

Joker<?>

Семь смертных грехов разработчика

и как с ними бороться

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- <https://github.com/godin>

sonarsource 

The SonarSource logo consists of the word "sonarsource" in a bold, black, sans-serif font. To the right of the text is a graphic element composed of three red curved lines of varying lengths, creating a sense of motion or sound.

Disclaimer

// TODO: don't forget to add huge disclaimer that all opinions
hereinbelow are my own and not my employers (they wish
they had them)

В идеале

“A well-written program is a program where the cost of implementing a feature is constant throughout the program's lifetime.”

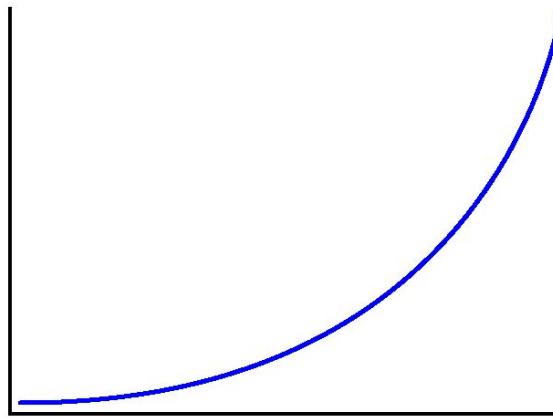


Itay Maman

На практике

“Чем дальше в лес, тем толще партизаны.”

Народная мудрость



Хочется как лучше, а получается...



Технический долг

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Технический долг

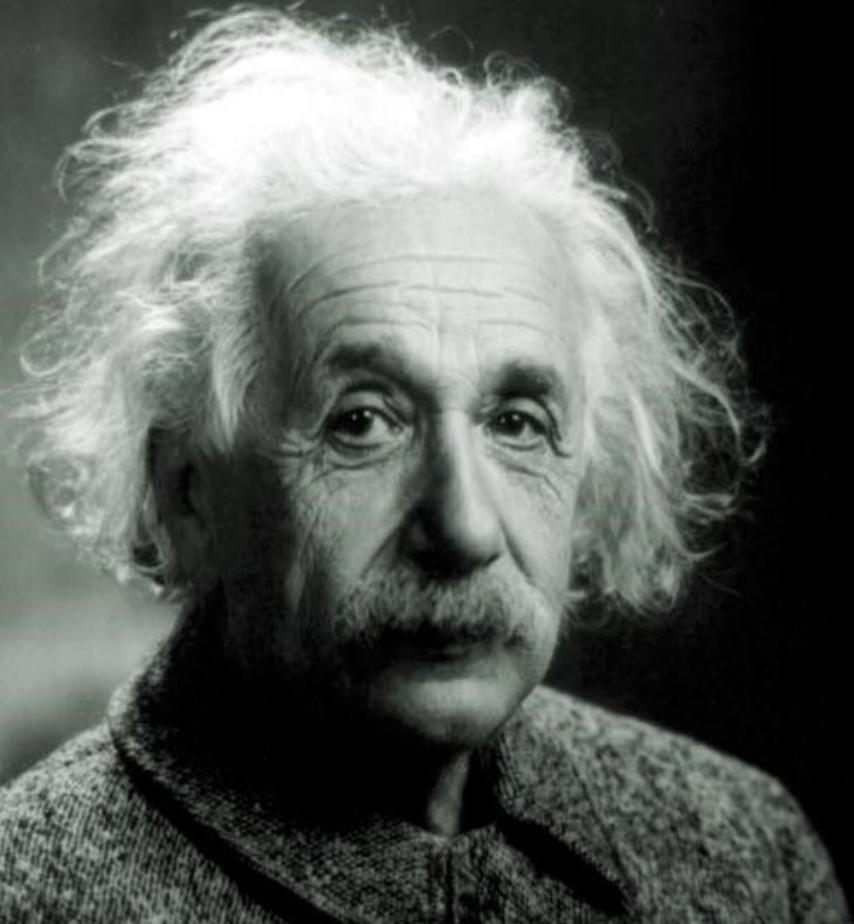
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7 смертных грехов разработчика

```
class SomethingComparator implements Comparator<Something> {  
    public int compare(Something o1, Something o2) {  
        if (o1.f1 < o2.f2) {  
            return -1;  
        } else {  
            if (o1.f1 == o2.f1) {  
                if (o1.f2 < o2.f2) {  
                    return -1;  
                } else {  
                    if (o1.f2 == o2.f2) {  
                        return 0;  
                    } else {  
                        return 1;  
                    }  
                }  
            } else {  
                return 1;  
            }  
        }  
    }  
}
```

Distribution of complexity



“Everything should be made as simple as possible. But not simpler.”

“If you can't explain it simply, you don't understand it well enough.”

Albert Einstein

Distribution of complexity

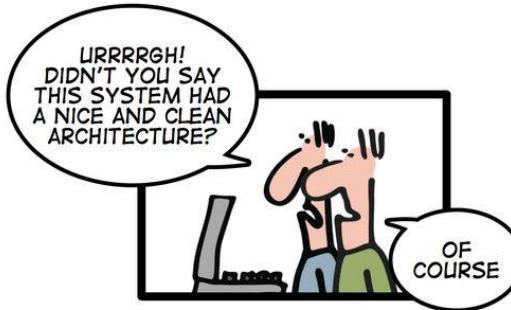
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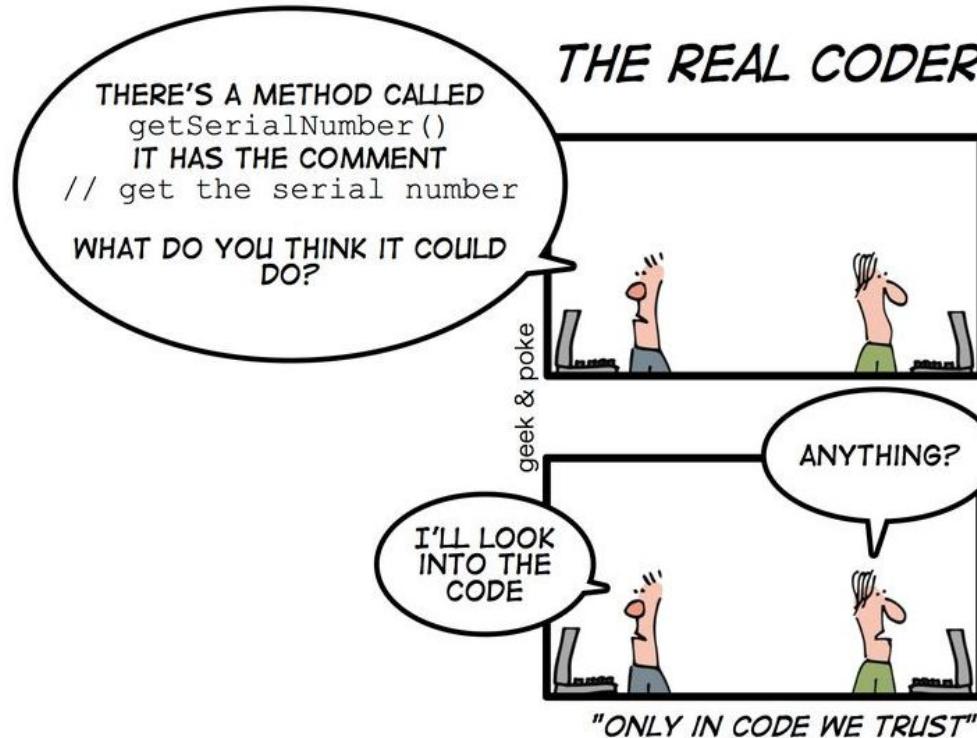
Keep It

- Simple, Stupid
- Short & Simple
- Super Simple

Spaghetti design



Comments

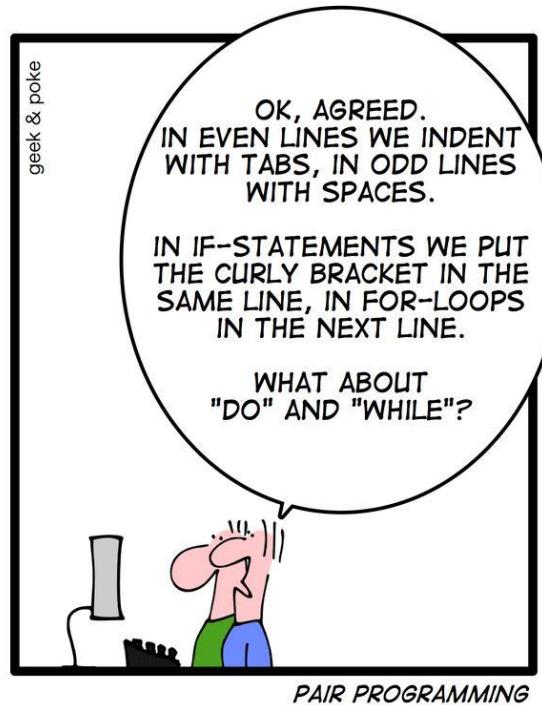


Comments

```
/**  
 * Always returns true.  
 *  
 */  
public boolean isAvailable() {  
    return false  
}
```

```
/**  
 * Returns the counter.  
 * @return counter  
 */  
public int getCounter() {  
    return counter;  
}
```

Coding standards



Coding standards

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“Any fool can write code that a computer can understand.
Good programmers write code that humans can understand.”

Martin Fowler

Coding standards

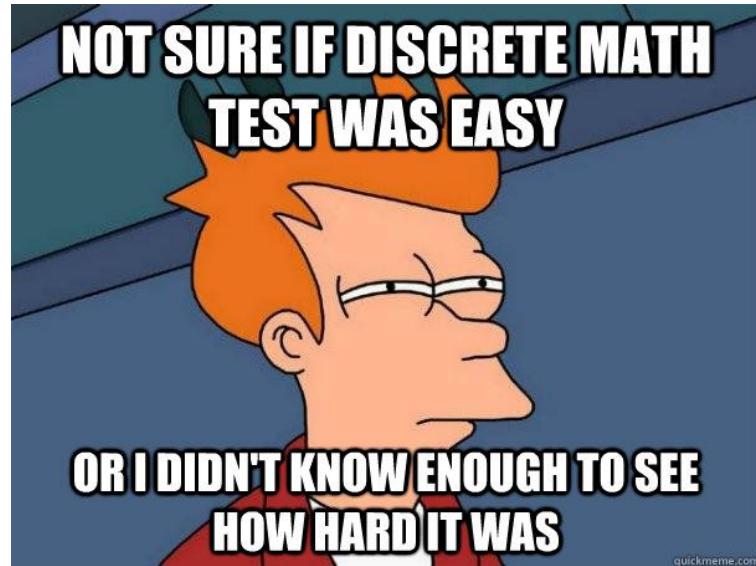
```
OSStatus SSLVerifySignedServerKeyExchange(...) {
    if ((err = SSLHashSHA1.update(&hashCtx, &signedParams)) != 0)
        goto fail;
    goto fail;
    // other checks...
fail:
    // cleanup...
    return err;
}
```

Code coverage

```
AgentOptions createAgentOptions() {  
    final AgentOptions agentOptions = new AgentOptions();  
    agentOptions.setDestfile(getDestFile().getAbsolutePath());  
    ◆ if (append != null) {  
        agentOptions.setAppend(append.booleanValue());  
    }  
    ◇ if (getIncludes() != null && !getIncludes().isEmpty()) {  
        final String agentIncludes = StringUtils.join(getIncludes()  
            .iterator(), ":";  
        agentOptions.setIncludes(agentIncludes);  
    }  
    ◇ if (getExcludes() != null && !getExcludes().isEmpty()) {  
        final String agentExcludes = StringUtils.join(getExcludes()  
            .iterator(), ":";  
        agentOptions.setExcludes(agentExcludes);  
    }  
    ◆ if (exclClassLoaders != null) {  
        agentOptions.setExclClassloader(exclClassLoaders);  
    }  
    ◇ if (inclBootstrapClasses != null) {  
        agentOptions.setInclBootstrapClasses(inclBootstrapClasses  
            .booleanValue());  
    }  
}
```

Code coverage

```
class MyMath {  
    static int sum(int a, int b) {  
        return a - b;  
    }  
}  
  
class MyMathTest {  
    @Test  
    public void test() {  
        MyMath.sum(0, 0);  
    }  
}
```

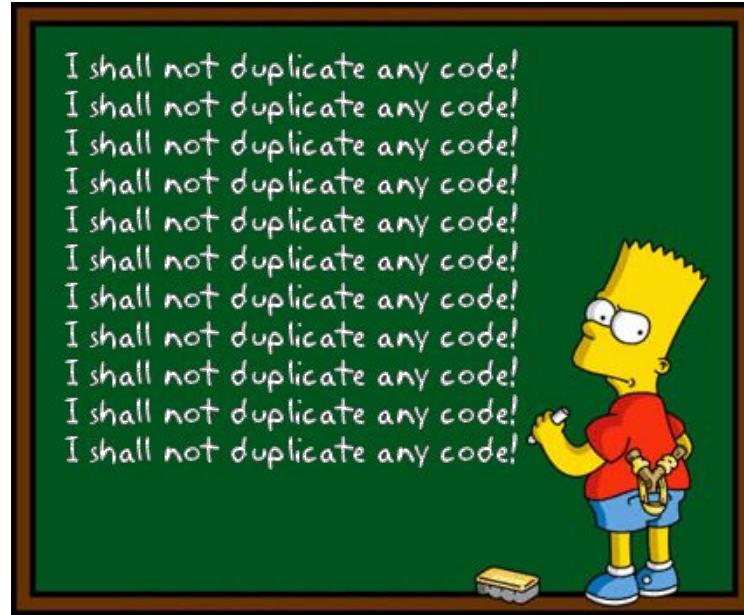


Potential bugs

```
package java.util;

public final class Formatter {
    // ...
    public String toString() {
        StringBuilder sb = new StringBuilder('%');
        // 11 lines...
        return sb.toString();
    }
    // ...
}
```

Duplicated code



Duplicated code

```
namespace Microsoft.CodeAnalysis.CSharp.Syntax
{
    private bool NeedsSeparator(SyntaxToken token, SyntaxToken next) {
        // ...
        if (IsXmlTextToken(token.Kind()) || IsXmlTextToken(next.Kind()))
        {
            return false;
        }
        // ...
    }
}
```

7 смертных грехов разработчика

1. distribution of complexity
2. spaghetti design
3. not enough or too many comments
4. coding standards not respected
5. not enough tests
6. potential bugs
7. duplicated code

Теория разбитых окон

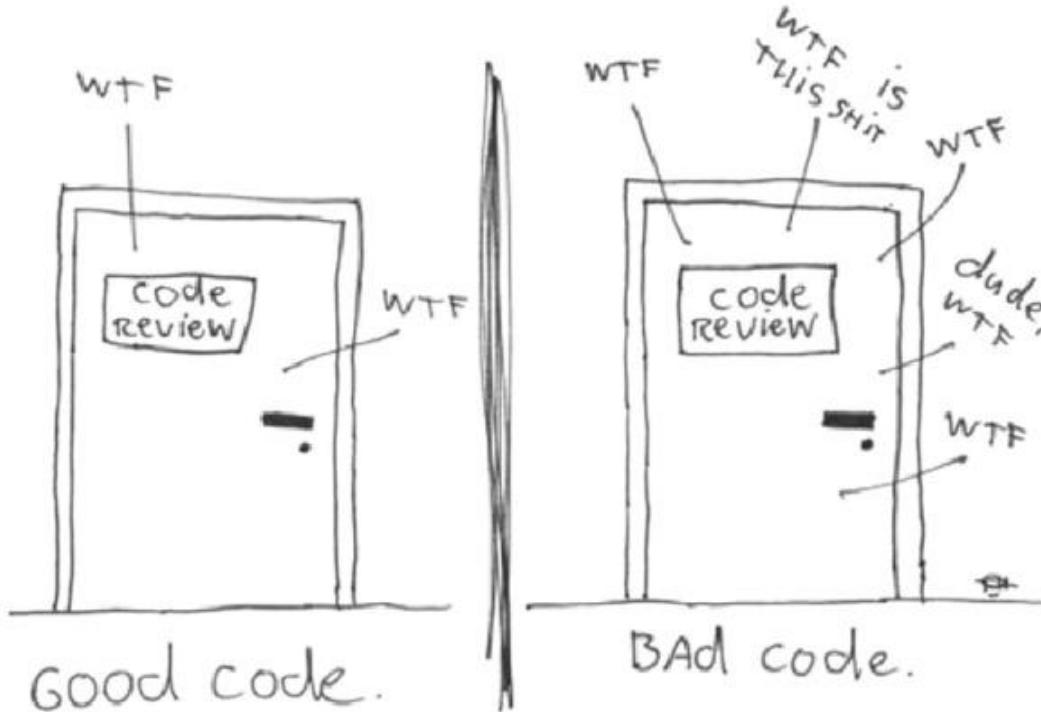
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“You can't manage what you can't measure.”

W. Edwards Deming

The ONLY VALID MEASUREMENT OF Code QUALITY: WTFs/minute



Метрики

- Size (NCLoC, ...)
- Complexity (cyclomatic, essential, ...)
- Coverage (lines, branches, conditions, ...)
- Duplications (lines, blocks, ...)
- Design (LCOM, ...)
- ...

Динамический анализ

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<http://jacoco.org/>



<http://pitest.org/>

Статический анализ

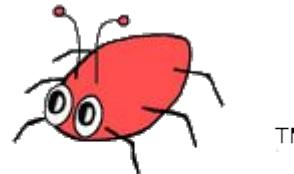
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<http://checkstyle.sourceforge.net/>



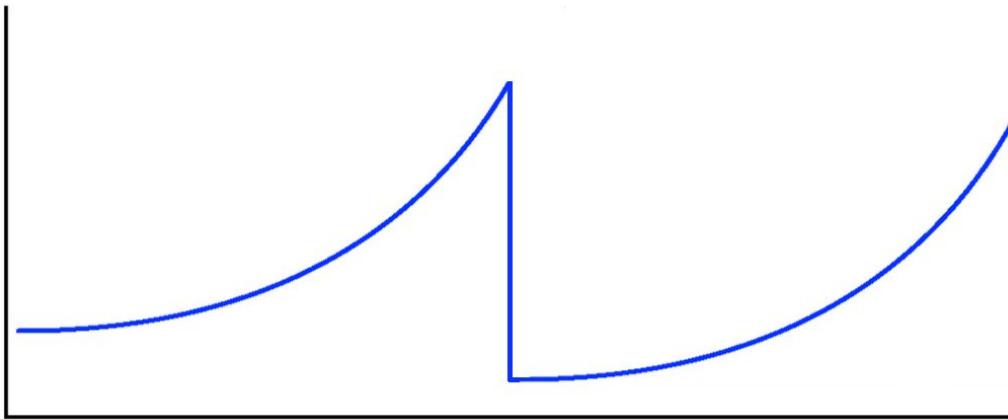
<https://pmd.github.io/>



<http://findbugs.sourceforge.net/>

Ок, применяем

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Water leak

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Непрерывная инспекция

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Правило бойскаута

“Always code as if the person who ends up maintaining your code is a violent psychopath who knows where you live.”

John F. Woods

Leave the code cleaner than you found it.

