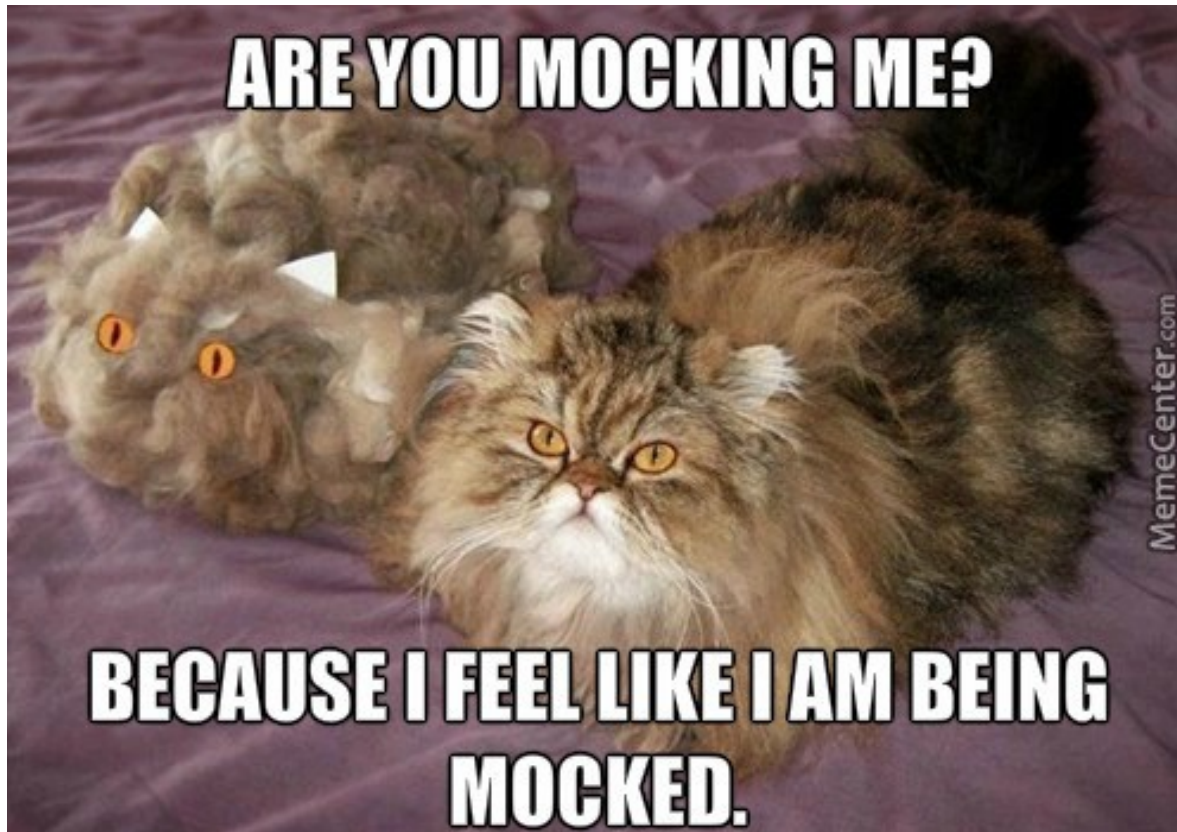


# Software quality and testing

## - 4<sup>th</sup> course

# Mocks, stubs, and Fakes

- Actually it is stubs, mocks and fakes!



# Stubs

- Def.: The important point is that the test can't control what that dependency returns to your code under test or how it behaves ( if you wanted to simulate an exception for example). This is the case when you use stubs.
- Example: Astronauts.
- Summing it up: It is ***not safe*** or takes ***too long*** to do a full integration test.
- Updated def.: A stub is a controllable replacement for an existing dependency (or collaborator) in the system. By using a stub, you can test your code without dealing with the dependency directly.
- Def.: Seams are places in your code where you can plug in different functionality, such as stub class, constr. param.

# Mocks and Stubs

- Def.: The main thing to remember about mocks versus stubs is that mocks are just like stubs, but you assert against the mock object, whereas you do not assert against a stub.
- Def.: A fake denotes an object that looks like another object but can be used as a ***mock*** or a ***stub***.

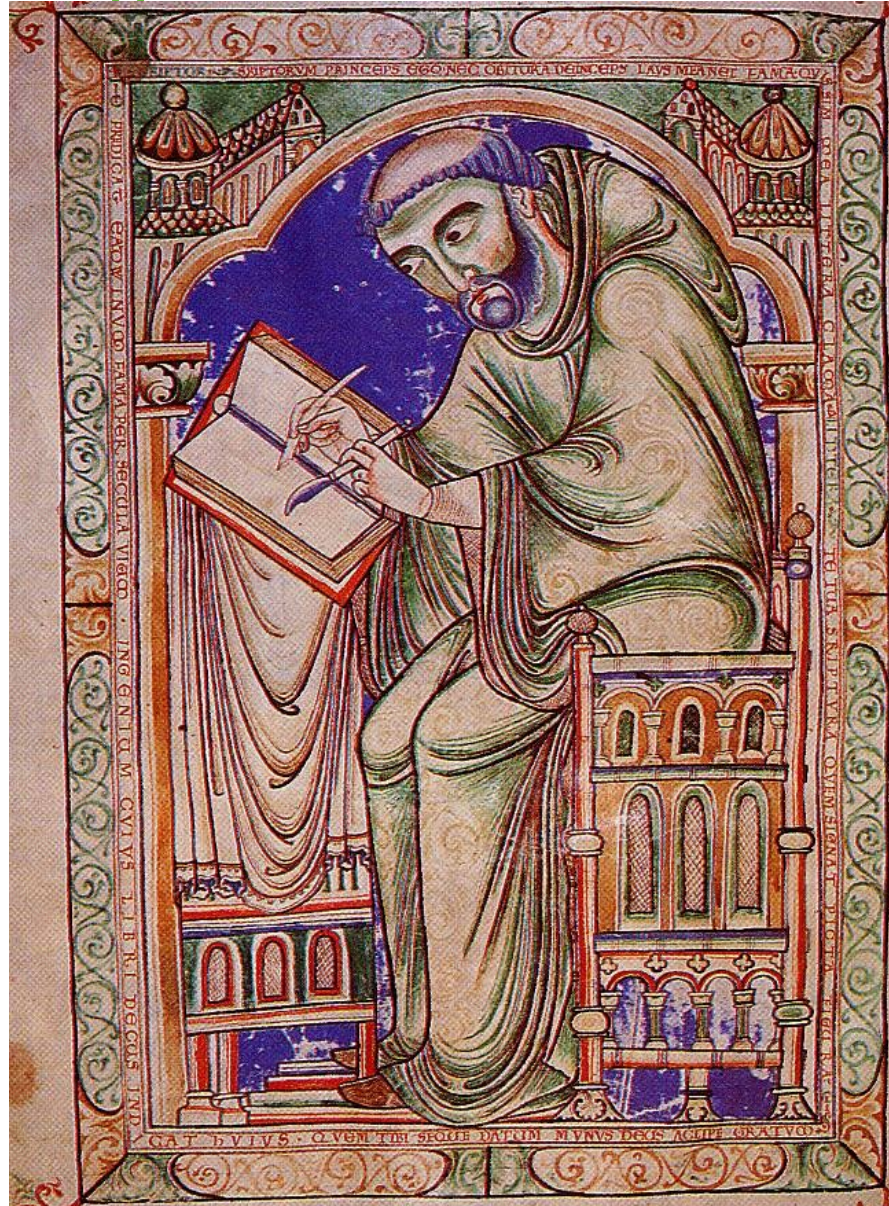


# Techniques

- Extract an interface and replace underlying implementation
  - Delegate method {e.g.: we don't have full control over the CUT} -> {Java reflection, dynamic proxy}
- Dependency injection
  - Constructor level {pros, cons}
  - Inject a fake as a property get or set {pros, cons}
  - Injecting a fake just before a method call {pros, cons}
- Mocking



# Mocking NOT in general

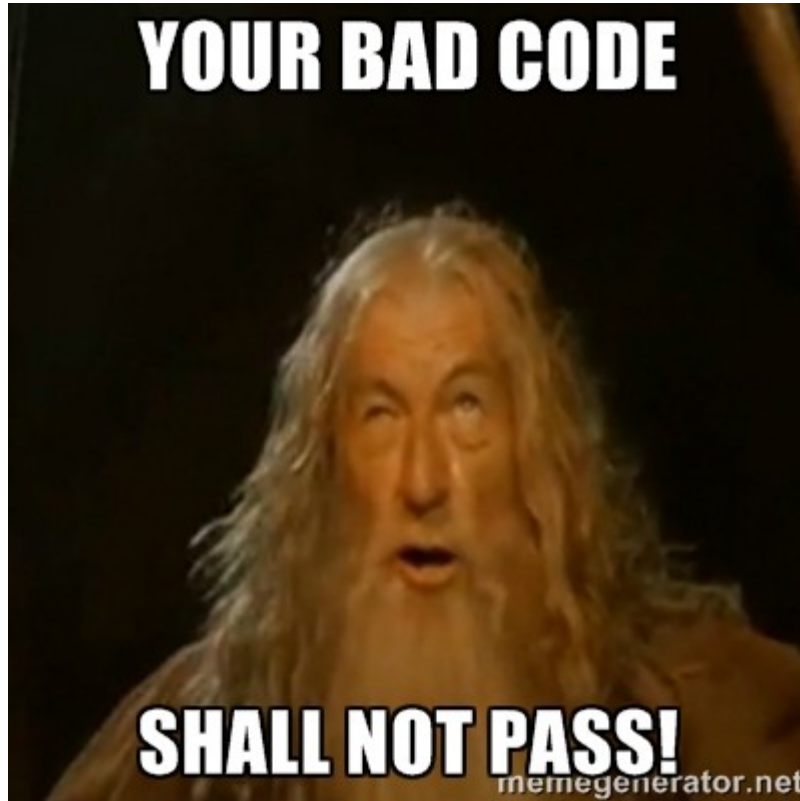


# Mocking techniques

- Value – based, state – based, interaction testing
- Lesser handwritten
- Used together with a stub
- One mock per test!
- Fake chains: stubs that produce mocks or stubs...



# Mockito framework





# Mockito framework cont.

- Support both for TDD, BDD
- Ultimately it is expect-run-verify pattern



Any questions?





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