NORTHERN ARIZONA UNIVERSITY

School of Informatics, Computing, and Cyber Systems

CS499 - OPEN SOURCE SOFTWARE DEVELOPMENT

Lecture #03: Code Review – Guidelines

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Code Review

- Finding issues prior to go to the repo
  - **Sharing knowledge**
  - **Consistency in a code base**
  - **Legibility**
  - **Accidental errors**
  - **Structural errors**
  - **Compliance**

Code Review – What to review

- **Correct Syntax**
  - Indentation
  - Alignement
  - Removing commented (non-useful comments)

- **Grammar / Naming**
  - Spelling mistakes
  - Correct English
  - Variable, Function, Method names

Code Review – What to review

- **Duplicate Code**
  - **DRY (Don't Repeat Yourself)**
  - **Maintaining duplicate code is hard**
- **Technical Quality**
  - **Code Logic**
  - **Code conventions**
    - Follow project conventions for style/naming
  - **Is it possible to condense code?**
  - **Security vulnerabilities**

Code Review – What to review

- Error Handling
  - **Are exceptions being captured/treated correctly?**
  - **Human readable messages being displayed**
- Test coverage/Unit tests
- Code review is a learning experience.
  - **Pay attention to what other people are saying. Ask questions!**

Code Review – Questions

- Does this code accomplish the purpose?
- How would you have solved the problem?
- You are the devil's advocate, but be nice
- How was the "reading" experience?
- Does the code follow to coding guidelines/style?
- Does this code introduce the risk of breaking builds?

Code Review – Questions

- Does this code break existing tests/builds? (CI)
- Does the code need more tests?
- Was the documentation created/updated?
- Are there security vulnerabilities?
- Is this an efficient way? Any $O(n^2)$ or worse algorithm?

Writing the Review

- Don't make it personal.
- Be nice
- Be constructive
- Be specific
- Justify your points
- Ask questions
  - **why did you do it this way?**
  - **I'm trying to understand this code, walk me through the options you considered**

Resources and More Resources

- There are many resources out there. These slides are based on some of them
  - **https://mtlynch.io/human-code-reviews-1/**
  - **https://medium.com/palantir/code-review-best-practices-19e02780015f**
  - **https://smartbear.com/learn/code-review/best-practices-for-peer-code-review/**
  - **https://code.likeagirl.io/the-7-steps-to-a-complete-code-review-abdfd39e75f1**
  - **https://towardsdatascience.com/teaching-code-review-in-university-courses-using-peer-feedback-5625fe039f2a**
  - **https://en.wikipedia.org/wiki/Code_review**
  - **http://web.mit.edu/6.005/www/fa15/classes/04-code-review/**

Let's practice a Bit

- I will give you some code examples
- You will write the reviews for them
- We will discuss after some minutes