

Code Review Practices

Prof. Dr. Dirk Riehle

Friedrich-Alexander University Erlangen-Nürnberg

AMOS F01

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Traditional to Scrum Role Mapping (Recap)

Traditional

Scrum

Product Manager

Product Owner

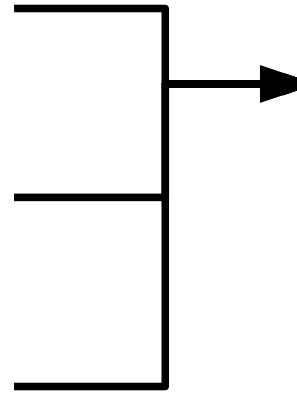
Engineering Manager

Software Developer

QA Engineer

Software Developer

Scrum Master



- Definition and purpose
 - “Code review is systematic examination [...] of computer source code.
 - It is intended to find and fix mistakes overlooked in the initial development phase,
 - improving both the overall quality of software
 - and the developers’ skills.
 - Reviews are done in various forms such as
 - pair programming,
 - informal walkthroughs, and
 - formal inspections.” [1]

[1] Adapted from https://en.wikipedia.org/wiki/Code_review [DR]

When to Review Code?

- 1. In the moment**
- 2. Before commit**
3. At another time
4. Before release

Pair Programming

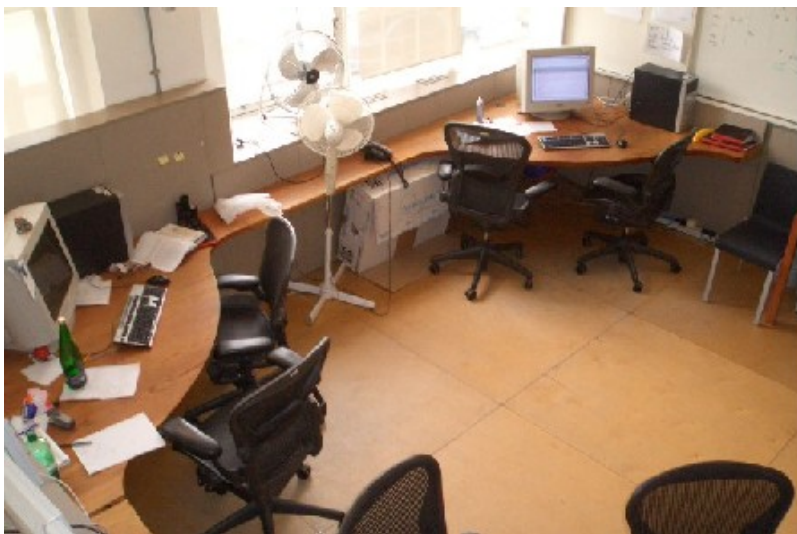
- Definition
 - Is programming carried out by pairs of programmers
 - One programmer implements, and the other programmer reviews
 - Effectiveness is debated; empirical studies show conflicting evidence
- Purpose
 - Quality assurance
 - Collaborative learning
 - Knowledge sharing
- Synonyms
 - Programmer and reviewer
 - Driver and co-driver
 - Pilot and navigator

- 1. Pair programming**
- 2. Pre-commit code review**

Pair Programming (Practices)

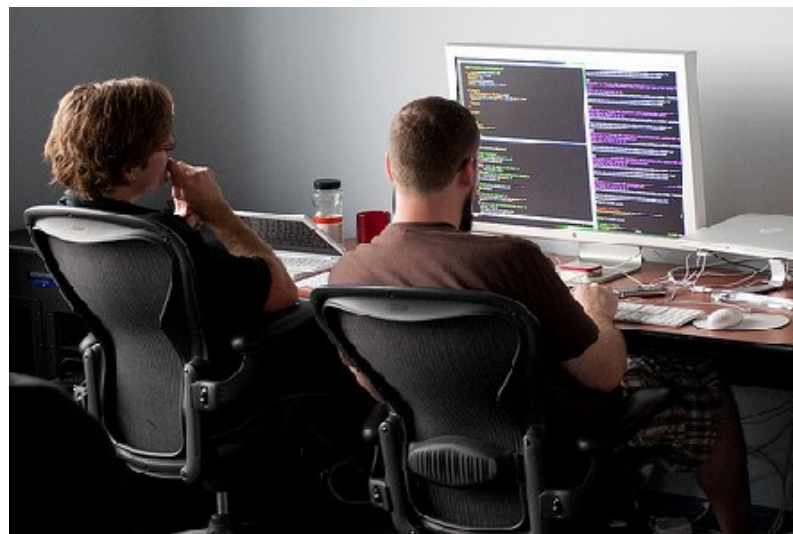
- **Process**

- Find comfortable partner
- Switch roles often
- Communicate regularly



- **Advice**

- Don't force it for small stuff
- Don't overheat, take a break
- Switch partners at times



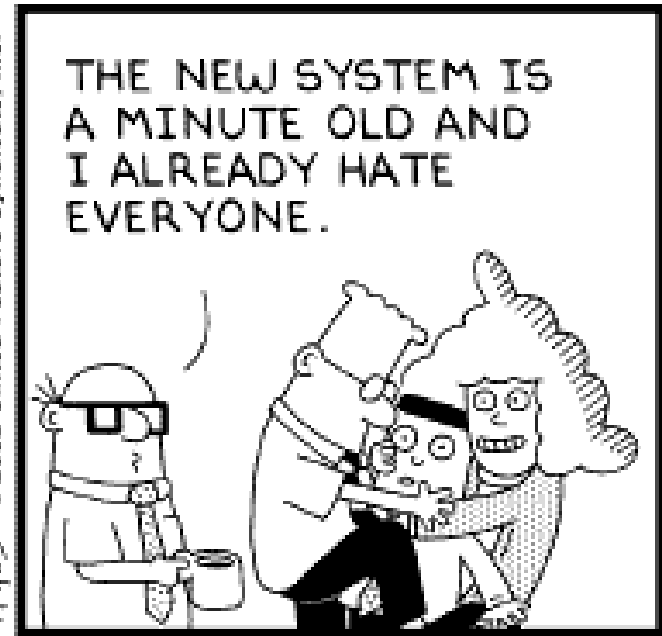
Dilbert on Pair Programming 1 / 2



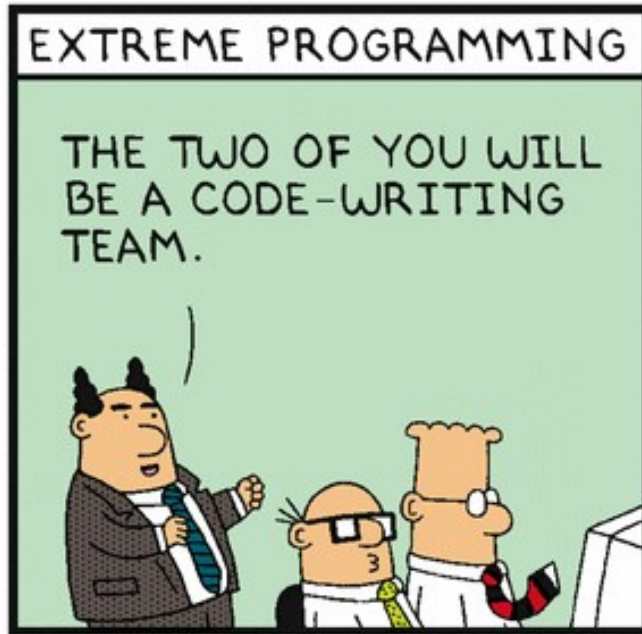
www.dilbert.com scottadams@edl.com



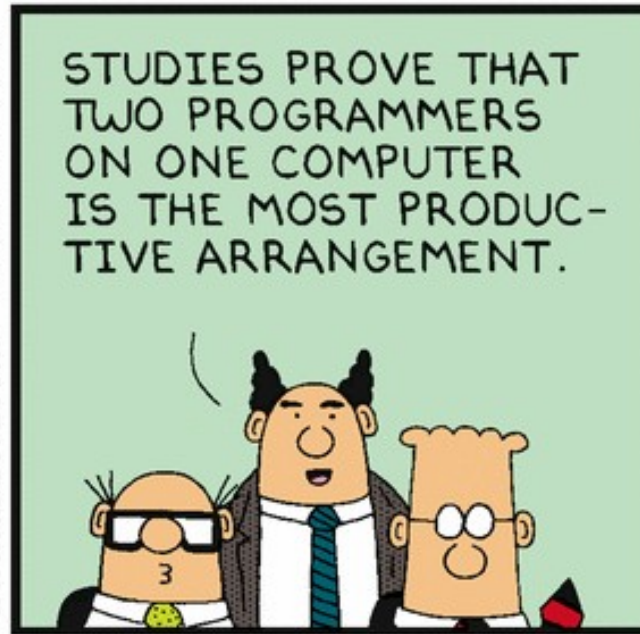
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Dilbert on Pair Programming 2 / 2



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Pre-Commit Code Review

- Code review
 - Is the (peer) review of source code for quality criteria
 - Reviewer has accept or reject responsibility
 - Cf. “Vier-Augen-Prinzip” (in German)
- Pre-commit code review
 - Is the review of source code before it gets committed to a team repository
 - Typically facilitated by a software tool, e.g. Gerrit
 - May lead to back and forth between developers until “LGTM”

Example Code Review with Gerrit 1 / 3

The screenshot displays the Wikimedia Code Review (Gerrit) interface for a change with ID 11f962956. The page is titled "Change 11f962956: Added" and shows the change details, commit message, and a table of file paths with comments.

Change Details:

- Change-Id: 11f962956e9cf9c404c2fc685963964978ef52516
- Owner: preilly
- Project: test/mediawiki/extensions/examples
- Branch: master
- Topic: 2012/bug12345
- Uploaded: May 29, 2012 3:25 PM
- Updated: Jun 13, 2012 12:42 AM
- Status: Abandoned

Commit Message:

Added get version method to extension

Change-Id: I584255f80c7e2634617a803e0a387c1bfa6400ee

Added get version method to extension

Change-Id: I1f962956e9cf9c404c2fc685963964978ef52516

Dependencies:

- Need Rebase or Has Dependency

Reference Version: Base

Patch Set 1: fee9e992a68d285a727e39608cb08e535bcc10a (gitblit)

Patch Set 2: 7b7840b470961405b0f0560d545fe6b39d48601c (gitblit)

Author: preilly <preilly@wikimedia.org> May 29, 2012 3:13 PM

Committer: preilly <preilly@wikimedia.org> May 29, 2012 3:31 PM

Parent(s): 7cf0d68d9553c16d3e426de213e7db11d14ca5ea Merge "Small change for the sake of review test"

Download: [checkout](#) | [pull](#) | [cherry-pick](#) | [patch](#) | [Anonymous HTTP](#)

File Path: [git fetch https://gerrit.wikimedia.org/r/test/mediawiki/extensions/examples refs/changes/32/9332/2 && git checkout FETCH_HEAD](#)

File Path	Comments	Size	Diff
Commit Message			Side-by-Side Unified
M Example/Example.body.php	1 comment	+7, -0	Side-by-Side Unified
		+7, -0	All Side-by-Side All Unified

Comments:

- preilly Uploaded patch set 2. May 29, 2012
- preilly Patch Set 2: (1 inline comment) May 29, 2012
- Catrope Jun 13, 2012

Patch Set 2: Abandoned

Example Code Review with Gerrit 2 / 3

Example.body.php | Gerrit

https://gerrit.wikimedia.org/r/#/c/9332/2/Example/Example.body.php

WIKIMEDIA CODE REVIEW

All Differences Projects Documentation

Side-by-Side Unified Commit Message Preferences Patch Sets Files

Change #, SHA-1, trid or owner:email Search Register Sign In

Example/Example.body.php

←Commit Message Up to change

Patch Set Base 1 2 Patch Set 1 2

```
7 8 9 10 11 12 13 14 15 16 17 }
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
... skipped 6 common lines ...
/**
 * Make your magic happen!
 */
function execute( $par ) {
    global $wgOut;

    $wgOut->addWikiMsg( 'example-example' );
}

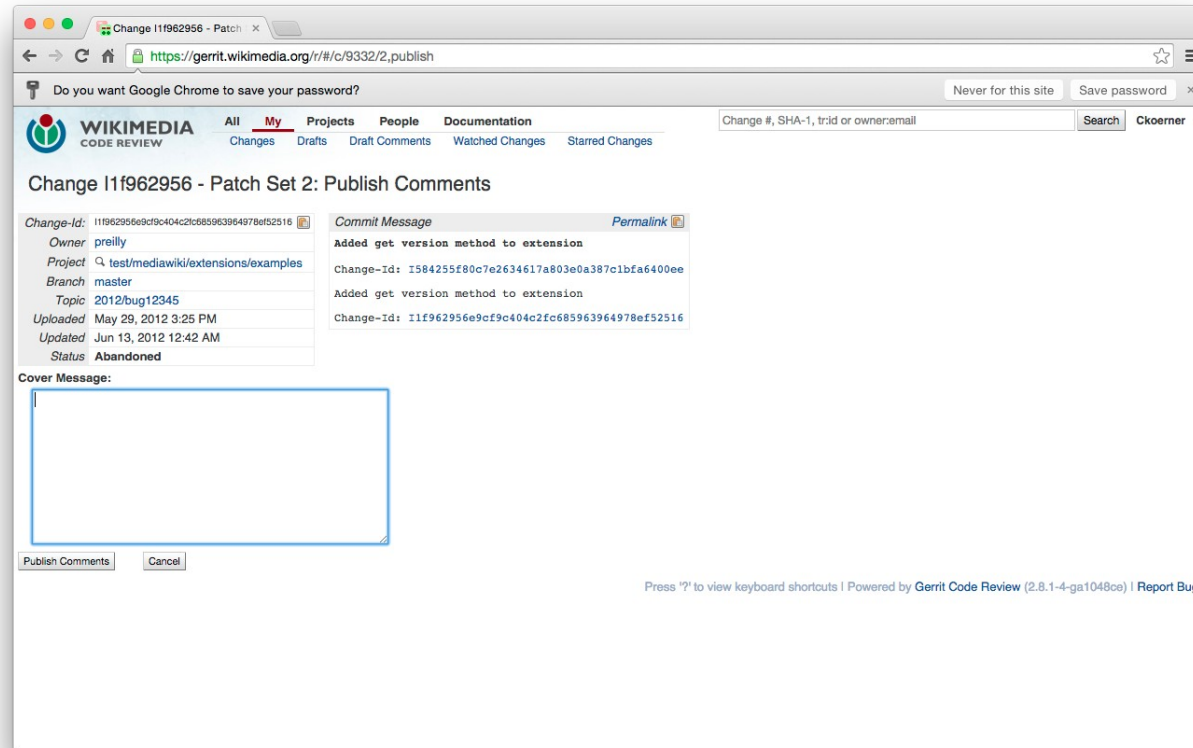
/**
 * Get version number of extension
 */
function getVersion() {
    return '0.0.2';
}

prelilly Is this the correct format? May 29, 2012
```

←Commit Message Up to change

Press '?' to view keyboard shortcuts | Powered by Gerrit Code Review (2.8.1-4-ga1048ce) | Report Bug

Example Code Review with Gerrit 3 / 3



Benefits of Pre-commit Code Review

- Collaboration
 - Improves knowledge sharing and teamwork
 - Makes it easier to establish topics like security
- Quality assurance
 - Leads to more disciplined developers
 - Prevents (some) errors before they happen
 - Raises overall quality standards
- Feeling of responsibility
 - Specifically, supports collective code ownership
 - Strengthens overall feeling of responsibility

Agile vs. Open Source Code Review

- **Agile methods**

- Programming guidelines
 - Code reading >> writing
 - Make it easy to get acquainted
- Collective code ownership
 - Feature-oriented development
 - Typically co-located development
 - Everyone has write access
- Pair programming
 - Changes are reviewed directly
 - Everyone is a peer

- **Open source**

- Programming guidelines
 - Code reading >> writing
 - Showing respect for project
- Individual code ownership
 - Component-oriented development
 - Typically distributed development
 - Strictly regulated write access
- Patch review
 - Changes are submitted for review
 - Two-class reviewing hierarchy

Review / Summary of Session

- Code review practices
 - Pair programming
 - Pre-commit code review
- Agile vs. open source approach

Thank you! Questions?

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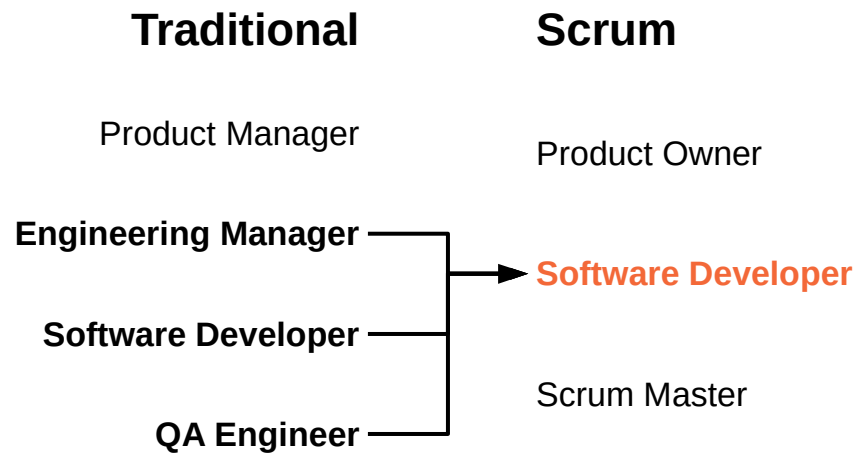
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It is Friedrich-Alexander University Erlangen-Nürnberg – FAU, in short.
Corporate identity wants us to say “Friedrich-Alexander University”.

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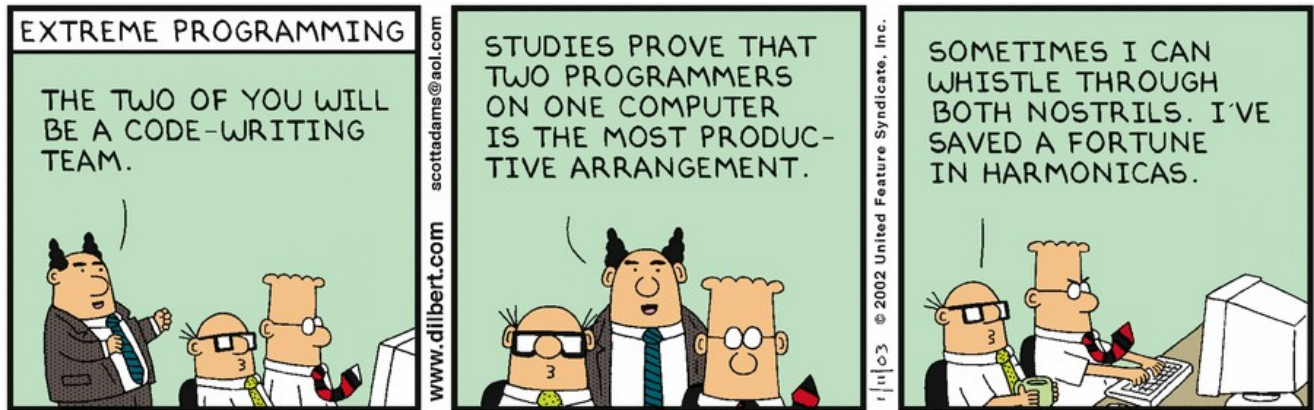
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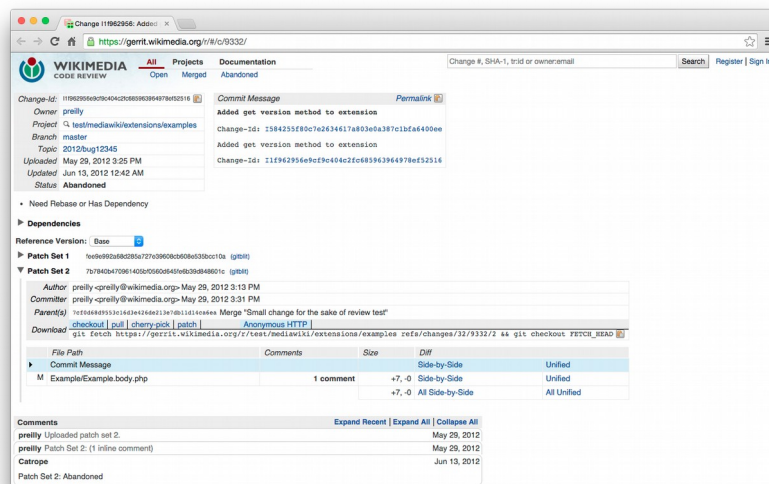
Dilbert on Pair Programming 2 / 2



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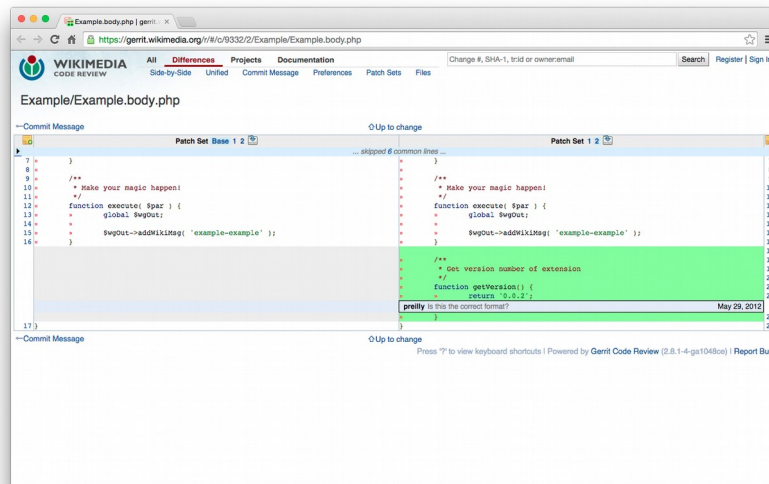
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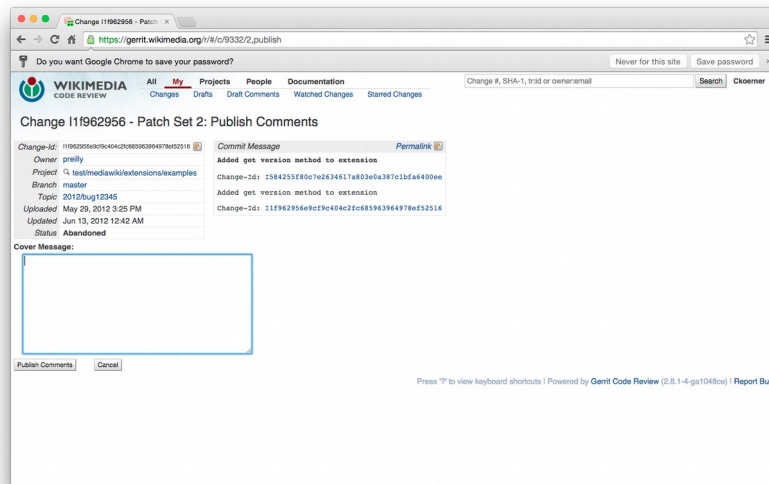


[1] See <https://www.mediawiki.org/wiki/Gerrit/Tutorial>

Example Code Review with Gerrit 2 / 3



Example Code Review with Gerrit 3 / 3



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DR

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