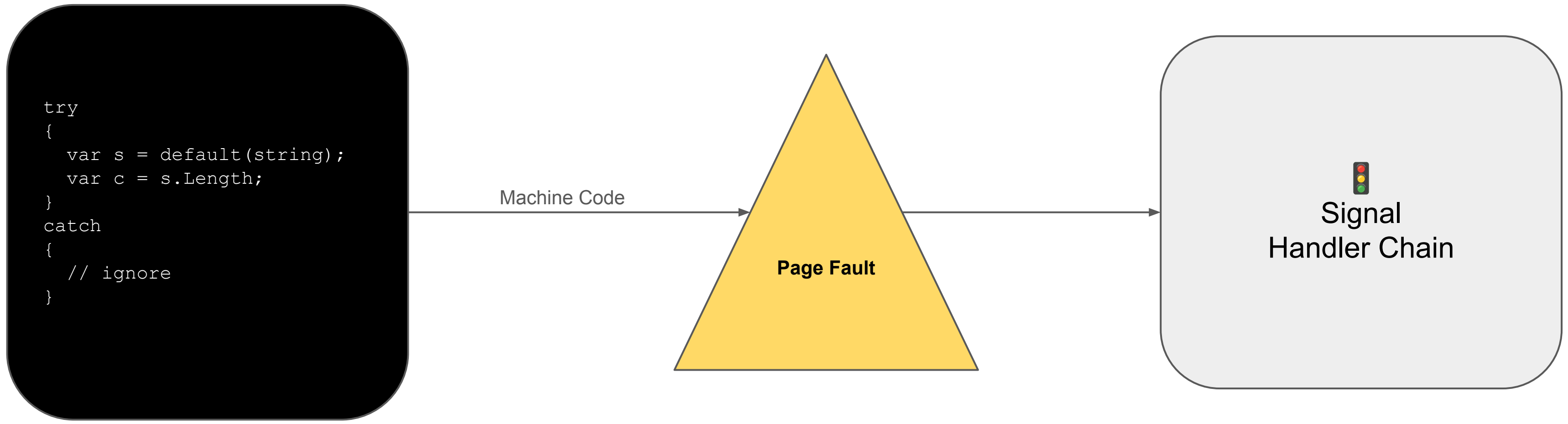
`NullReferenceException` in .NET applications compiled to Native code

From detailed analysis by supervacuus [here]

Native Compilation



```
try
{
  var s = default(string);
  var c = s.Length;
}
catch
{
  // ignore
}
```

Signal Handler Chain

Since the Native SDK installs its signal handler last, it will be the first in the signal chain.

- Other handlers
- .NET SDK
- Native SDK

↑ Order of execution

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SIGSEGV reported as native crash
(unaware it's running in the CLR)

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↑ Order of execution

Raises a managed code exception (NullReferenceException)

Signal Handler Chain

Since the Native SDK installs its signal handler last, it will be the first in the signal chain.

- ~~Other handlers~~
- .NET SDK
- Native SDK

Discontinues Signal Chain
(not reported in logcat)

↑ Order of execution

Attempted Solution

Theory

- Invoke the dotnet runtime handler before the NDK handler
- NDK handler would never execute for handled managed code exceptions
  - Only invoked if the runtime handler continues the signal chain (unintended CLR crash or native code crash)

- ~~Other handlers~~
- ~~Native SDK~~
- .NET SDK

↑ Order of execution

Discontinues Signal Chain

Attempted Solution

Reality

- Invoke the dotnet runtime handler before the NDK handler
- NDK handler still executes (even for handled managed code exceptions)

Unhandled SIGSEGV crashes the application ⚠️

- Other handlers
- Native SDK
- .NET SDK

↑ Order of execution