

**Unit testing frameworks:**

JUnit – A basic unit testing framework for Java.

Mockito - A mock framework, using the Hamcrest library

PowerMock - An extension to Mockito that allows mocking of static methods, constructors, final classes and methods, private methods, removal of static initializers and more

WireMock - library for stubbing and mocking web services

**Unit testing recommendations:**

- Every single test should be independent and isolated. Unit test shouldn't depend on another unit test.
- One behavior should be tested in just one unit test.
- Every unit test should have at least one assertion.
- Don't make unnecessary assertions. Do not assert mocked behavior, avoid assertions that check the exact same thing as another unit test.
- Unit test have to be independent from external resources (i.e. don't connect with databases or servers) .
- Unit test shouldn't test Spring Contexts. Integration tests are better for this purpose.
- Test method name should consistently show what is being tested.
- Unit test should be repeatable – each run should yield the same result.
- You should remember about initializing and cleaning each global state between test runs.
- Tests should run fast. When we have hundreds of tests we just don't want to wait several minutes till all tests pass.