Peer Code Reviews

CSC207 Fall 2016

Computer Science
UNIVERSITY OF TORONTO

"Programs must be written for people to read, and only incidentally for machines to execute."
Abelson & Sussman, *Structure and Interpretation of Computer Programs*

Tools to Improve Quality

Most professional projects involve these:

Design

Unit Tests

Code Reviews

User Testing

Bug Tracking

You know already a bit about design and unit tests

CSC301H, CSC302H teach you more about code reviews and other aspects of developing good-quality large-scale code

Code reviews are like having someone proofread your essay

Peer Code Review

Code review: a process in which people review code to find problems.

Possibly the single most effective way to discover or prevent bugs.

Monetary motivation: the earlier in the development process that a bug is uncovered, the cheaper it is to fix.

Stage	Cost
After Shipping to Customer	$1000/fix
After QA/Test	$200/fix
After Code Review	$25/fix

Source: Code Review study at Cisco Systems
2500 reviews, 3.2 million lines of code, 50 developers, 10 months
http://support.smartbear.com/support/media/resources/cc/book/
code-review-cisco-case-study.pdf

Review Process

Lots of different approaches. In all of them:

Usually can't or don't want to subclass from `Observable`

- Author explains code, either electronically or in a meeting

- Reviewers comment on code

- Author fixes code

- Someone reviews fixes

This is easiest if there is a code review checklist.

Sample Code Review Checklist

- The Big Issues

  - Do you understand the code?

  - Are there test cases?

- Style

  - Are the naming conventions followed?

  - Does each method comment document which of its parameters the method is going to change?

  - Is the code formatted for readability?

- Design

  - Do you understand the design?

  - Does the implementation match the design?

  - Is there duplicate code?

  - Is there a simpler, clearer design?

- Documentation

  - Does the documentation match the code?

  - Is the internal commenting appropriate?

  - Are there chunks of code that you don't understand?

Online References

http://files.cnblogs.com/files/dangjian/
BestPracticesForPeerCodeReview.pdf

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