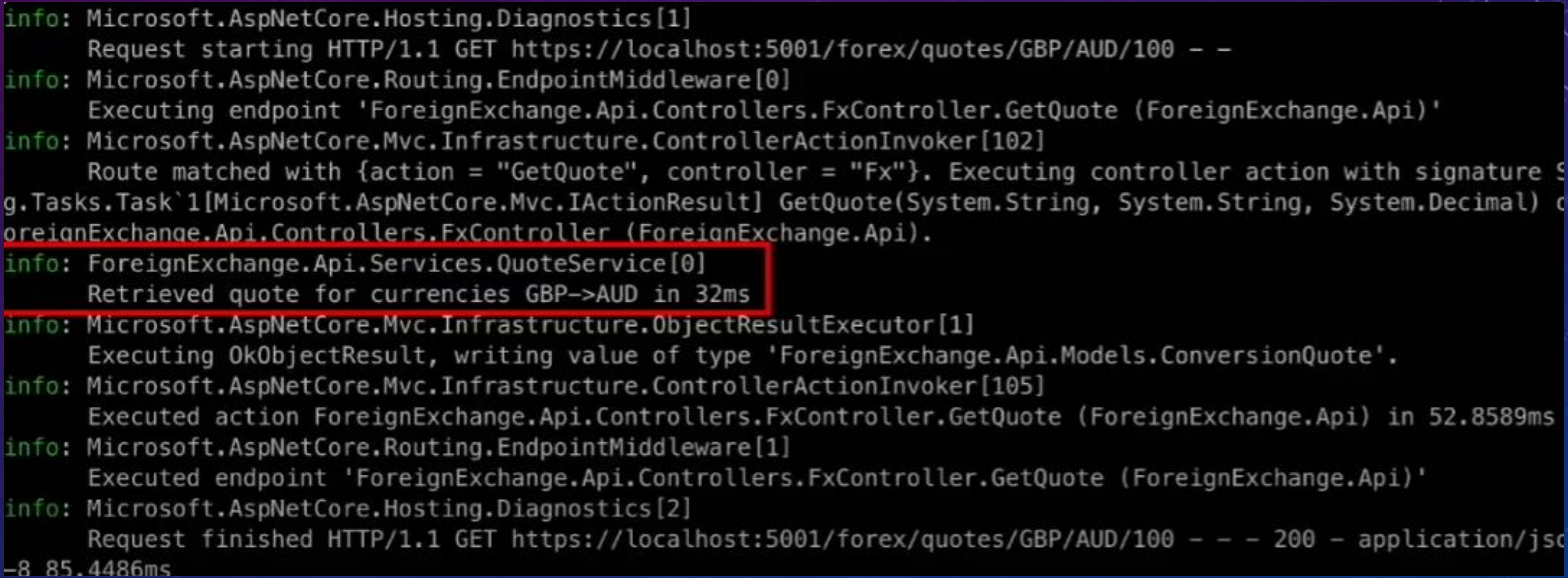
```
//Serilog
public enum LogEventLevel
{
    Verbose,
    Debug,
    Information,
    Warring,
    Error,
    Fatal
}
```

LOG LEVEL



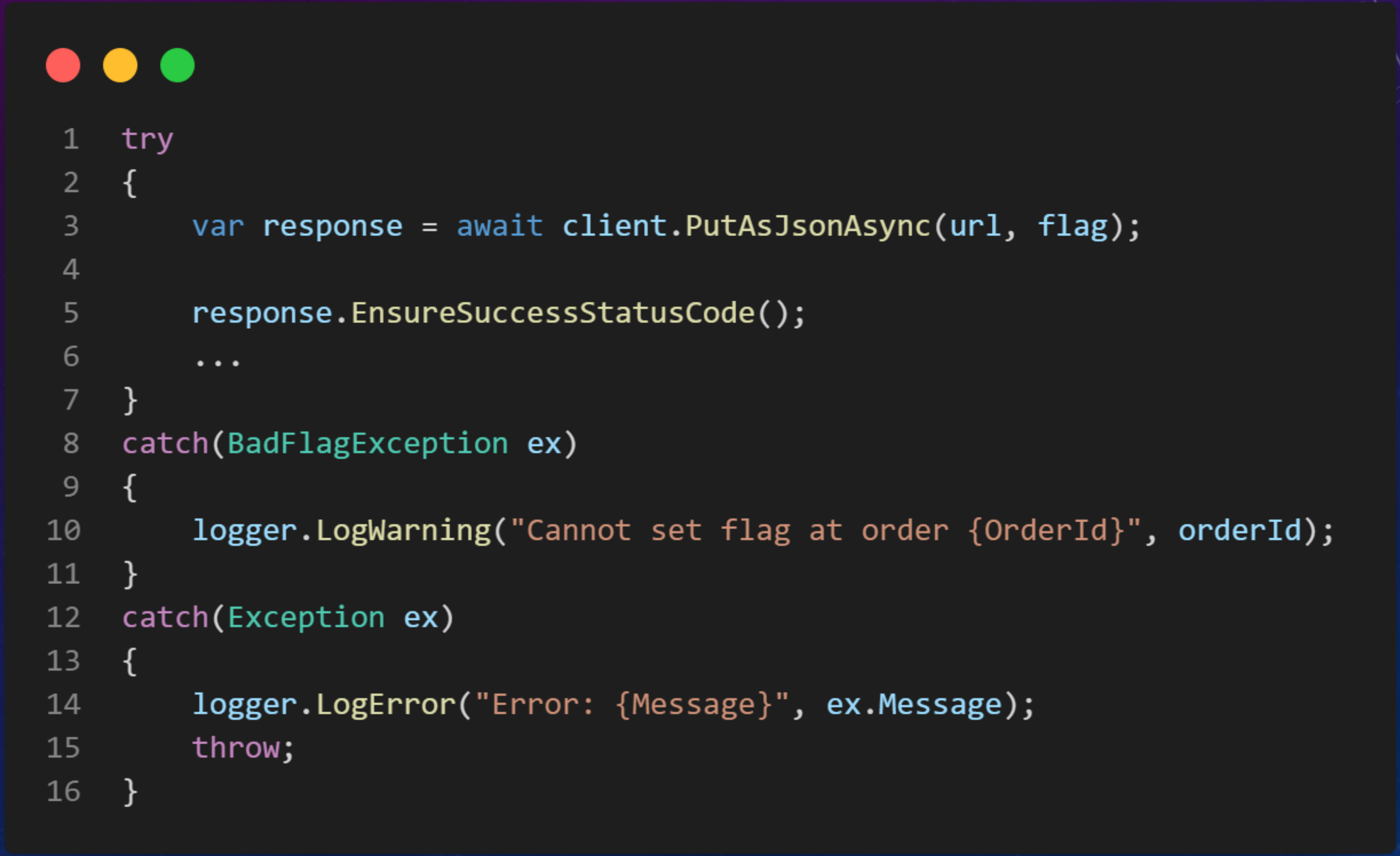
```
"Logging": {
    "LogLevel": {
      "Default": "Information",
      "Microsoft.AspNetCore": "Warning"
    }
  },
```

LOG LEVEL

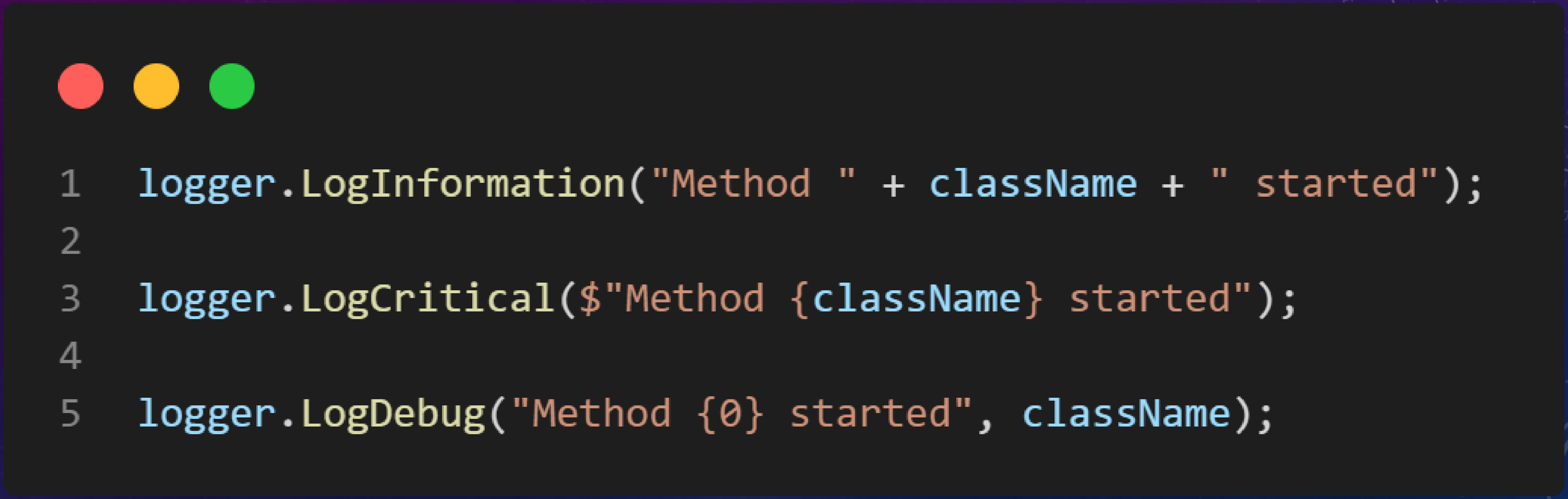


```
info: Microsoft.AspNetCore.Hosting.Diagnostics[1]
      Request starting HTTP/1.1 GET https://localhost:5001/forex/quotes/GBP/AUD/100 - -
info: Microsoft.AspNetCore.Routing.EndpointMiddleware[0]
      Executing endpoint 'ForeignExchange.Api.Controllers.FxController.GetQuote (ForeignExchange.Api)'
info: Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker[102]
      Route matched with {action = "GetQuote", controller = "Fx"}. Executing controller action with signature S
g.Tasks.Task`1[Microsoft.AspNetCore.Mvc.IActionResult] GetQuote(System.String, System.String, System.Decimal) o
oreignExchange.Api.Controllers.FxController (ForeignExchange.Api).
info: ForeignExchange.Api.Services.QuoteService[0]
      Retrieved quote for currencies GBP->AUD in 32ms
info: Microsoft.AspNetCore.Mvc.Infrastructure.ObjectResultExecutor[1]
      Executing OkObjectResult, writing value of type 'ForeignExchange.Api.Models.ConversionQuote'.
info: Microsoft.AspNetCore.Mvc.Infrastructure.ControllerActionInvoker[105]
      Executed action ForeignExchange.Api.Controllers.FxController.GetQuote (ForeignExchange.Api) in 52.8589ms
info: Microsoft.AspNetCore.Routing.EndpointMiddleware[1]
      Executed endpoint 'ForeignExchange.Api.Controllers.FxController.GetQuote (ForeignExchange.Api)'
info: Microsoft.AspNetCore.Hosting.Diagnostics[2]
      Request finished HTTP/1.1 GET https://localhost:5001/forex/quotes/GBP/AUD/100 - - - 200 - application/jso
-8 85.4486ms
```

LOG LEVEL

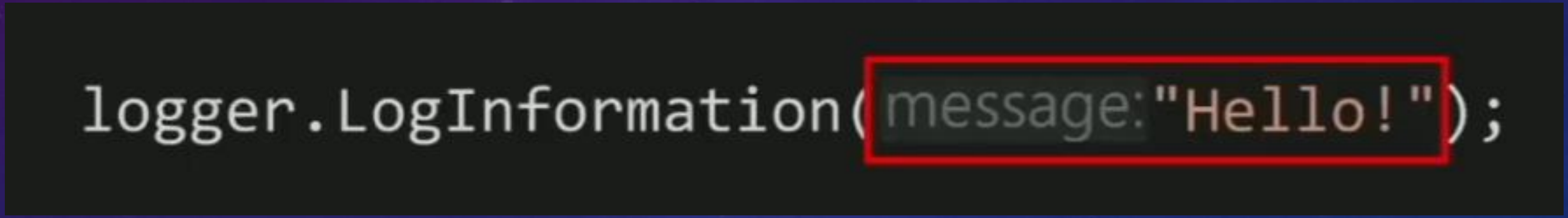


```
try
{
    var response = await client.PutAsJsonAsync(url, flag);

    response.EnsureSuccessStatusCode();
    ...
}
catch(BadFlagException ex)
{
    logger.LogWarning("Cannot set flag at order {OrderId}", orderId);
}
catch(Exception ex)
{
    logger.LogError("Error: {Message}", ex.Message);
    throw;
}
```



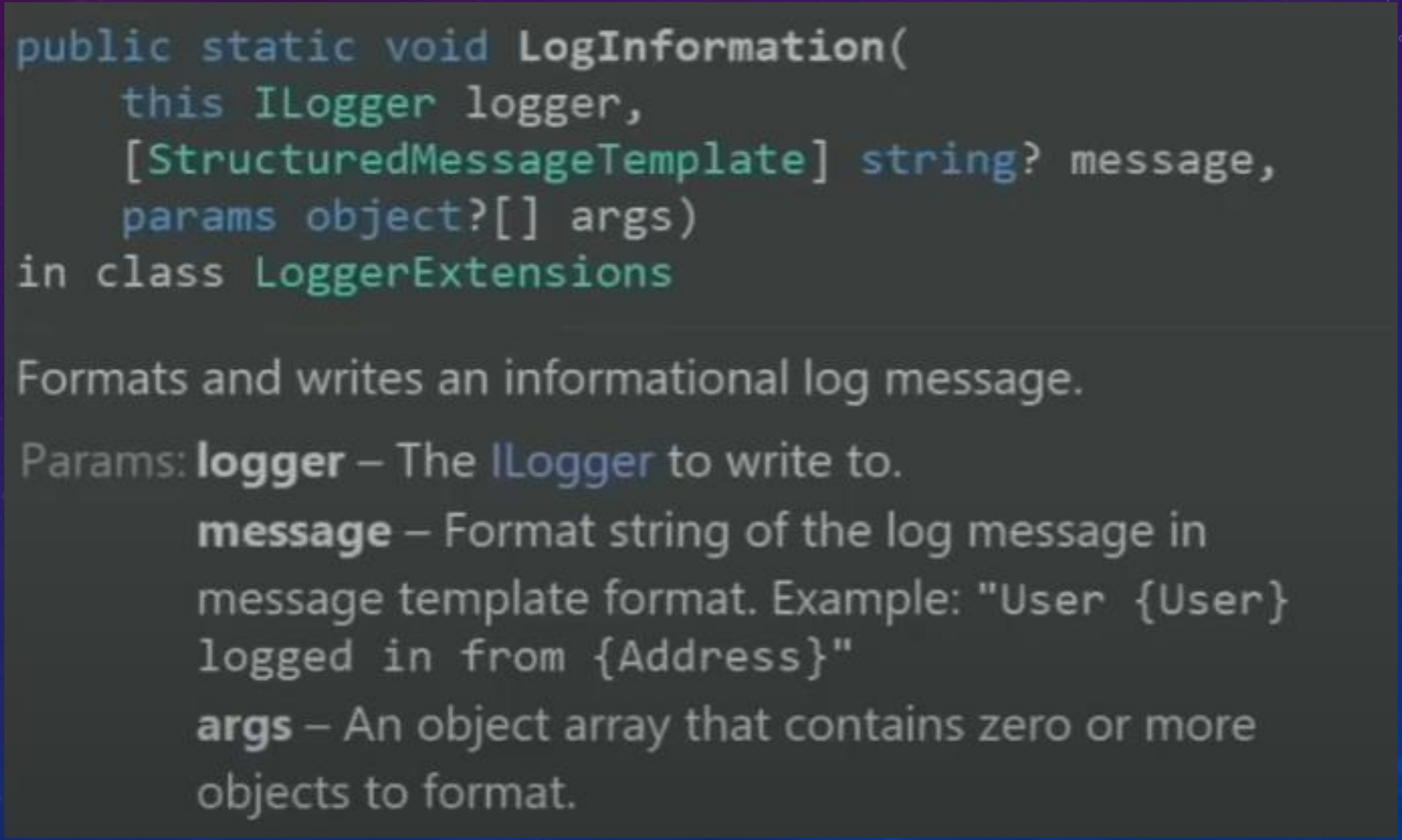
```csharp
logger.LogInformation("Method " + className + " started");

logger.LogCritical($"Method {className} started");

logger.LogDebug("Method {0} started", className);
```

MESSAGE TEMPLATE



```
logger.LogInformation(message:"Hello!");
```

MESSAGE TEMPLATE



```
public static void LogInformation(
    this ILogger logger,
    [StructuredMessageTemplate] string? message,
    params object?[] args)
in class LoggerExtensions
```

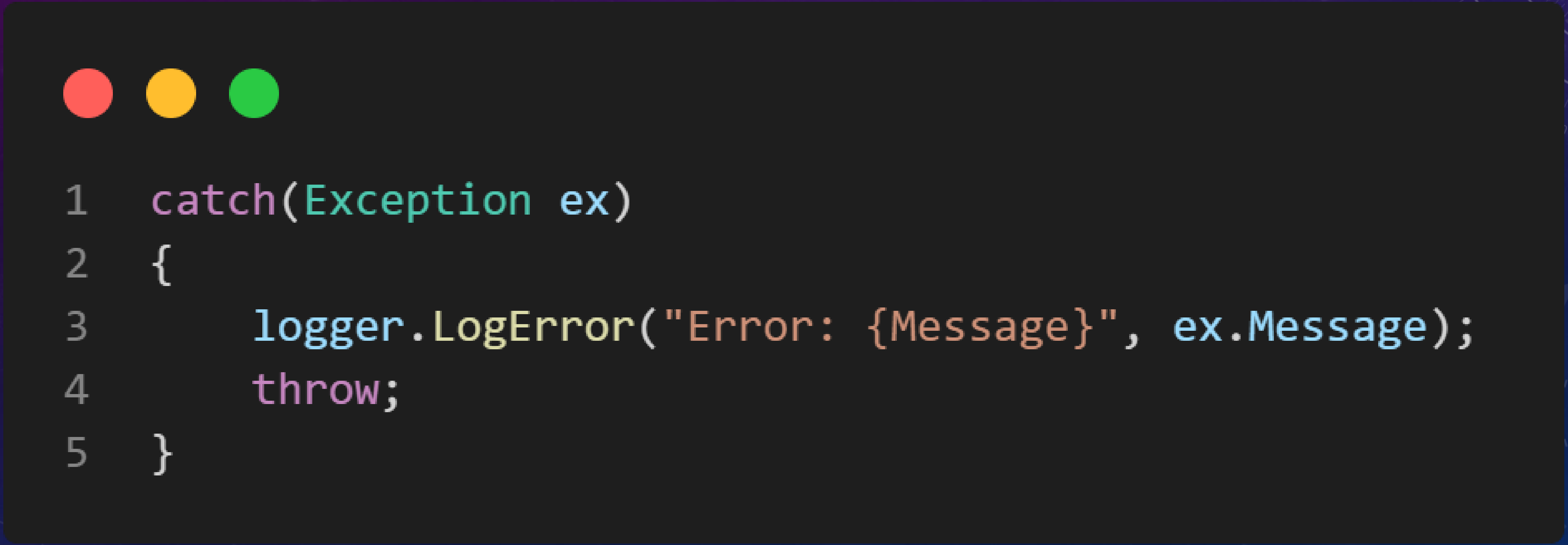
Formats and writes an informational log message.

Params: **logger** – The ILogger to write to.

message – Format string of the log message in message template format. Example: `"User {User} logged in from {Address}"`

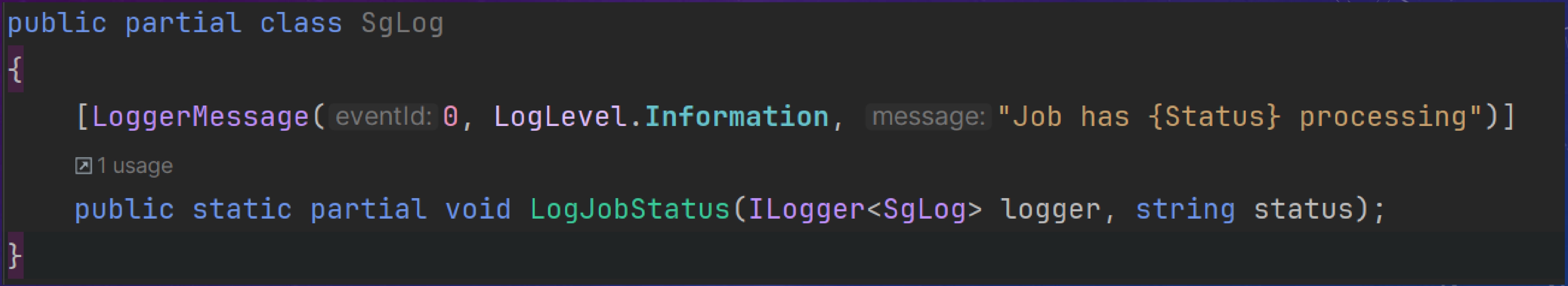
args – An object array that contains zero or more objects to format.

STRUKTURED LOG



```
catch(Exception ex)
{
    logger.LogError("Error: {Message}", ex.Message);
    throw;
}
```

SOURCE GENERATOR



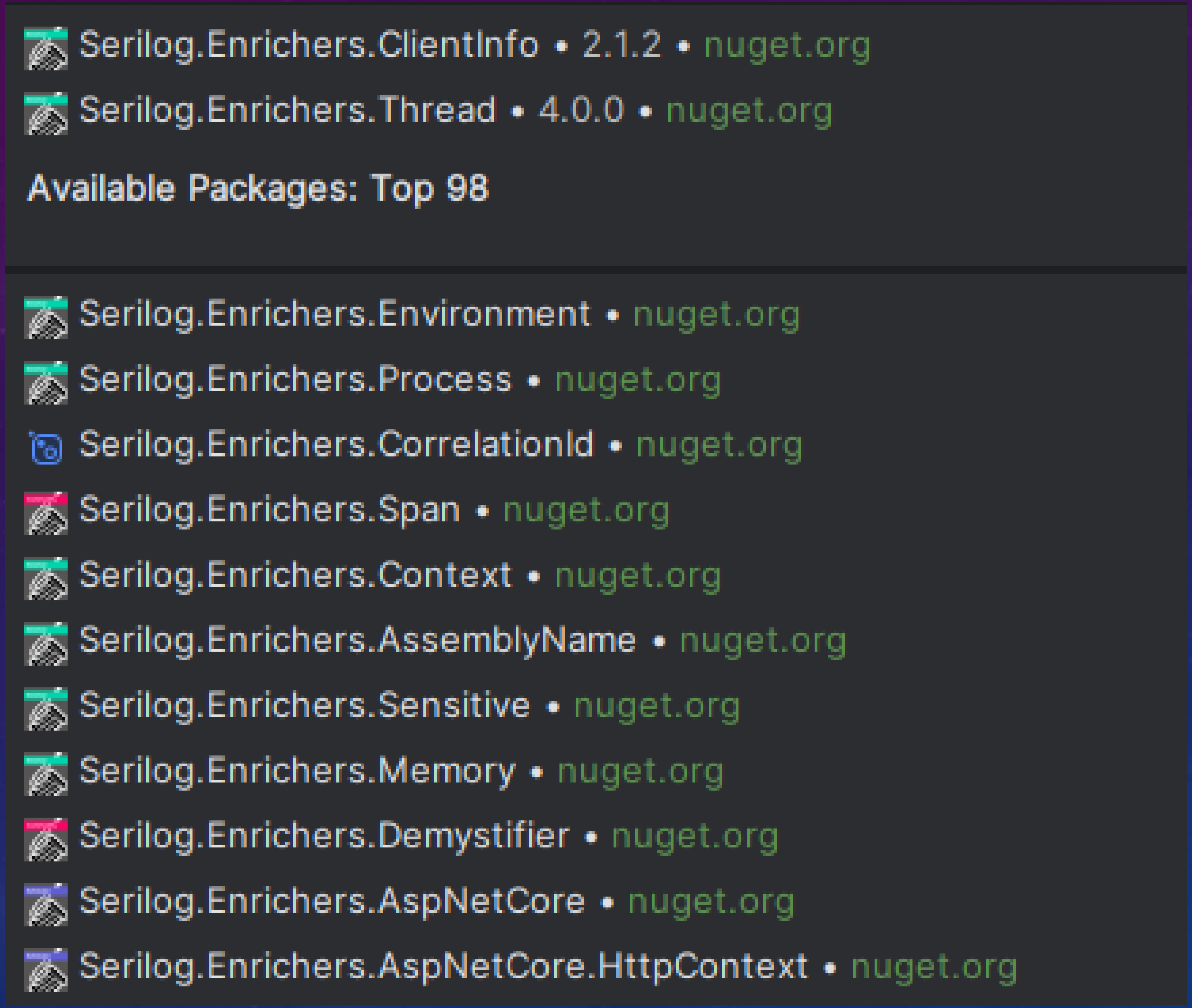
```
public partial class SgLog
{
    [LoggerMessage(eventId: 0, LogLevel.Information, message: "Job has {Status} processing")]
    1 usage
    public static partial void LogJobStatus(ILogger<SgLog> logger, string status);
}
```

SERILOG

https://github.com/serilog/serilog

https://serilog.net/

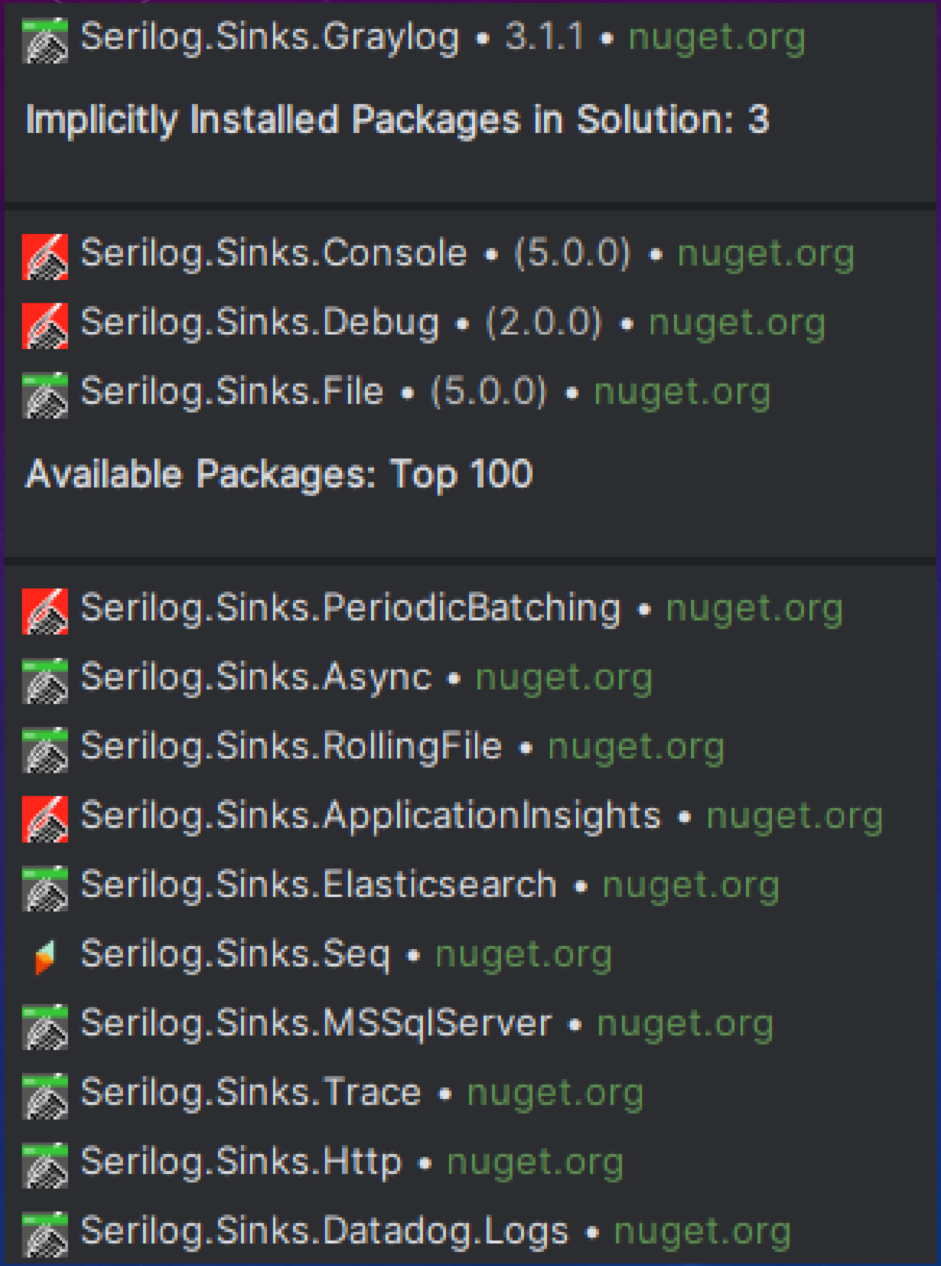
SERILOG


Serilog.Enrichers.ClientInfo • 2.1.2 • nuget.org
Serilog.Enrichers.Thread • 4.0.0 • nuget.org

Available Packages: Top 98

Serilog.Enrichers.Environment • nuget.org
Serilog.Enrichers.Process • nuget.org
Serilog.Enrichers.CorrelationId • nuget.org
Serilog.Enrichers.Span • nuget.org
Serilog.Enrichers.Context • nuget.org
Serilog.Enrichers.AssemblyName • nuget.org
Serilog.Enrichers.Sensitive • nuget.org
Serilog.Enrichers.Memory • nuget.org
Serilog.Enrichers.Demystifier • nuget.org
Serilog.Enrichers.AspNetCore • nuget.org
Serilog.Enrichers.AspNetCore.HttpContext • nuget.org

SERILOG


Serilog.Sinks.Graylog • 3.1.1 • nuget.org

Implicitly Installed Packages in Solution: 3

Serilog.Sinks.Console • (5.0.0) • nuget.org
Serilog.Sinks.Debug • (2.0.0) • nuget.org
Serilog.Sinks.File • (5.0.0) • nuget.org

Available Packages: Top 100

Serilog.Sinks.PeriodicBatching • nuget.org
Serilog.Sinks.Async • nuget.org
Serilog.Sinks.RollingFile • nuget.org
Serilog.Sinks.ApplicationInsights • nuget.org
Serilog.Sinks.Elasticsearch • nuget.org
Serilog.Sinks.Seq • nuget.org
Serilog.Sinks.MSSqlServer • nuget.org
Serilog.Sinks.Trace • nuget.org
Serilog.Sinks.Http • nuget.org
Serilog.Sinks.Datadog.Logs • nuget.org

WHAT TO CHOOSE?

Seq

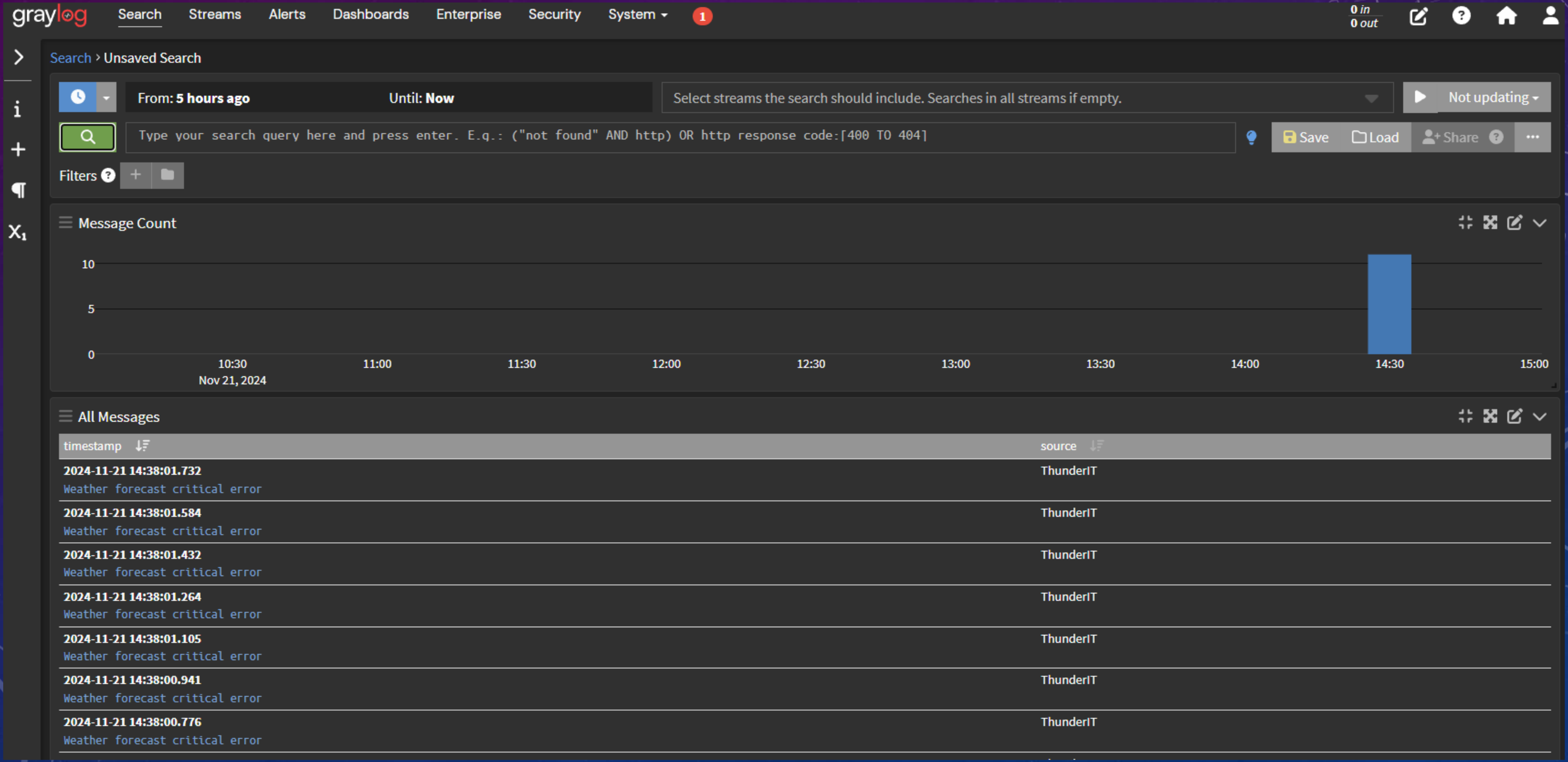
solarwinds LOGGLY®

Amazon CloudWatch

DATADOG

ENERGY LOGSERVER

GRAYLOG


graylog
Search
Streams
Alerts
Dashboards
Enterprise
Security
System
0 in
0 out
Search › Unsaved Search
From: 5 hours ago
Until: Now
Select streams the search should include. Searches in all streams if empty.
Not updating
Type your search query here and press enter. E.g.: ("not found" AND http) OR http response code:[400 TO 404]
Save
Load
Share
Filters
Message Count
All Messages

```
timestamp                     source
2024-11-21 14:38:01.732       ThunderIT
Weather forecast critical error
2024-11-21 14:38:01.584       ThunderIT
Weather forecast critical error
2024-11-21 14:38:01.432       ThunderIT
Weather forecast critical error
2024-11-21 14:38:01.264       ThunderIT
Weather forecast critical error
2024-11-21 14:38:01.105       ThunderIT
Weather forecast critical error
2024-11-21 14:38:00.941       ThunderIT
Weather forecast critical error
2024-11-21 14:38:00.776       ThunderIT
Weather forecast critical error
```

DEMO

Q&A

DZIĘKI ZA UWAGĘ ☺