How to be an effective reviewer

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First, get into the right mindset!

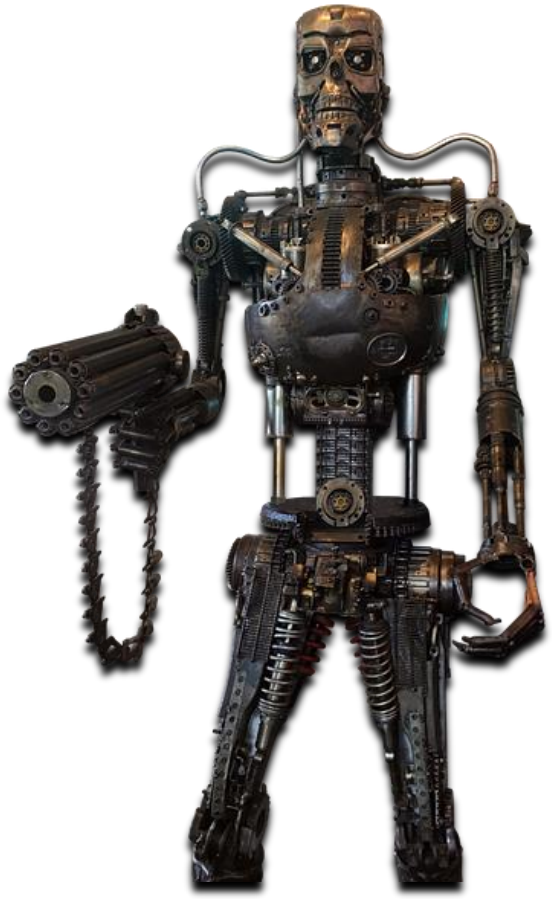
In the future, someone else is going to use and maintain this code.

They'll hold me responsible for any bug.

That person is a psychopath.

They know my home address.

They have a time machine.



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Channel your inner **gatekeeper**

Do we want this? Why?

- Bug fix? User request? Internally desired feature? Maintenance improvement?
- If I don't think we should do it, enquire internally

Look at the general shape

- Does it change what I think it should change?

Does it solve the problem?

- And is this the (or at least a) right way to solve the problem?
- Check against any applicable requirements or architecture document
  - If there isn't one, should there be?
- Am I aware of other ongoing work that it would conflict with?

Add JavaScript interpreter #666

Open totallyinnocent wants to merge 1 commit into ARMmbed:develo

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Channel your inner **user**

Is the PR useful?

- For its original objective
- For something slightly different

Do I understand the documentation?

- Do I understand which function(s) to call and how?
  - Do I understand how to build/configure? Should this be in the default build?
- Is it sufficiently clear and detailed? Is it well-written and formatted?
  - Especially: preconditions, error cases
- Does it need a changelog entry? a sample application? a knowledge base article?

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Channel your inner **conservative developper**

Looking at the code only, without the context of the PR,

Do I understand why the code is correct
and does what it says on the tin?

  - If not, it needs either a bug fix or a comment
- Robustness: what later changes might break it?
  - Will the compiler catch it? The tests? Static analysis?
- Are the changes justified? (if it ain't broke, don't fix it)
- Does the code conform to the documentation?
- Portability (does it work on the DeathStation 9000? do we care?)
- Anything else I can think of, anything I've broken/seen break in the past, …

Channel your inner **progressive developper**

Does the resulting code look right?

- Does the PR go far enough?
  - Is there further refactoring to do?
  - Should more functions be made public? Fewer?

and your inner **competitor**

I could do so much better!

- Can it be made more obviously correct? easier to maintain?
- Performance: could it use less code, use less memory, be faster, …?

Make improvements now? File issues for later?

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Channel your inner **attacker**

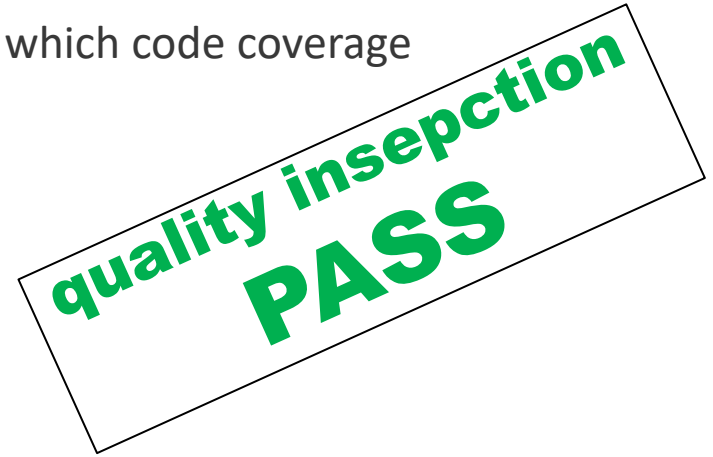
How do I break it?

- Input validation
- Buffer overflows and other pointer arithmetic
- Memory management (use of uninitialized memory, use after free, memory leak…)
- Are the documented preconditions sufficient to ensure the code is correct?
  - Should there be fewer documented preconditions and more checks in the code?
- Any other security concerns (e.g. side channels)

Channel your inner **quality assurancer**

Is the code well-tested?

- Bug fix: non-regression test if practical
- New feature: unit tests, integration/system tests if applicable
  - Tests for special cases (not just what the code *does* but what it *should do*, which code coverage measurements won't tell you)
- If any test is removed or modified, is this justified?
  - If a test needed to be changed, isn't this a compatibility break?



Does this conform to any applicable standard?

- Is the standard referenced in a comment?

Does this conform to our house rules? (Style, documentation habits, …)

Channel your inner **maintainer**

Backward compatibility

- What behaviors does this change? Does it break the API? the ABI? To what extent?
- User-facing documentation: is it clear what is guaranteed and what can change in future versions?

Suitability

- Usually this works for the author's use case. What other uses cases are there? Corner cases?
- If there's an API extension, is this what we'll still want in five years?

Maintainability

- Looking at the changes and the git commit messages only, do I understand what each step does?
  - Ok to need the context of the PR to understand the overall goal, but not to understand individual commits

Finally, channel your inner **everything**

Mindset: what's missing?

- Handling of special cases
- Documentation
- Tests
- Updates to build/test scripts
- Behavior in non-default configurations
- Things that I've (seen) forgotten in the past

Thank You!
Danke!
Merci!
谢谢!
ありがとう!
Gracias!
Kiitos!
감사합니다
धन्यवाद

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