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EUROPE'S LEADING AEM DEVELOPER CONFERENCE

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Behaviour vs Implementation Testing in AEM

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How, Why, When and What to Test?

How to test?

- This question has already been answered
  - https://junit.org/junit5/
  - https://site.mockito.org/
  - https://wcm.io/testing/aem-mock/
- In this session
  - We will not talk about **tools and libraries**
  - Instead we will focus on **our testing strategy**

Why test?

Writing tests does take time, but…

- It makes us **faster in the long run**
- It **improves quality,** design and maintainability

When to test?

- Whenever you write **business logic**
- Writing test suites just to have high code coverage leads to test that are
  - **brittle** (easy to break)
  - **hard to read** and
  - do **not support easy refactoring**

What to test?

- **Testing strategy** – guidelines on what to test
- Some basics
  - Test **requirements** - behaviour or functionality over implementation details
  - Test the **business logic** your write, not the framework or libraries you use
  - Test the **APIs you expose**, not internal details

Unit vs Integration Testing?

The basic difference

- Unit tests are written by developers to test a **single unit of code** (service or model) we developed
- Integration testing is a type of testing to check if different components, services or modules **are working together** towards a common goal (requirement)

How to decide?

- In general, **prefer integration testing**
  - Focus on behaviour and requirements, not internal implementation details
  - Mocking is hard work and requires maintenance
  - Takes less time to achieve the same coverage
- **Unit tests** are still welcome to test complicated business logic of specific units

What's Specific in AEM?

Integration testing in AEM

- Integration tests can be written and run using mocks, not only running instances as recommended by Adobe
- JUnit, Mockito and AEM Mocks are mature libraries for writing **integration** and unit tests
  - Similar approach to Spring Mock MVC

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What (not) to test in AEM?

- Useless testing
  - Testing (or mocking) a Utility class
  - Testing a data class or a Sling Model, that contains **no business logic**
- In AEM, integration tests should usually be written for **Sling Models, REST Services** and **Servlets**

Time for Live Demo!

Key Takeaways!

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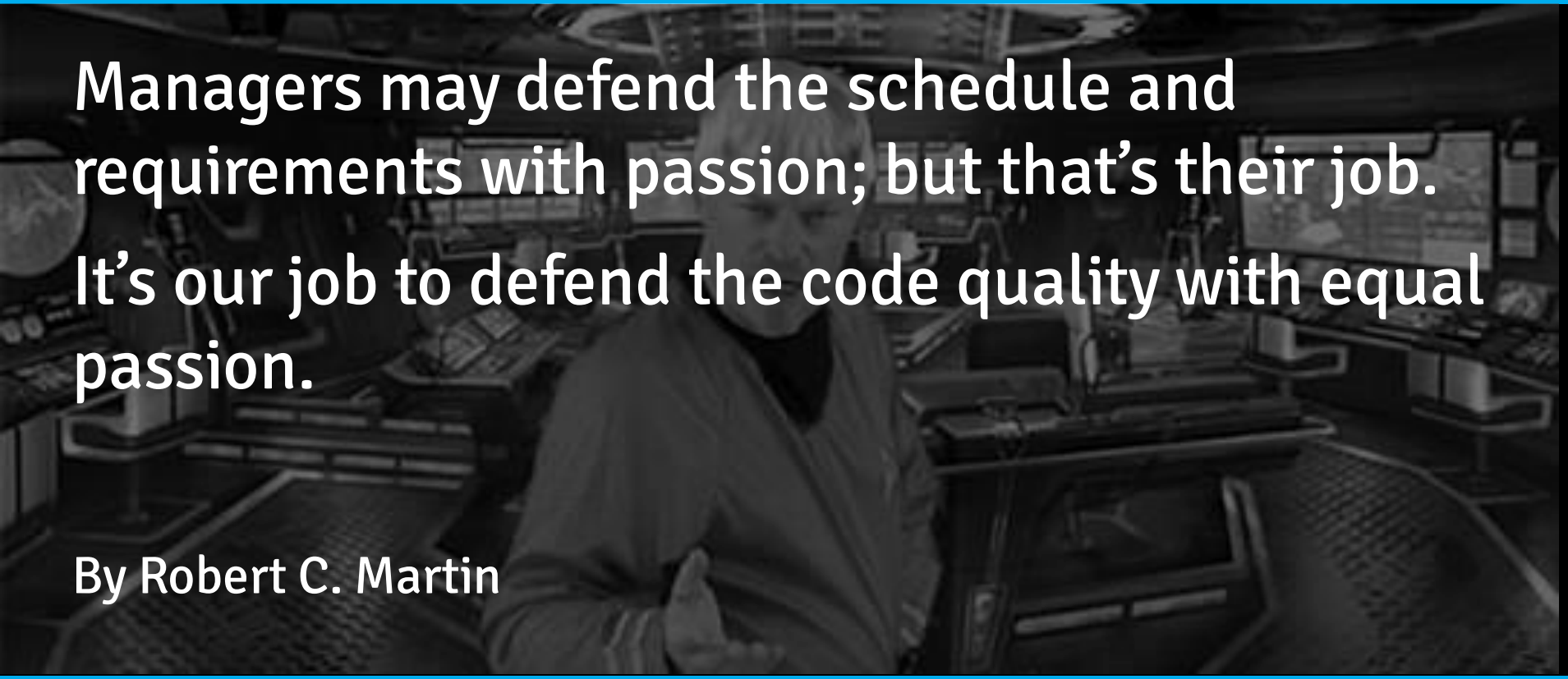
Some best practices

- Invest the needed time to **describe what** you are testing (given-when-then)
- Write **business logic in services** and create mocks based on their interfaces
- **Separate** mocked classes from test classes to make tests cleaner

Things to remember

- Test the **business logic** you write, not the framework or libraries you are using
- Only test the **things you expose**, your public API, nothing else
- **Secure time** for writing tests in advance, it needs to be planned

Let's end with a quote



Managers may defend the schedule and requirements with passion; but that’s their job.

It’s our job to defend the code quality with equal passion.

By Robert C. Martin

References

- Examples available on GitHub
  - https://github.com/dstr89/aem-unit-vs-integration
- Test behaviour, not implementation
  - https://dev.to/mkovacek/test-behaviour-not-implementation-3g2j
  - by Matija Kovaček

The End

- Java, Web, AEM, software craftsmanship, testing, reusability, architecture, knowledge sharing…
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Thank you.