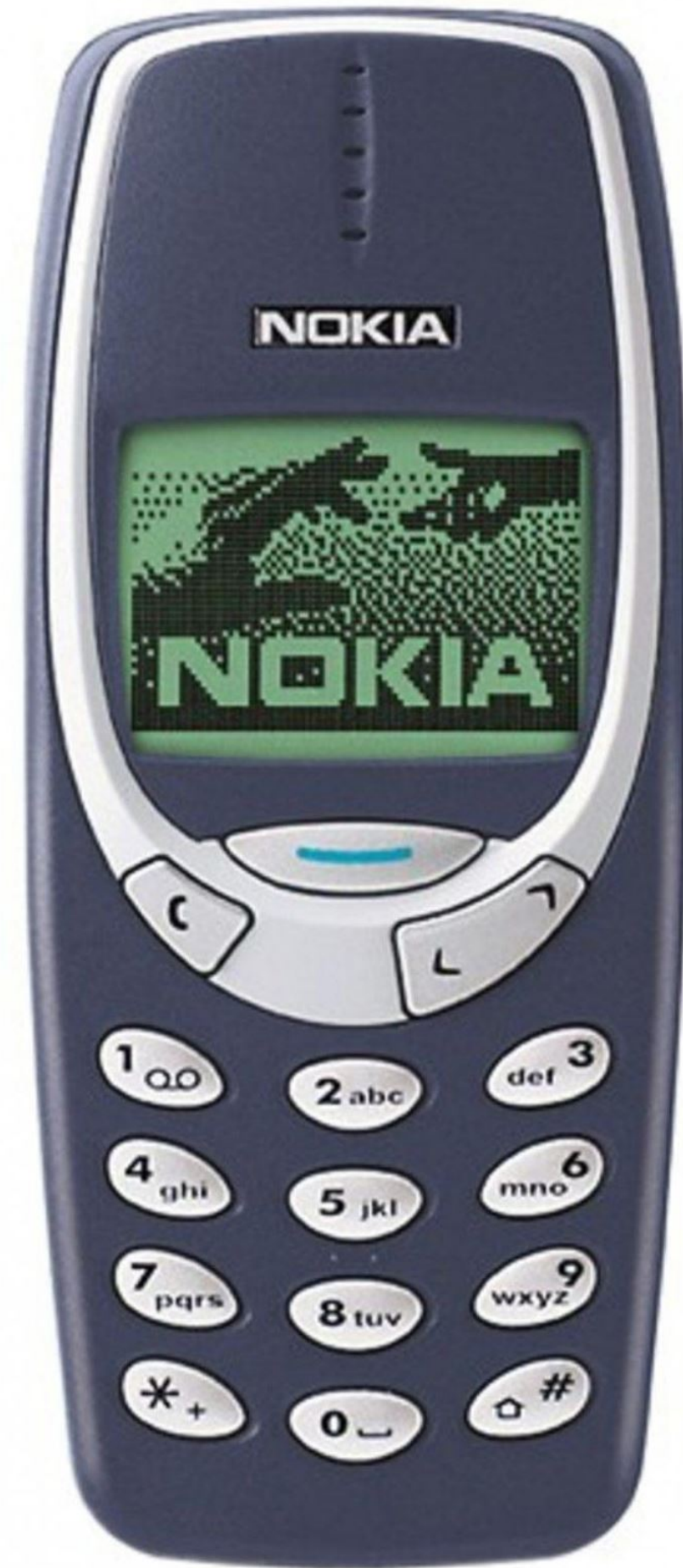


Defensive Programming*

```
let author = "Konstantin Portnov"  
let github = "github.com/x000ff"
```



* <https://en.wikipedia.org/wiki/GIGO>



Why Nokia 3310?

September 1, 2000



https://en.wikipedia.org/wiki/Nokia_3310

Iphone 6 plus



Nokia 3310



MEMESDE.COM

<http://images.ahoranoticias.cl/2017/02/14/190313758a32a404b519.jpg>



<http://i.computer-bild.de/imgs/4/3/7/6/7/3/8/Nokia-3310-745x559-37dcbd46bb4f4a7b.jpg>



http://www.panmedia.com.jm/files/images/blog/12-reasons-nokia-3310/nokia_3310.jpg



<http://i0.kym-cdn.com/photos/images/facebook/000/232/787/4aa.jpg>



<https://img.memecdn.com/nokia-3310-a-weapon195512.jpg>



<https://pics.me.me/iphone-samsung-nokia-3310-17000637.png>

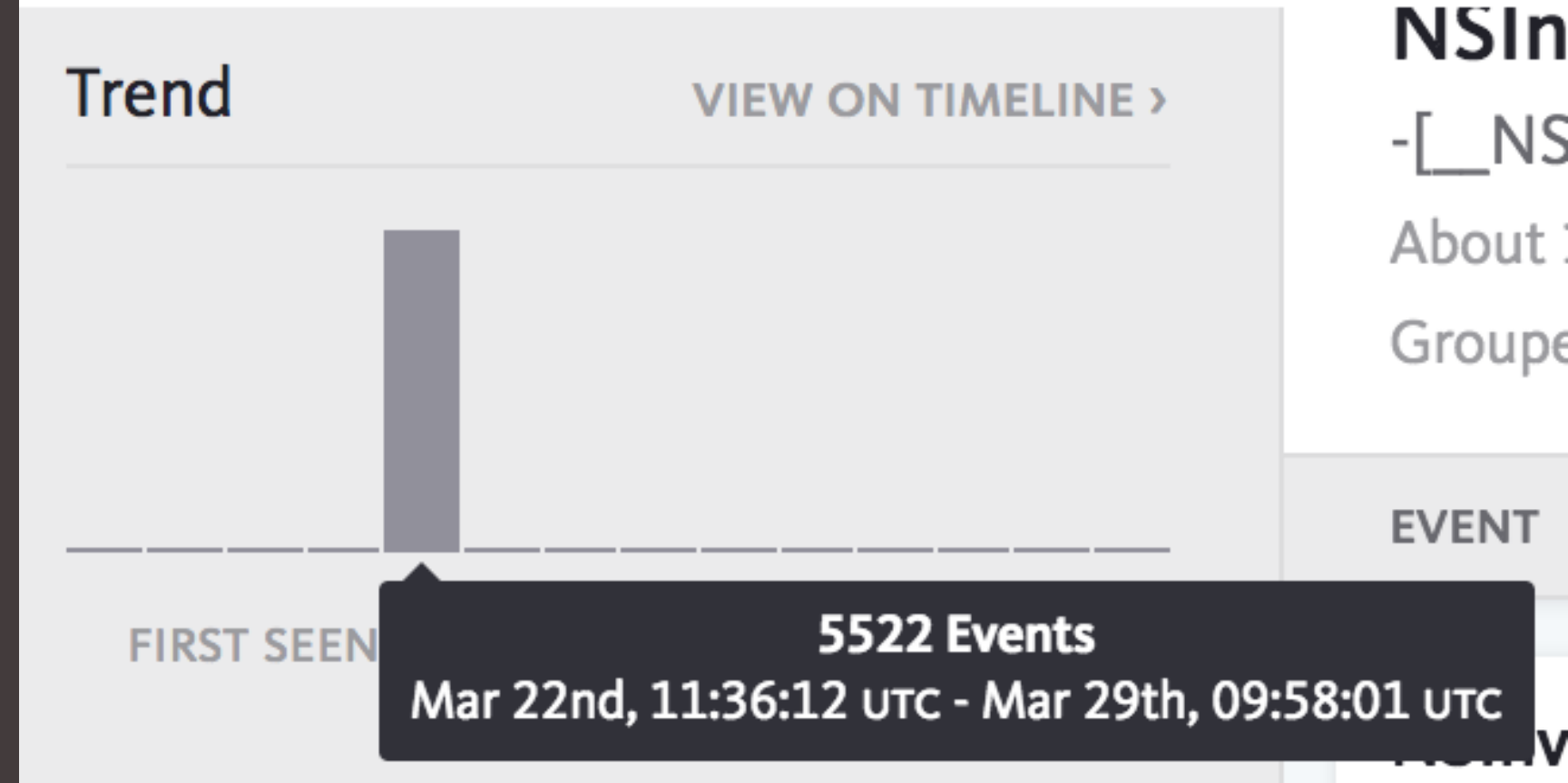
Why?



😱 5522 crashes

NSInvalidArgumentException

-[__NSCFConstantString containsString]:
unrecognized selector sent to instance 0x3b34bae0



JavaScript

TypeError </bugsnag/website-javascript/errors/57ffeb0f814a72381f6ae831>
Uncaught TypeError: Cannot read property 'toggle' of undefined
1 month ago · Oct 20th, 08:27:14 PST

STACKTRACE BREADCRUMBS APP DEVICE REQUEST USER COUNTS SCRIPT AD

TypeError · Uncaught TypeError: Cannot read property 'toggle' of undefined

webpack:///js/dashboard/components/pivot_tabs.jsx:80 · e.onTabClick

```
77   this.context.router.push(path);
78
79   // Close the dropdown, once they pick a new tab to look at
80   this.refs.dropdown.toggle(false);
81 },
82
83 getTarget() {
```

webpack:///~/react/lib/ReactErrorUtils.js:26 · Object.r

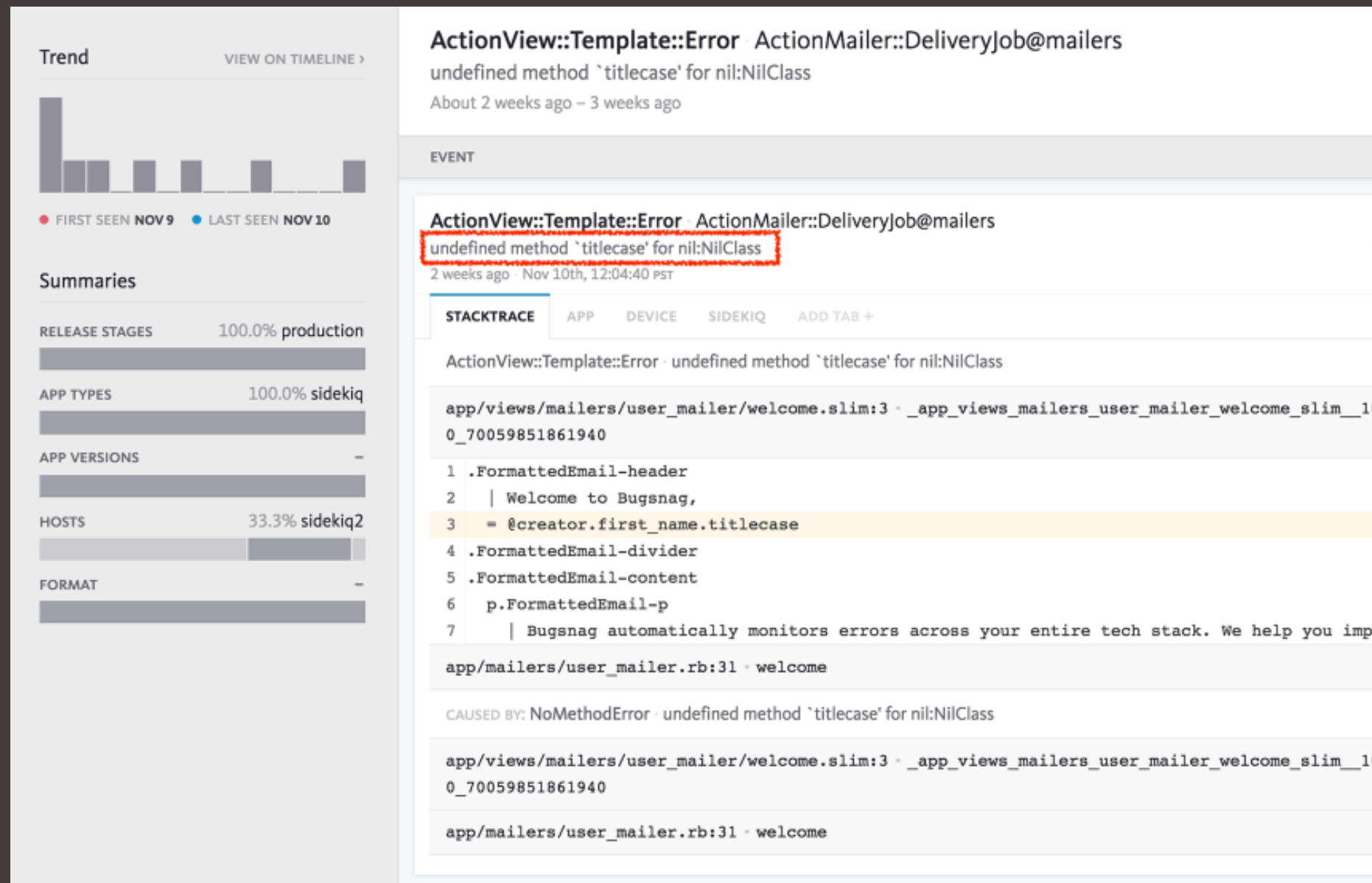
webpack:///~/react/lib/EventPluginUtils.js:89 · executeDispatch

webpack:///~/react/lib/EventPluginUtils.js:109 · Object.u

webpack:///~/react/lib/EventPluginHub.js:44 · executeDispatchesAndRelease

webpack:///~/react/lib/EventPluginHub.js:55 · executeDispatchesAndReleaseTop

Ruby





What's the problem?

Part of JSON response for API `/messages`

Incorrect	Correct
<pre>1 [2 { 3 "title": "Product 1" 4 }, 5 [6 { 7 "title": "Product 2" 8 } 9], 10 { 11 "title": "Product 3" 12 } 13]</pre>	<pre>1 [2 { 3 "title": "Product 1" 4 }, 5 { 6 "title": "Product 2" 7 }, 8 { 9 "title": "Product 3" 10 } 11] 12 13</pre>

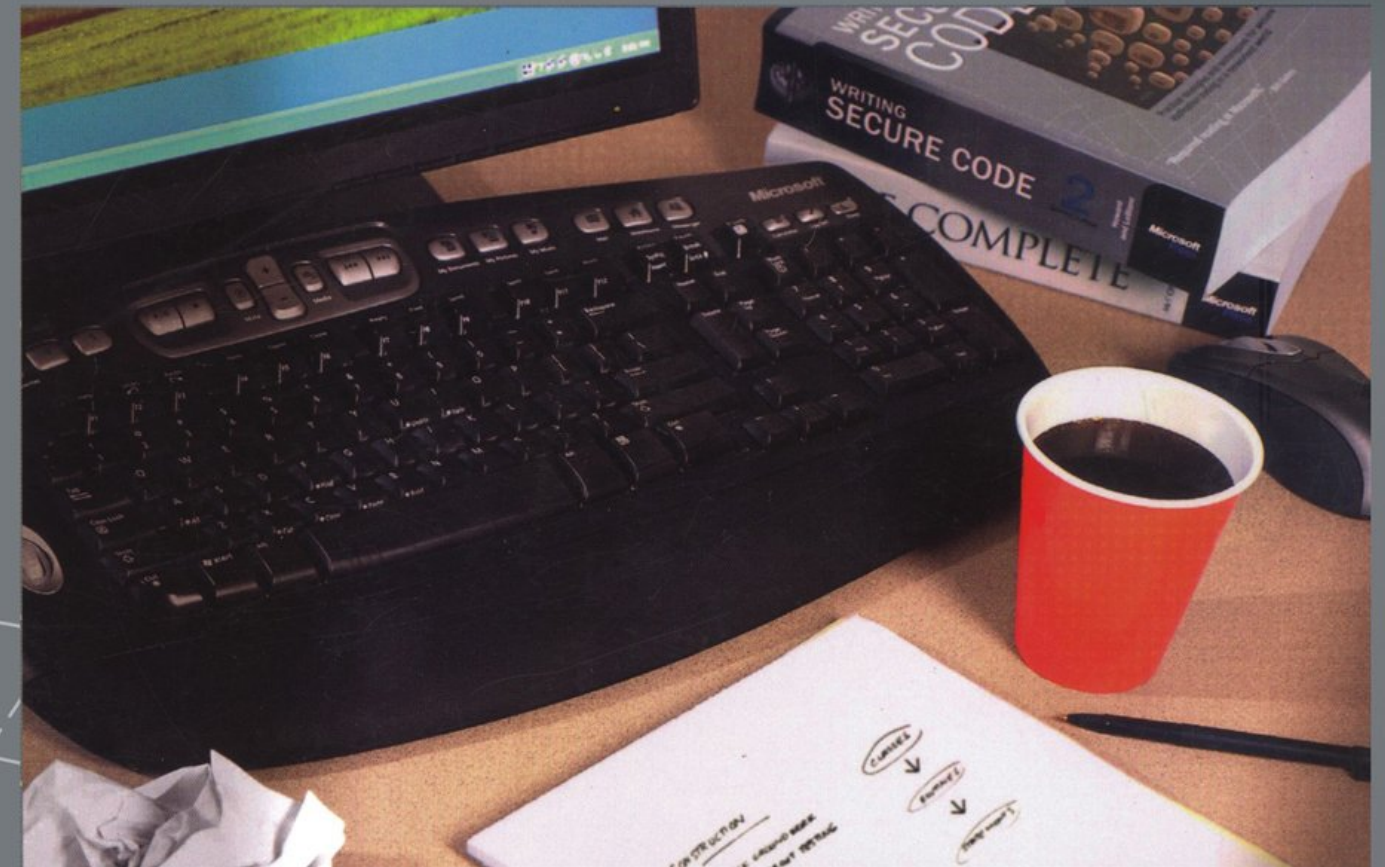


CODE COMPLETE

2
Second Edition

Code Complete

Steve McConnell



A practical handbook of software construction

Steve McConnell

Two-time winner of the *Software Development Magazine* Jolt Award

Microsoft

LOW-COST EDITION
For Sale in INDIA, SRILANKA, NEPAL, BHUTAN,
BANGLADESH, MALDIVES and PAKISTAN only.

Do Not Ignore Errors & Warnings

- ▶ ⚠ Empty paragraph passed to '@return' command
- ▶ ⚠ '@return' command used in a comment that is attached to a method returning void
- ▶ ⚠ Empty paragraph passed to '@return' command
- ▶ ⚠ Parameter 'tryHidden' not found in the function declaration
- ▶ ⚠ Empty paragraph passed to '@param' command
- ▶ ⚠ Parameter 'paymentMethod' not found in the function declaration
- ▶ ⚠ Parameter 'a' not found in the function declaration
- ▶ ⚠ Parameter 'location' not found in the function declaration
- ▶ ⚠ Parameter 'The' not found in the function declaration
- ▶ ⚠ Parameter 'view' not found in the function declaration
- ▶ ⚠ Unused variable 'weakSelf'
- ▶ ⚠ Capturing 'self' strongly in this block is likely to lead to a retain cycle



“The whole point of defensive programming is guarding against errors you don’t expect”

– Page 197, “Code Complete”

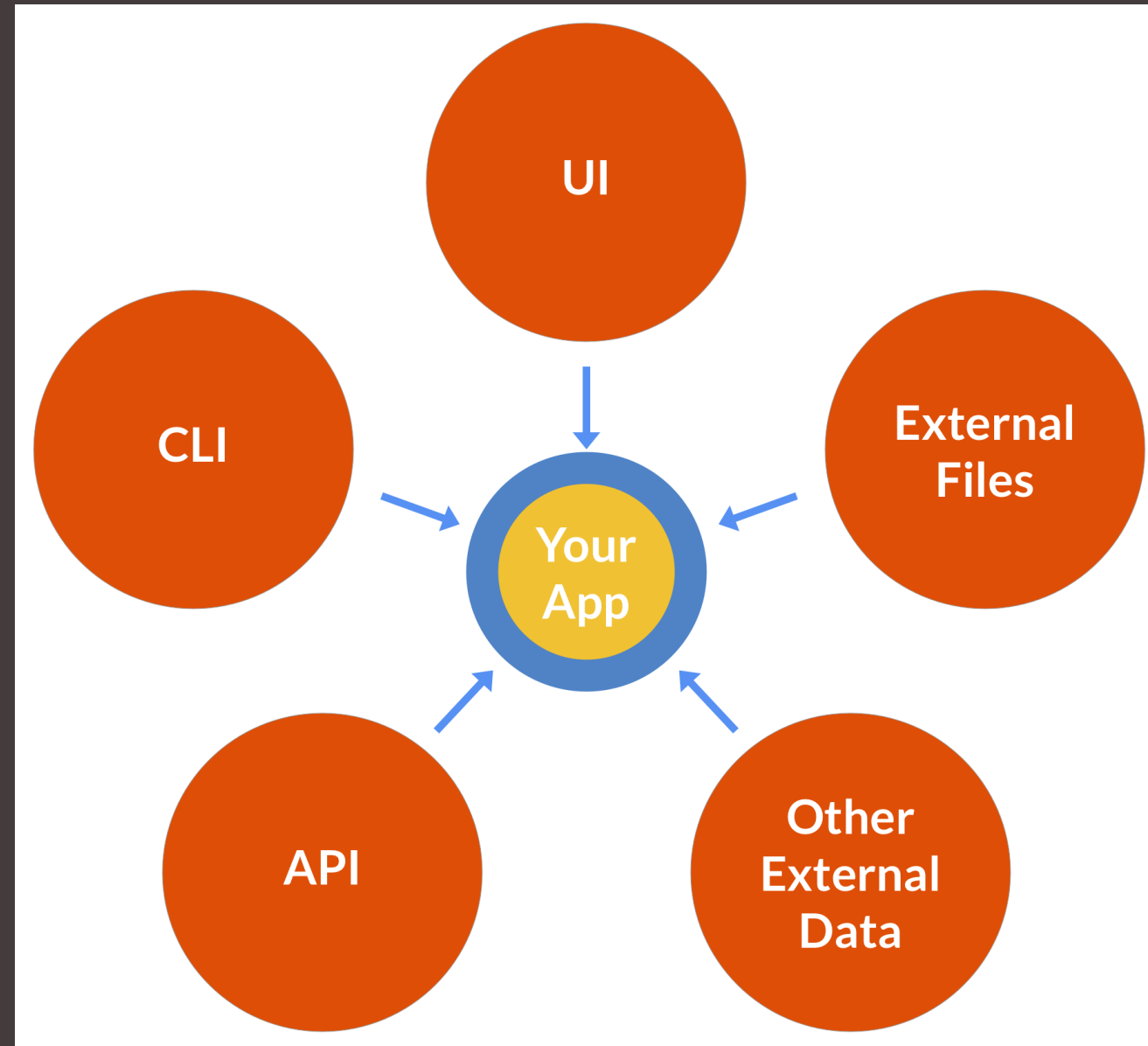


Check Input Data

Check Input Data



Check Input Data





“Barricade Your Program to Contain the Damage Caused by Errors”.

– Page 203, “Code Complete”

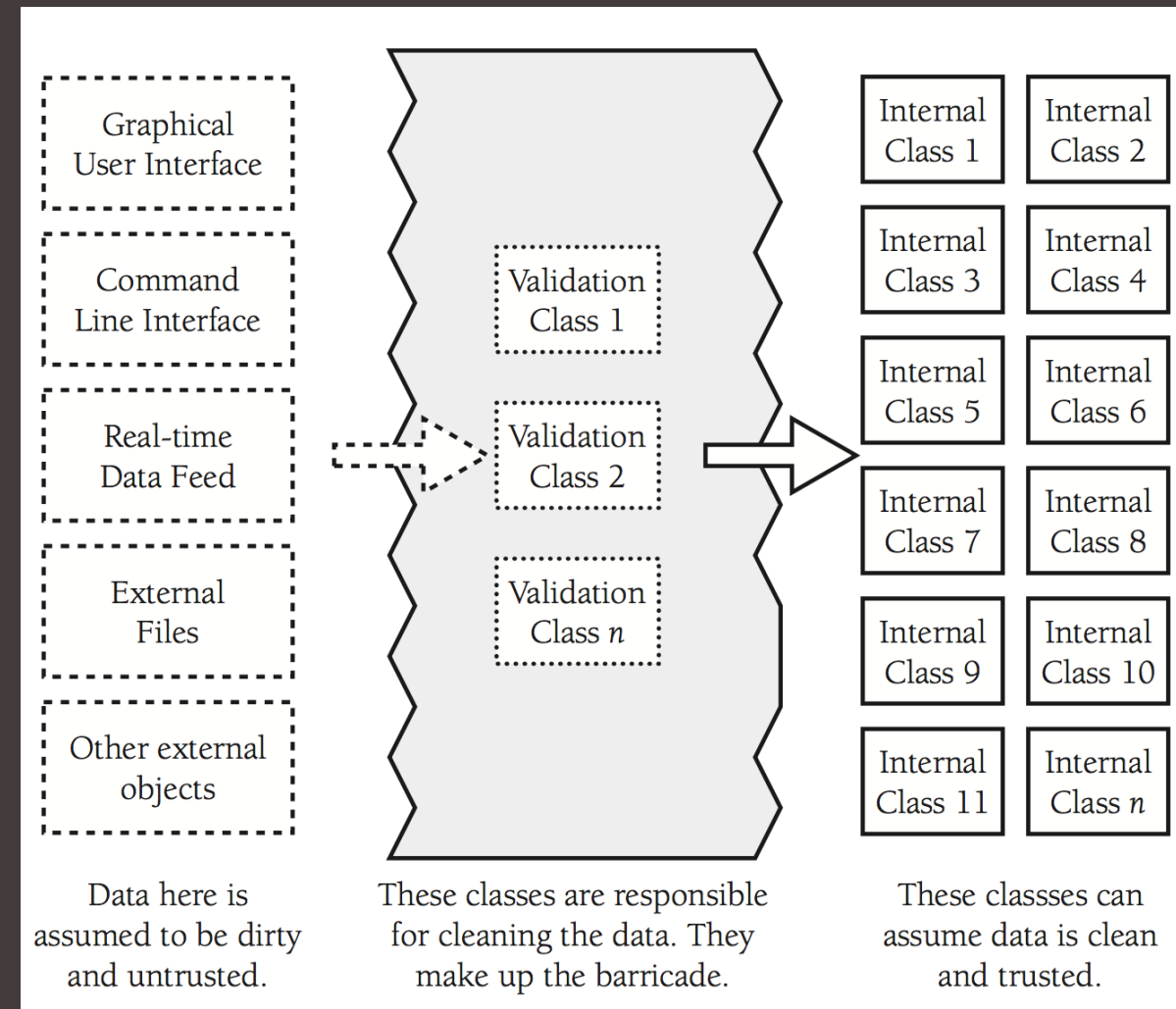


Create Safe Areas

Barricades are a damage-containment strategy.

One way to barricade for defensive programming purposes is to designate certain interfaces as boundaries to “safe” areas. Check data crossing the boundaries of a safe area for validity, and respond sensibly if the data isn’t valid.

Create Safe Areas*



* <https://en.wikipedia.org/wiki/GIGO>

Convert input data to the proper type at input time

External	Internal
JSON	Model Object
"ok"	true
"failed"	false
"4.300"	4.3
"3 USD"	{ [Amount] Value: 3; Currency: USD }



GIGO

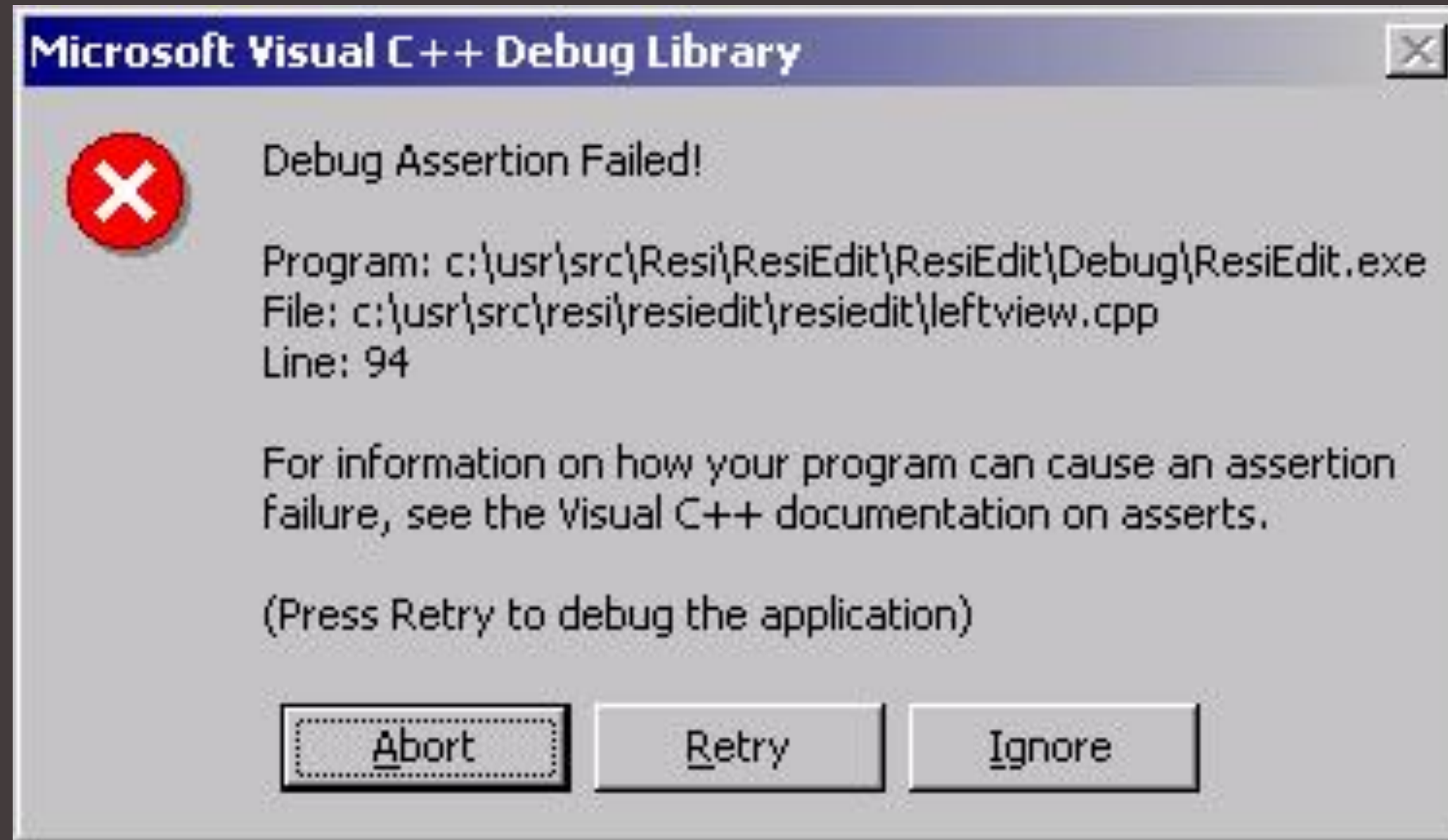


GIGO*

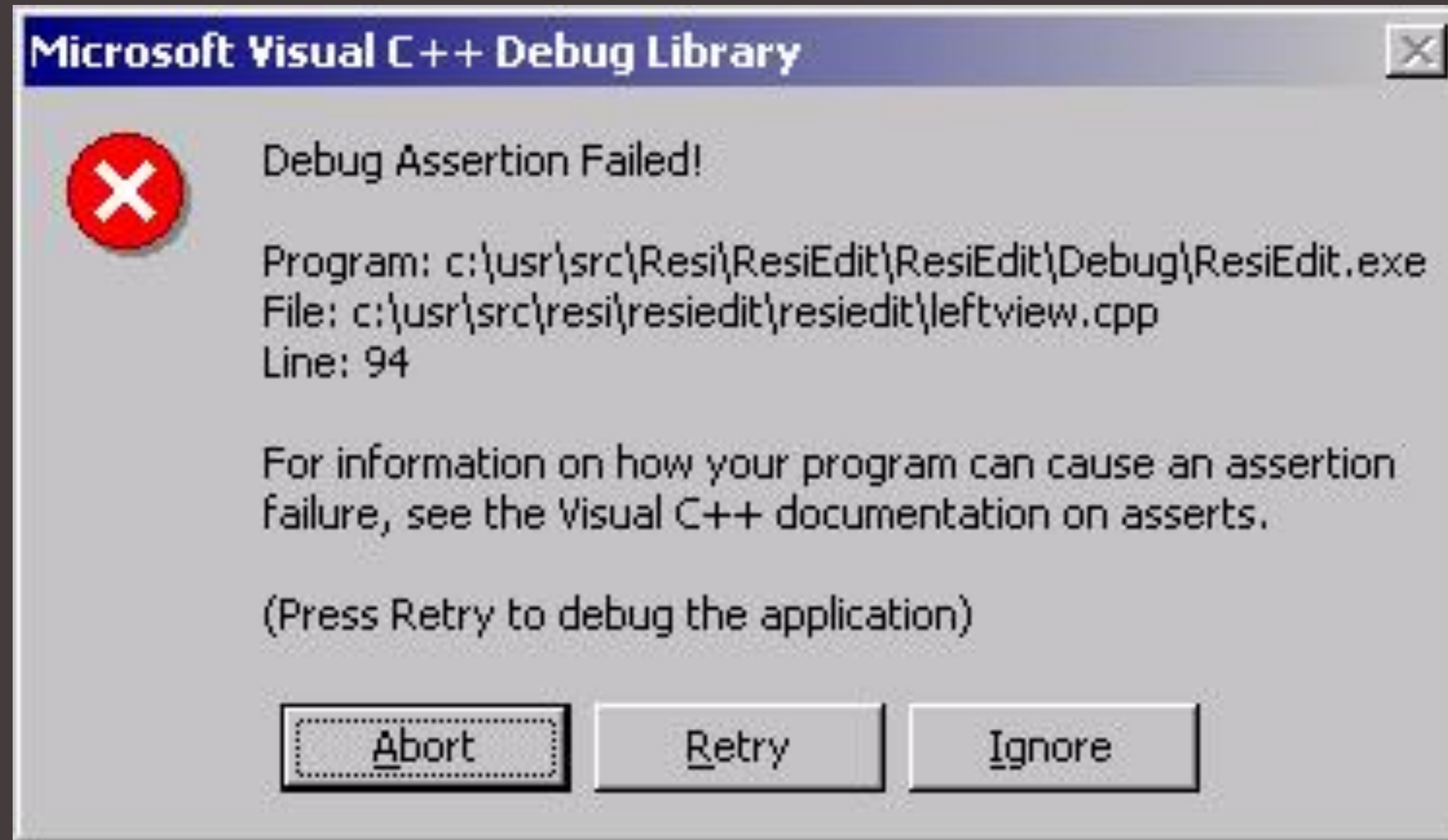
**Garbage IN
Garbage OUT**

* <https://en.wikipedia.org/wiki/GIGO>

No one crash in Production



But! Make errors annoying



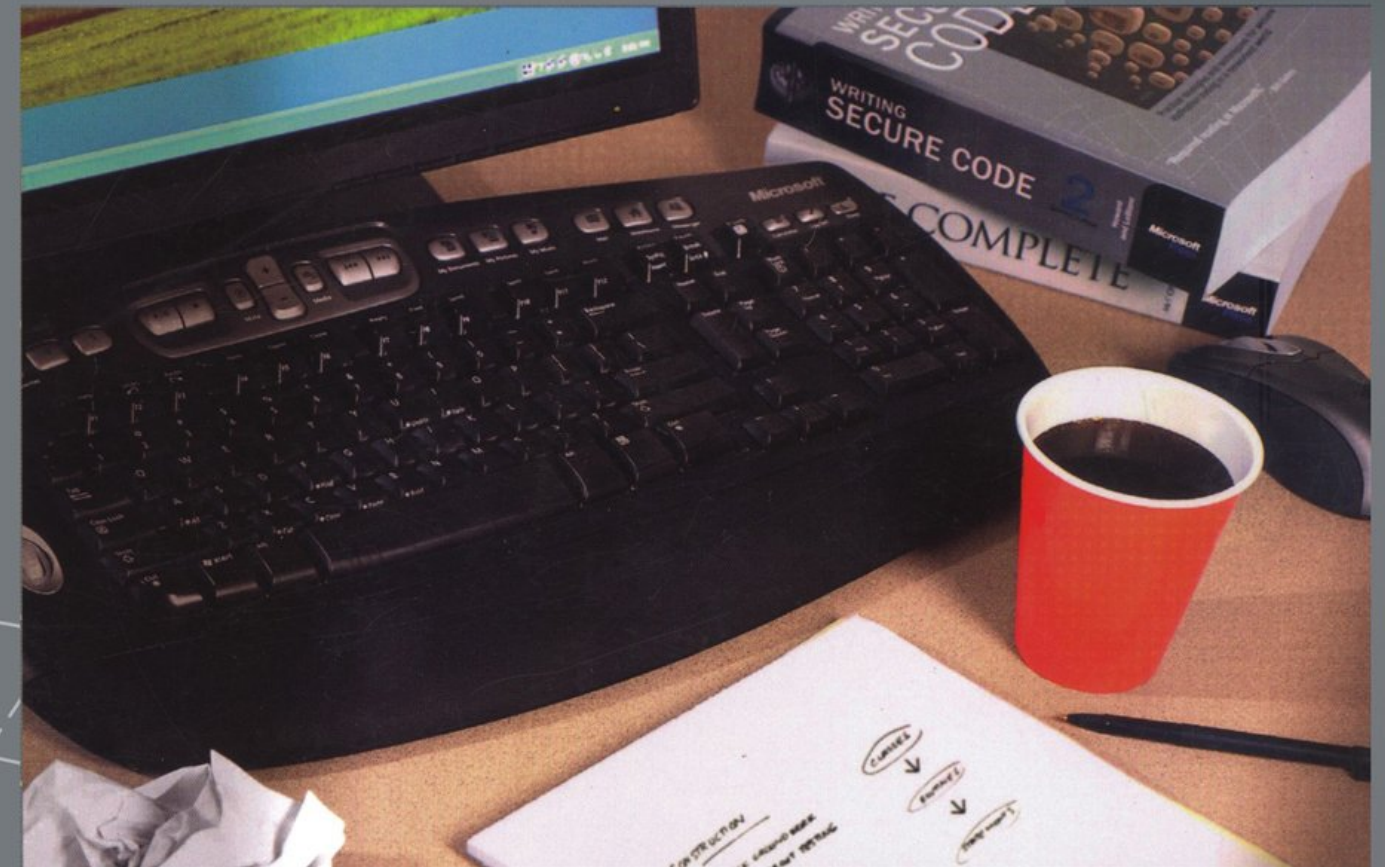
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Chapter 8: Defensive Programming



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Q & A



Thanks a lot!



Me...

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This Presentation



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