Mobile Testing II

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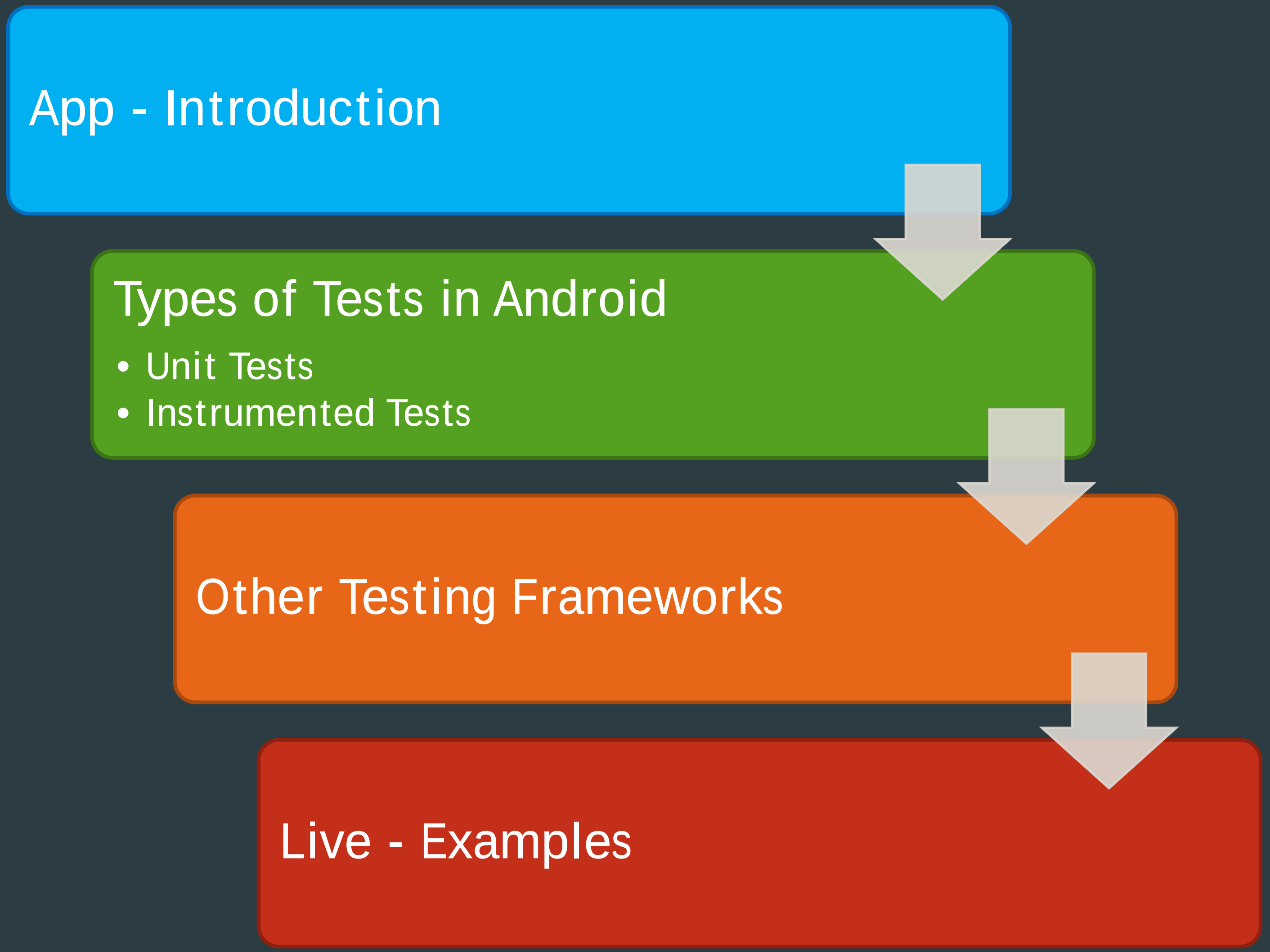
25.05.2018

AGENDA



App - Introduction

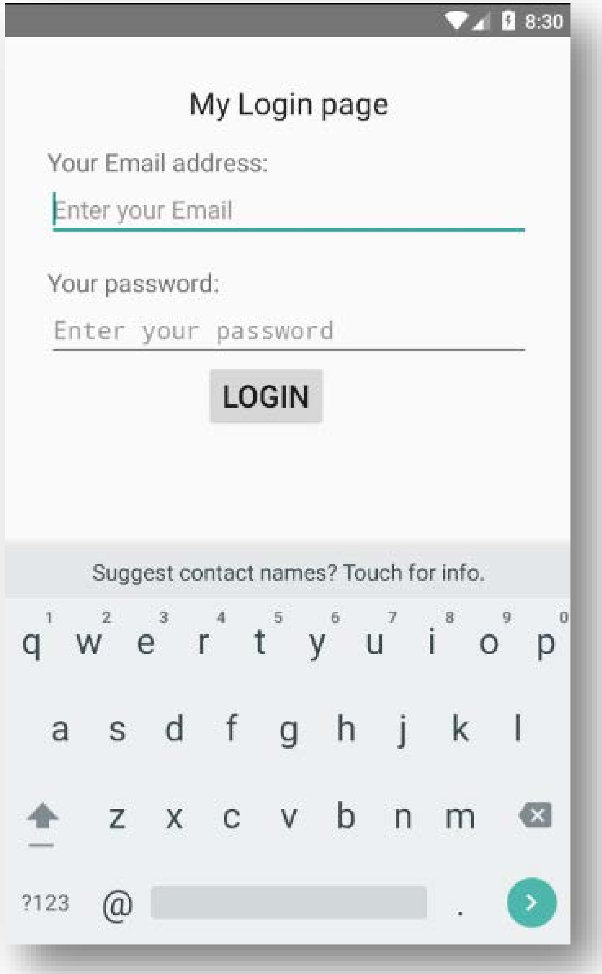
Types of Tests in Android

- Unit Tests
- Instrumented Tests

Other Testing Frameworks

Live - Examples

App - Introduction



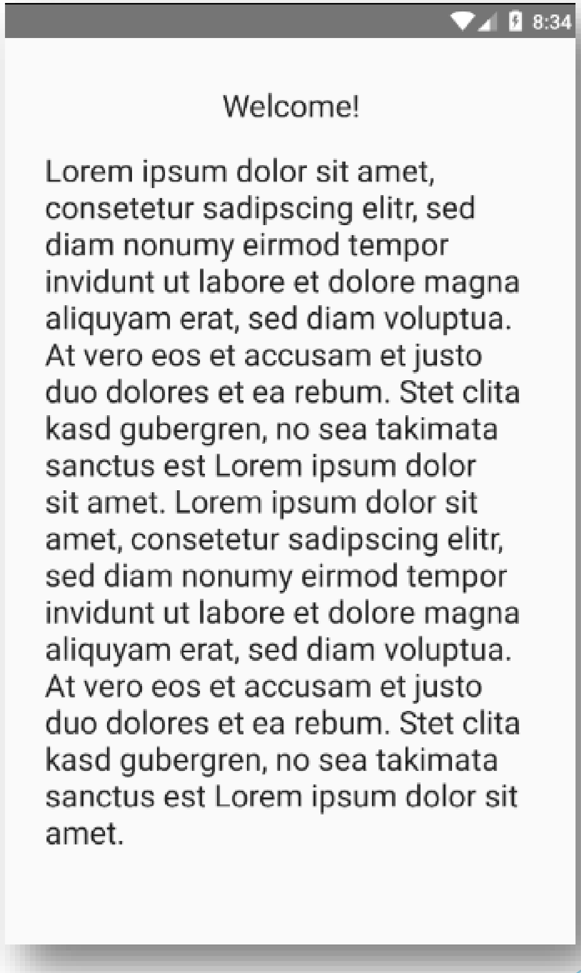
My Login page

Your Email address:

Enter your Email

Your password:

Enter your password



Welcome!

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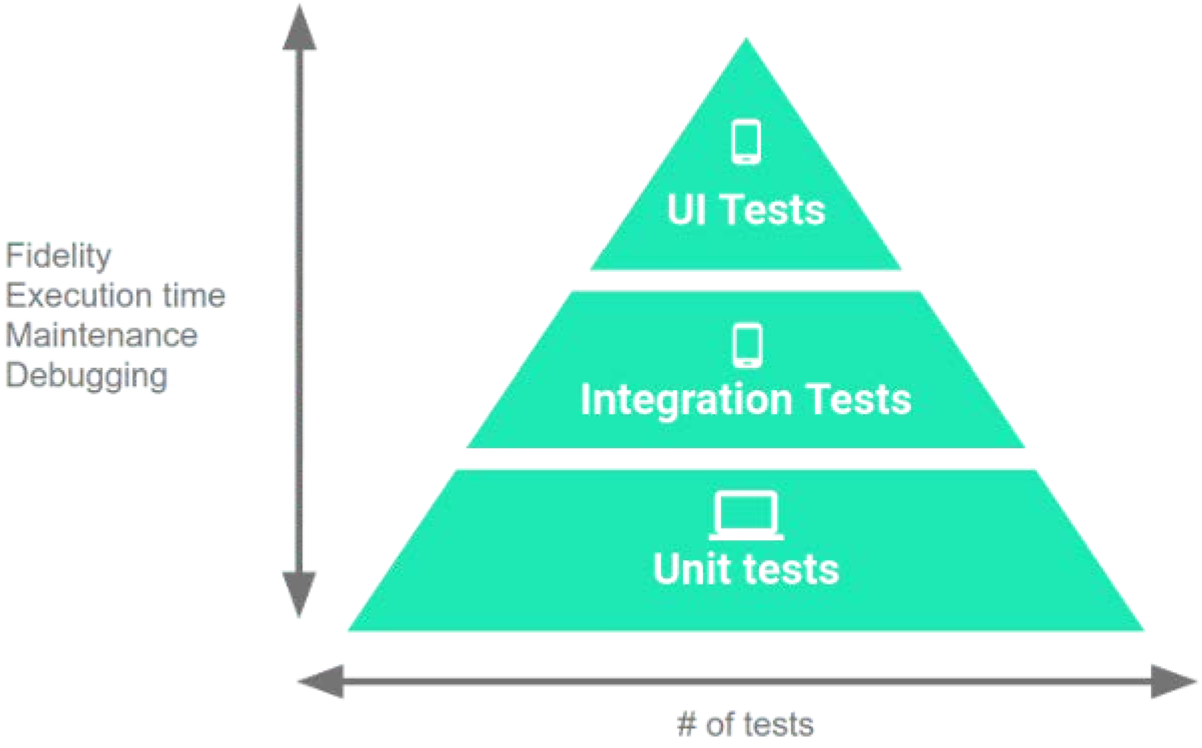
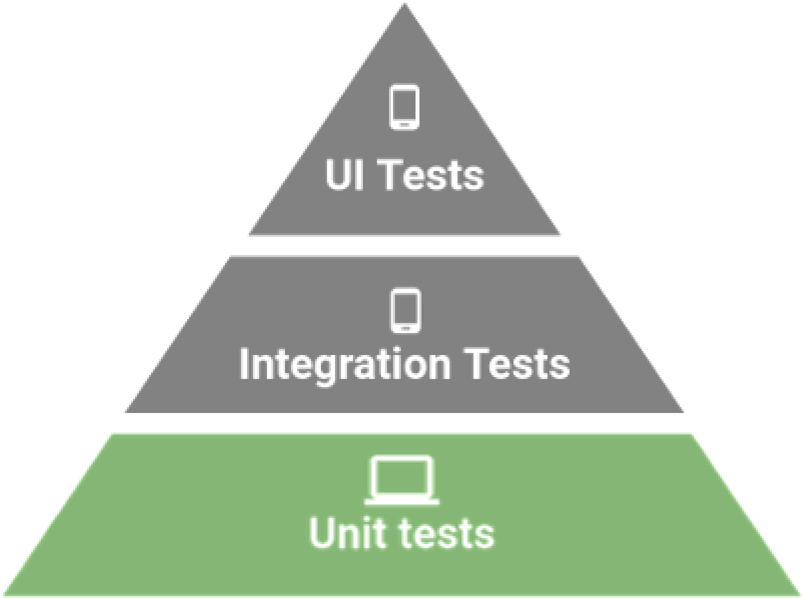
Types of Tests in Android



Unit Tests

- Tests a single function / method
- Do not need a running app
- Normally no Android dependencies
  - Try to mock them
- It‘s fast
  - Runs on local JVM



Unit Tests

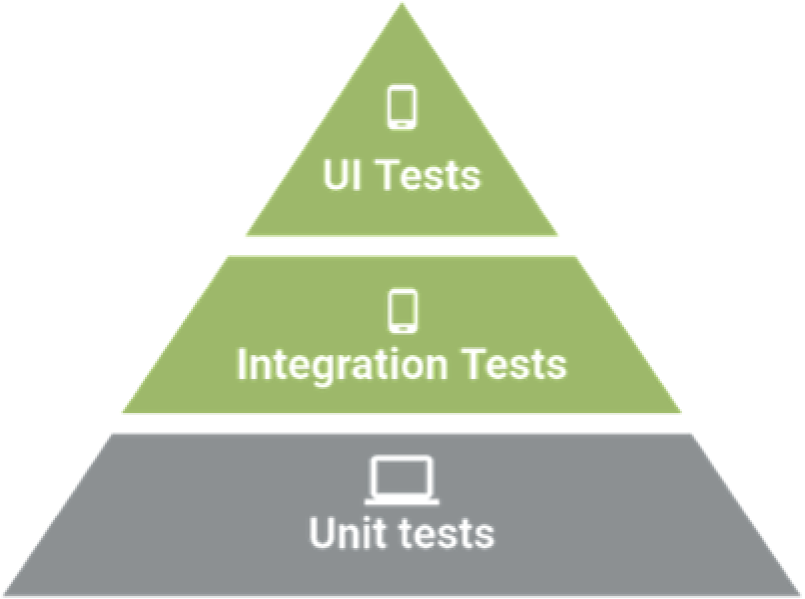
Examples

- E-Mail validation
  - Some Text in front of @
  - @ - symbol
  - Domain after @
- Password validation
  - Long enough
  - All needed symbols are included

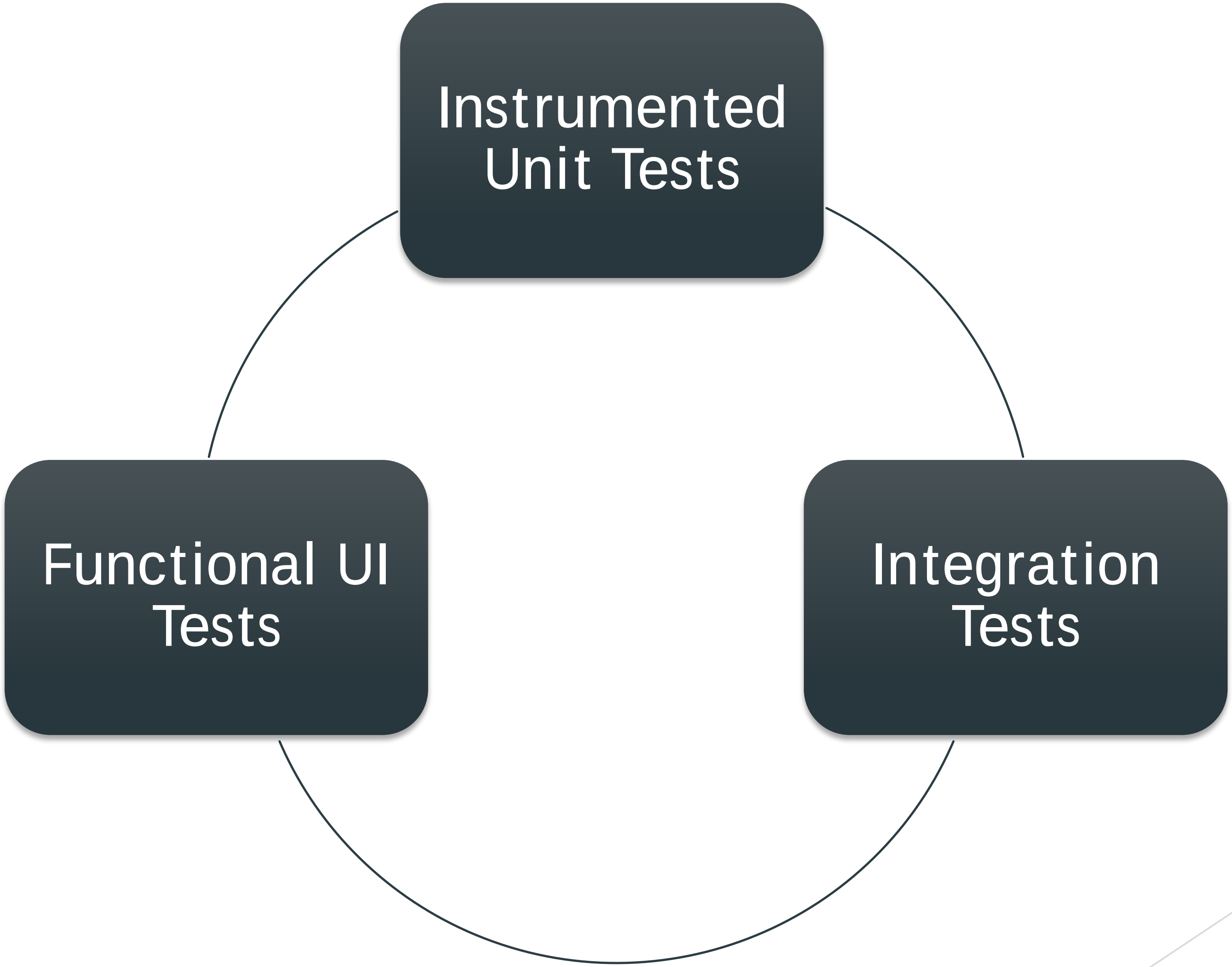
- Login validation (with mock)
- Content delivery (with mock)
- Store data locally (with mock)

Instrumented Tests

- Run on real / virtual device
- Slower than unit Tests
- Have more access
  - App – Context
  - Android dependencies like ressources



Instrumented Tests



Instrumented Unit Tests

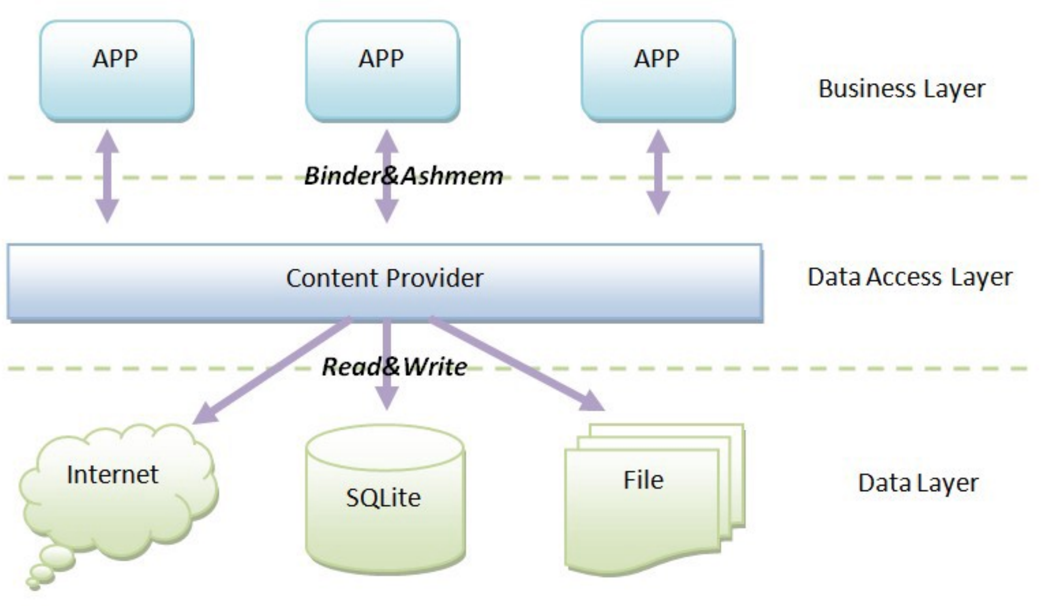
Integration Tests

Functional UI Tests

Instrumented Tests

IntegrationTests

Services



Content Provider

Instrumented Tests

Integration Tests - Examples

- Login validation (no mock)
  - Connect to server
  - Transfer data to and from server
- Content delivery (no mock)
  - Connect to server
  - Transfer data from server
- Sharing data
  - Send data to other apps
  - Receive data from other apps
- Store data locally (no mock)
  - Store in Database

Instrumented Tests

Functional UI Tests

Single App

- Target app behaviour
- Always the same context
- User like interactions

UI TESTING FOR ANDROID

espresso

Multiple Apps

- Interaction between apps
- Changing context
- User and system like interactions

UiAutomator

Instrumented Tests

Functional UI Tests - Examples

- Login Form
  - E-Mail input is available
  - Password input is available
  - Login Button is available
- Failed Login is visible
- Successfull Login in visible

- Content Page
  - Content is displayed
  - Textboxes are visible
- Keep logged in
  - Send app to background an bring it back to foreground

Other Testing Frameworks

iOS - Frameworks

- XCTest
  - Unit Tests
  - Integration Tests
  - Functional UI Tests (XCUITests)
- KIF
- Earl Grey (Espresso for iOS)

Other Testing Frameworks

Appium

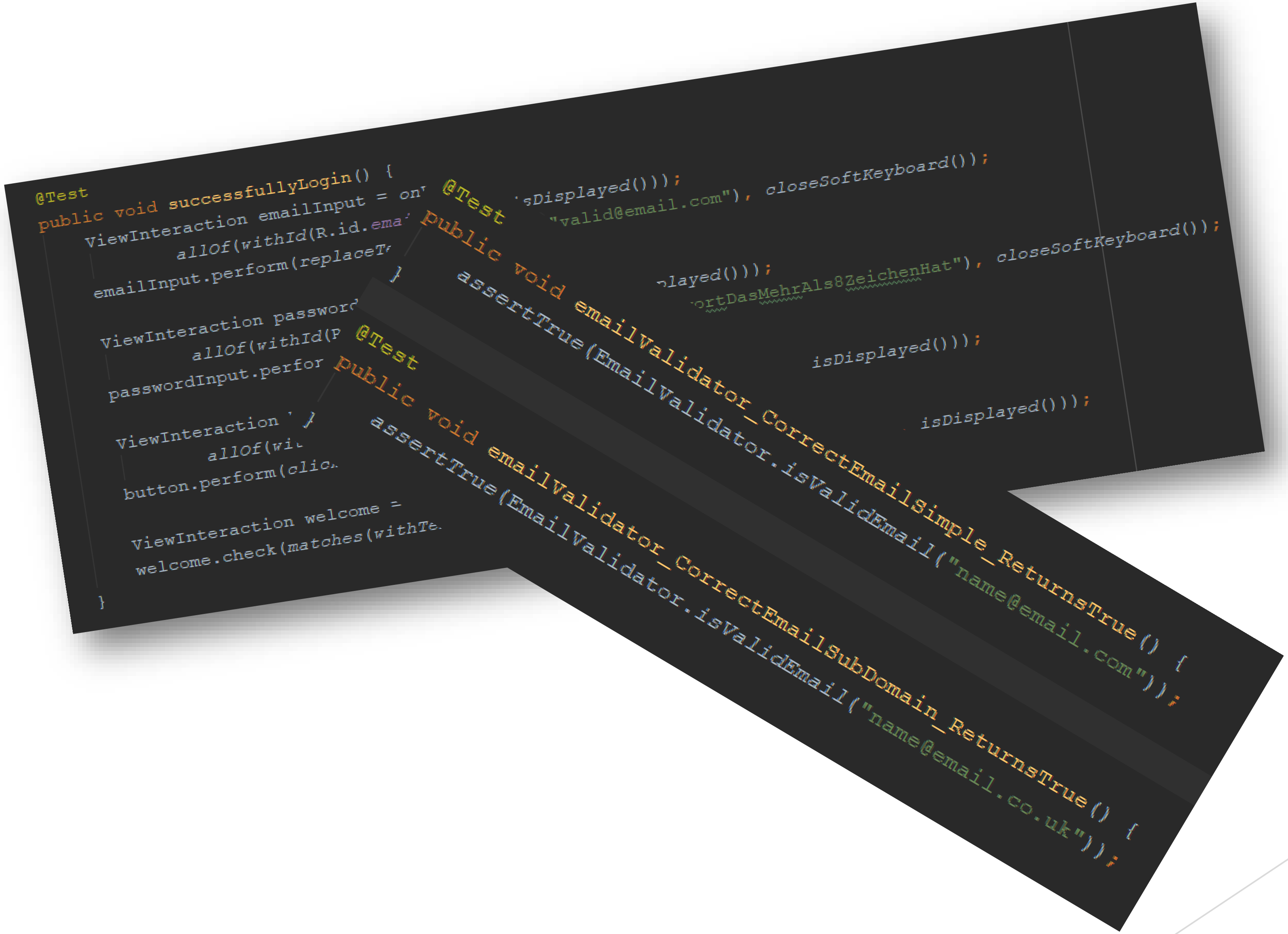
- Based on Selenium (browser testing tool)
- Webserver with REST API
- Client / Server architecture
- Possibility to write tests in different languages (http client API)
- Server and tests can be on different machines
- Tests use XCUITest (iOS)
- Tests use UIAutomator (Android)

Other Testing Frameworks

Roboelectirc & Mockito

- Mocking frameworks
- Mock up
  - Data
  - Classes
  - System parts

Live - Examples



```
@Test
public void successfullyLogin() {
    ViewInteraction emailInput = on        isDisplayed()));
            allOf(withId(R.id.ema          "valid@email.com"), closeSoftKeyboard());
    emailInput.perform(replaceT

    ViewInteraction passwor                played()));
            allOf(withId(P                 ortDasMehrAls8ZeichenHat"), closeSoftKeyboard());
    passwordInput.perfor

    ViewInteraction                        isDisplayed()));
            allOf(wi
    button.perform(clic                    isDisplayed()));

    ViewInteraction welcome =
    welcome.check(matches(withTe

}
```

```
@Test
public void emailValidator_CorrectEmailSimple_ReturnsTrue() {
    assertTrue(EmailValidator.isValidEmail("name@email.com"));
}
```

```
@Test
public void emailValidator_CorrectEmailSubDomain_ReturnsTrue() {
    assertTrue(EmailValidator.isValidEmail("name@email.co.uk"));
}
```