

Code Reviews

Felipe Ebert
f.ebert@tue.nl

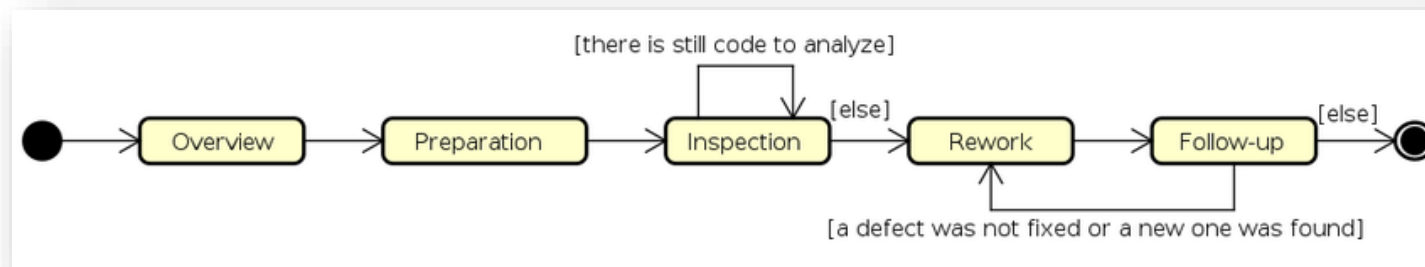


Code Review

THE BEGINNING

Code Inspections

- It is a formal and structured process **to find defects**
- Format:
 - Highly structured process
 - Based on line-by-line group reviews
 - Extended meetings
- Roles:
 - Moderator
 - Designer
 - Coder
 - Tester

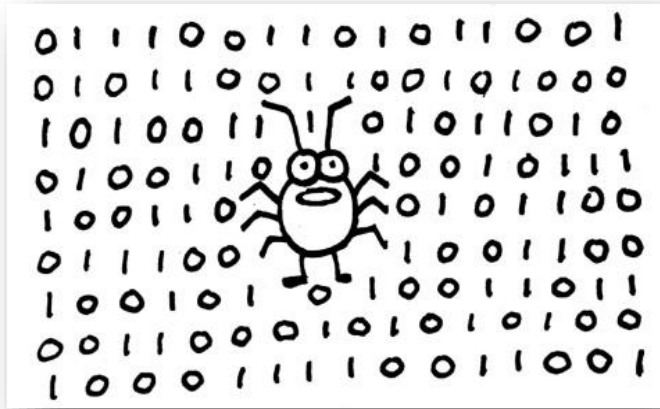


An illustration showing several hands in business attire pointing at a laptop screen. The screen displays two Java code snippets. The top snippet is a method named 'midAlgorithm' and the bottom one is 'euclidAlgorithm'. Both methods take two integers, A and B, and return the absolute value of A. The code is highlighted in a magnifying glass effect.

Modern Code Review

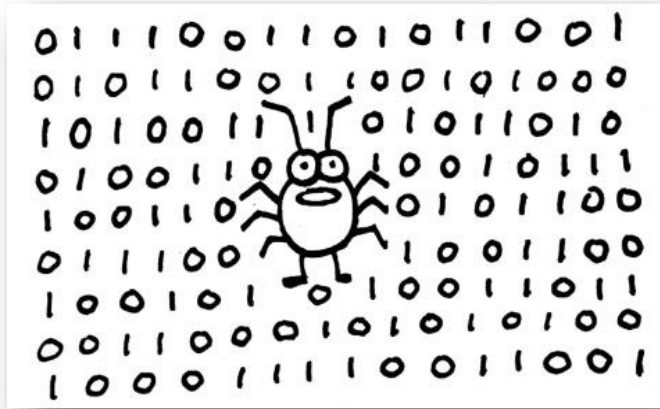
- Informal
- Tool-based
- Occurs regularly in practice

Why Code Reviewing?



Find Defects

Why Code Reviewing?

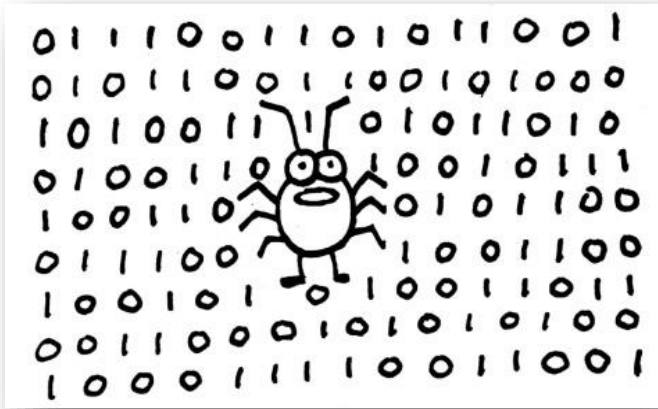


Find Defects



Code Improvement
Alternative Solutions

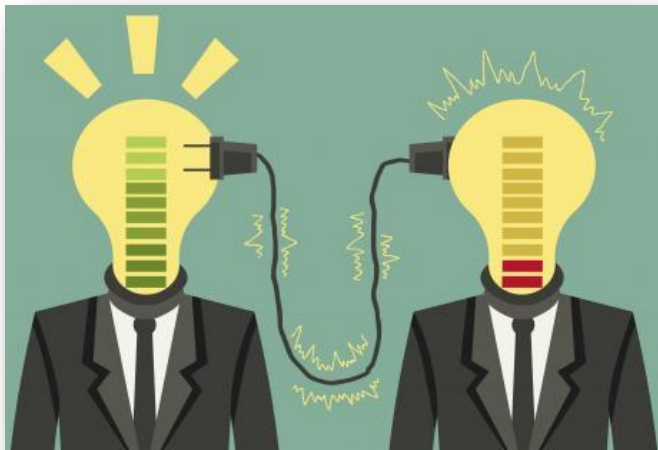
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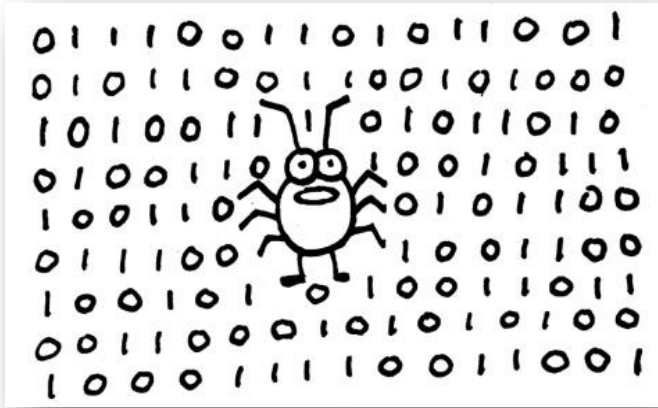


Code Improvement
Alternative Solutions



Knowledge Transfer

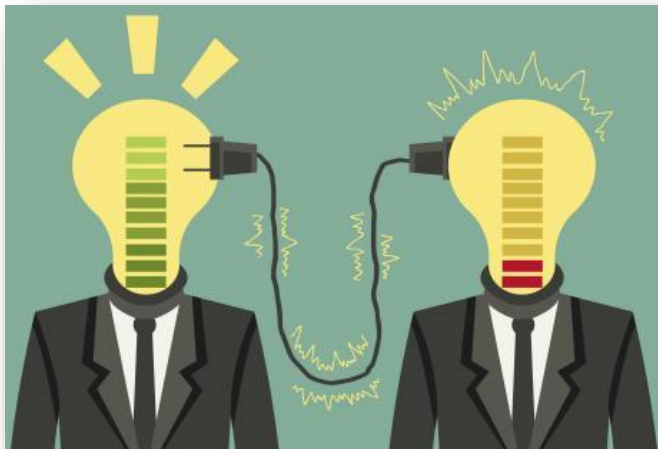
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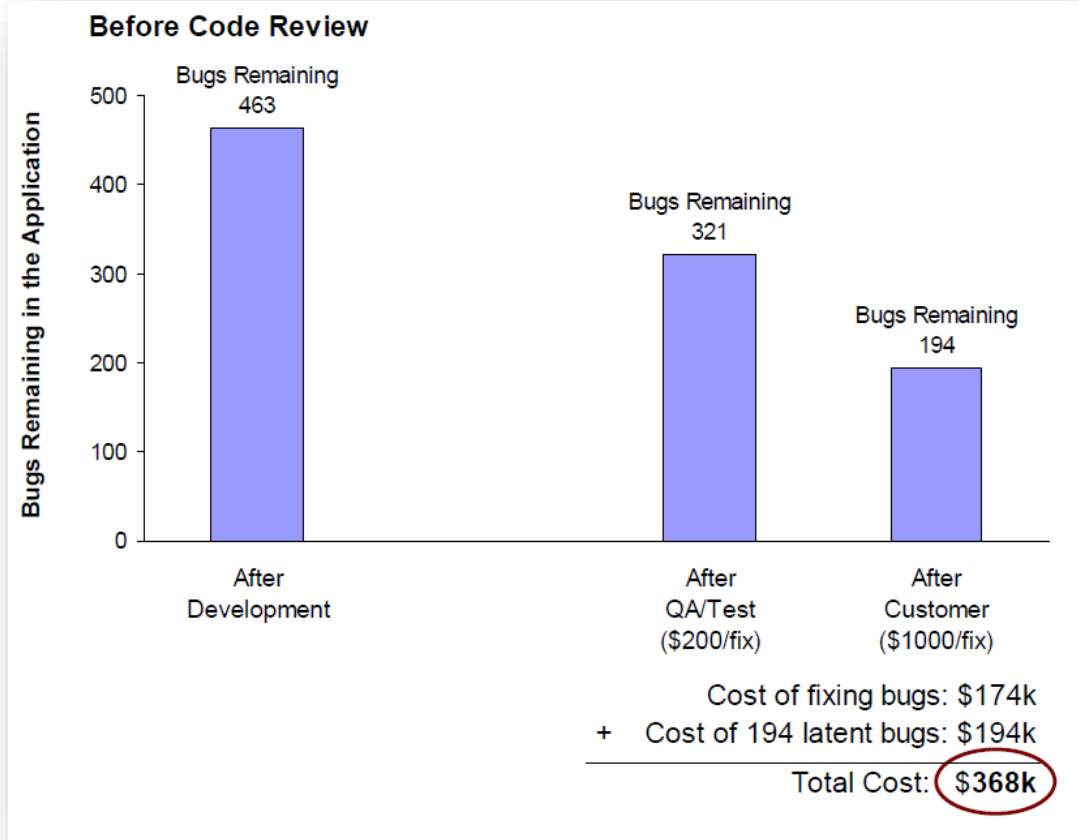


Knowledge Transfer



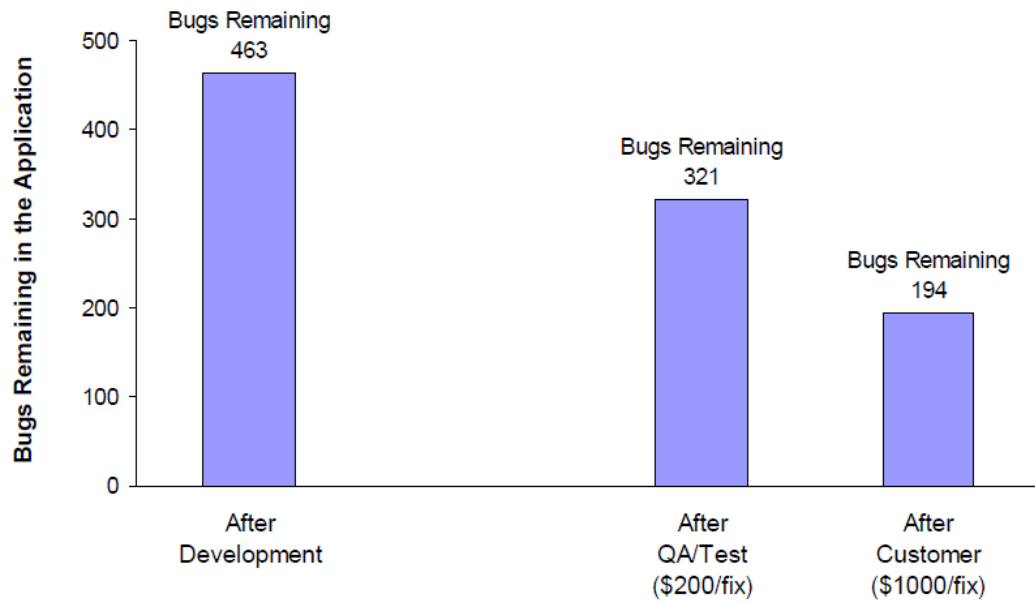
Team Awareness

A Case Study



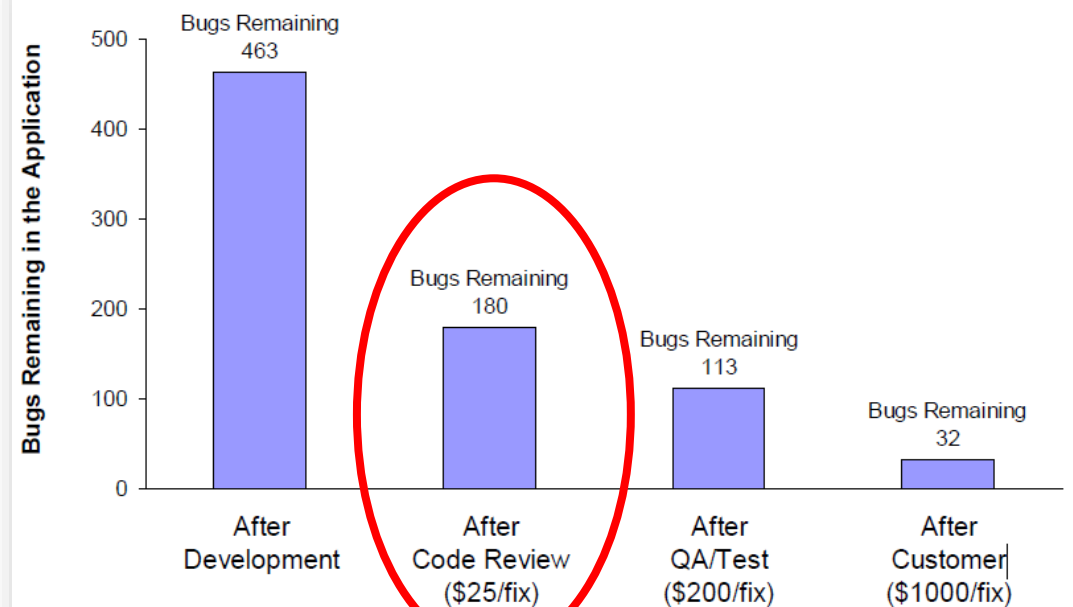
A Case Study

Before Code Review



Cost of fixing bugs: \$174k
+ Cost of 194 latent bugs: \$194k
Total Cost: **\$368k**

After Code Review



Cost of fixing bugs: \$120k
+ Cost of 32 latent bugs: \$ 32k
Total Cost: **\$152k**

Who Is Doing Code Reviews?



Code Review Types

Main repository

Review-then-commit
(pre-commit)

Commit-then-review
(post-commit)

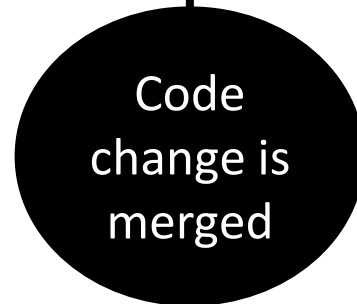
Code
change is
merged

Code Review Types

- Review-then-commit

- Pros:

- Quality standard are met
- Review has been performed
- Team won't be affected by bugs



Code Review Types

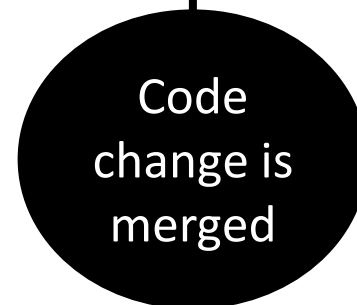
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- Cons:

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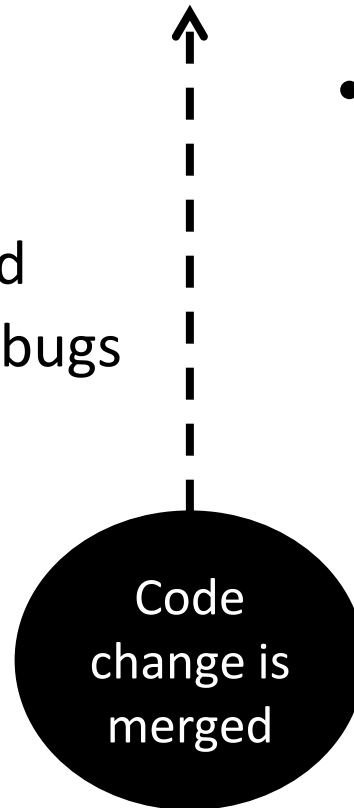
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- Commit-then-review

- Pros:
 - Commit changes continuously
 - Members see the code changes



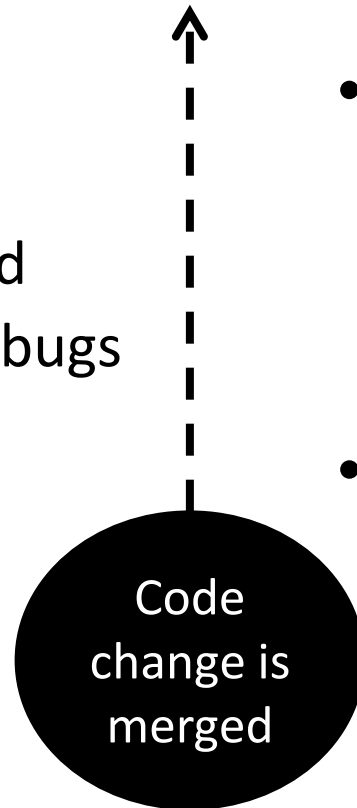
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- Cons:
 - Poor code might make into repository
 - Switching back to fix the bug



Code Review Approaches

- Email pass-around
 - Reviewers receive code changes sent via e-mail

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- Over-the-shoulder
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Code Review Approaches

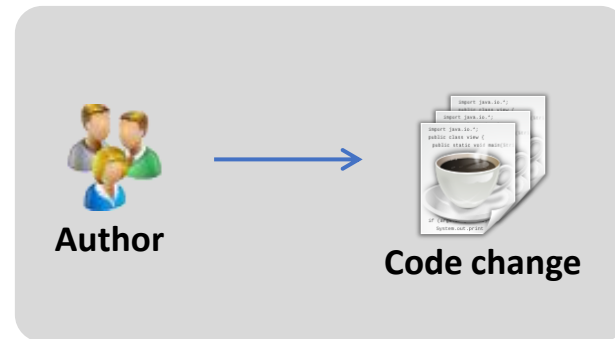
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- Pair programming
 - The code is written and reviewed at the same time

Code Review Approaches

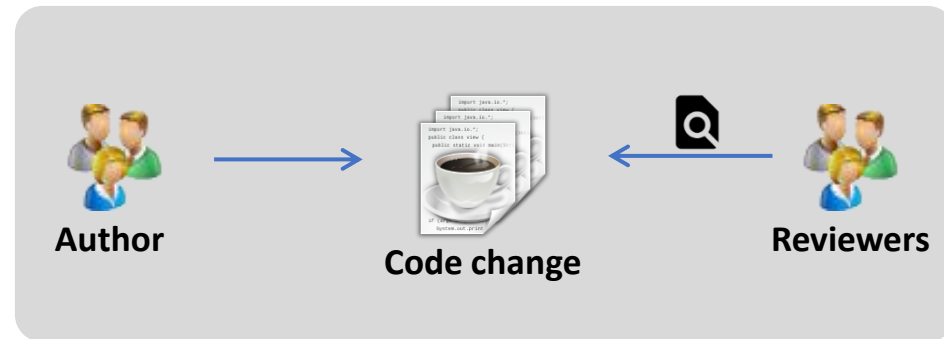
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- Pair programming
 - The code is written and reviewed at the same time
- Tool-assisted
 - Simplest, efficient, and popular

Code Review Process

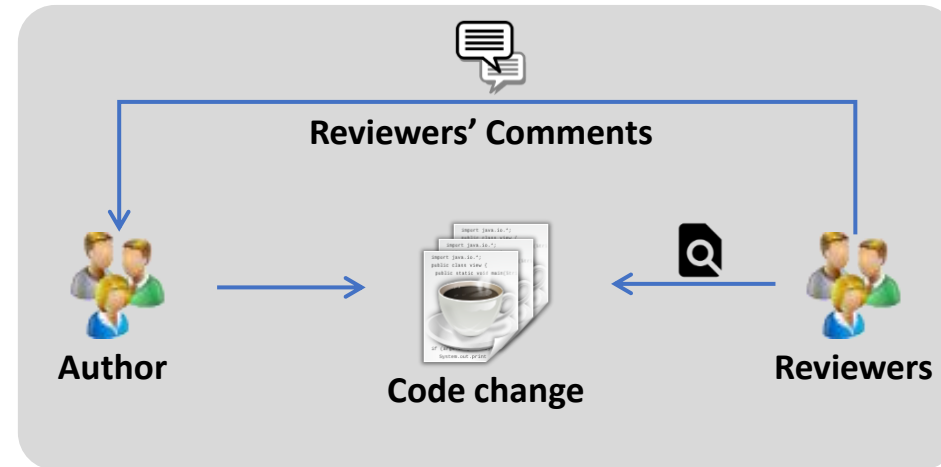
Code Review Process



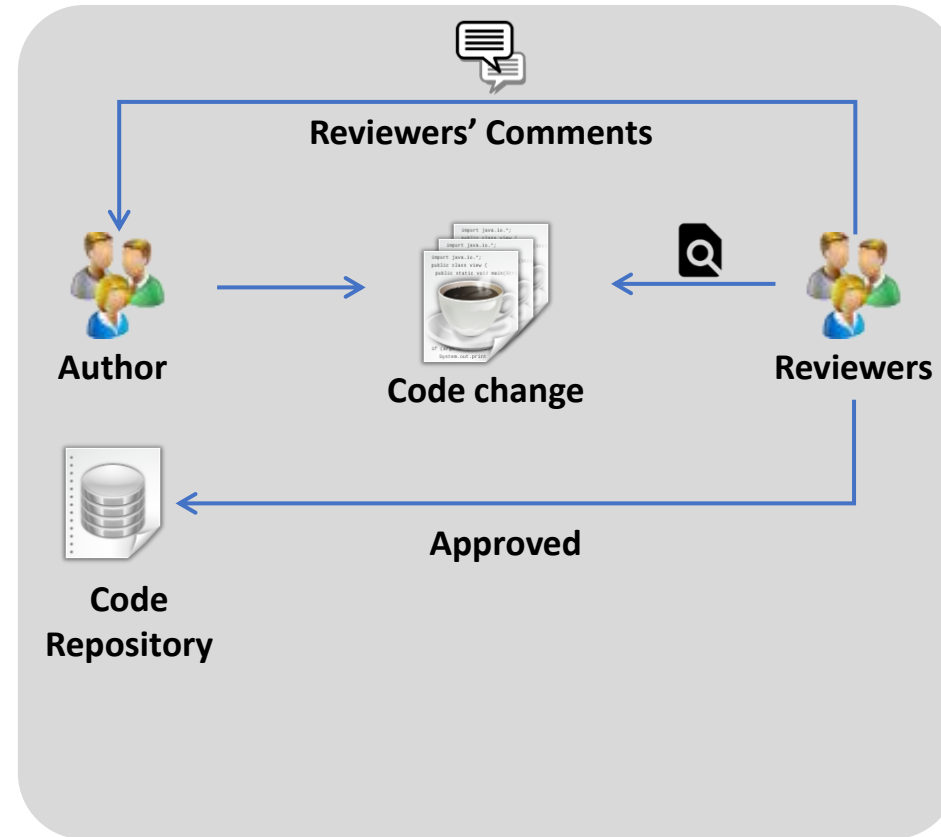
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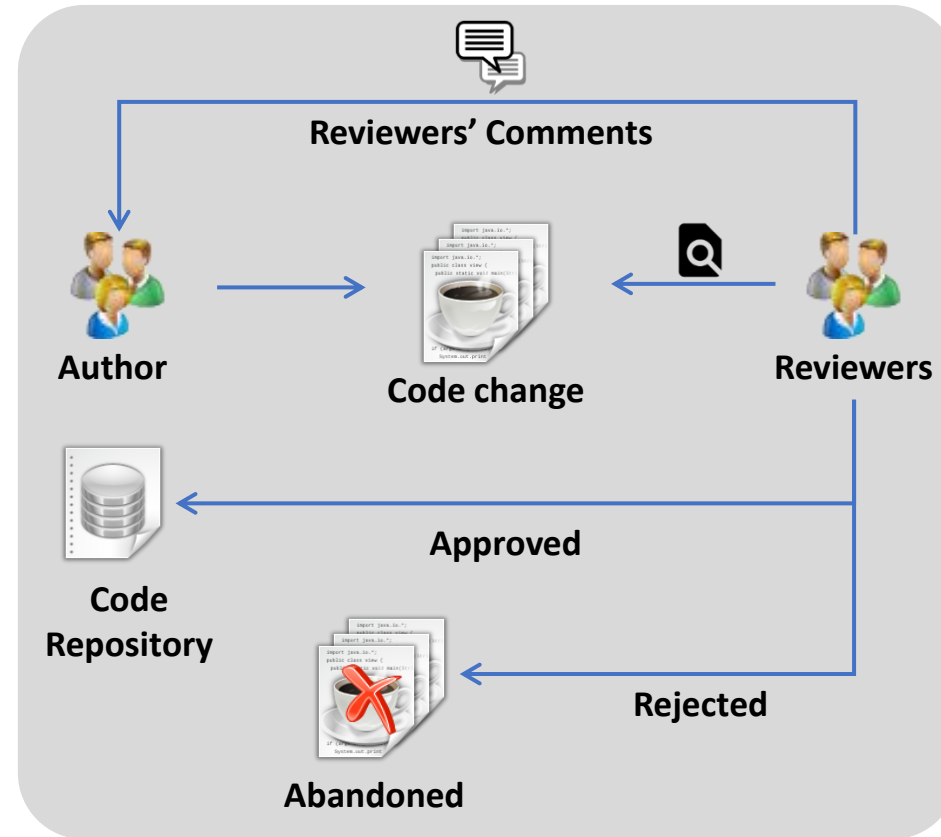
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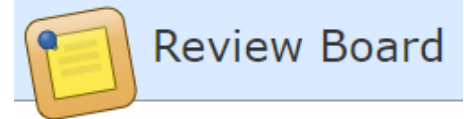


Code Review Process





Code Review Tools



What to Look For in a Code Review?

Design

Naming

Functionality

Comments

Complexity

Style

Tests

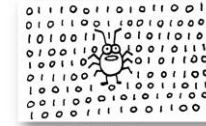
Documentation

Existing Challenges...

- Receiving feedback in a timely manner
- Identifying an appropriate reviewer
- Review size
- Understanding the code change, its purpose, its context
- Obtaining insightful feedback
- Nitpicking



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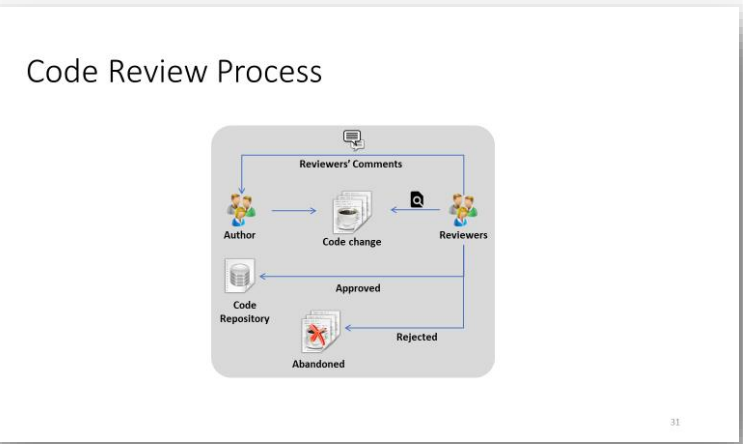
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Interested in working with code reviews? Ping me! =D