Integration Testing in Django

Jamie Counsell
SOFTWARE DEVELOPER

@jamiecounsell   www.jamiecounsell.me

Integration Testing

Django integration testing options

- Integration testing best practices
- Writing integration tests
- `django.test.TransactionTestCase`
- `django.test.TestCase`
- `django.test.LiveServerTestCase`
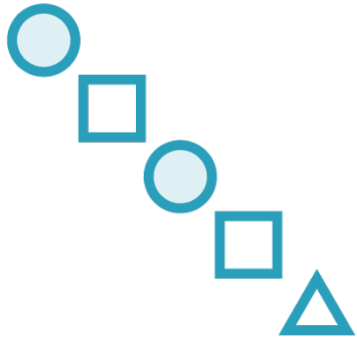
Integration Tests Should Be

Value-driven

Writing too many integration tests or over-testing with them is common

Reproducible

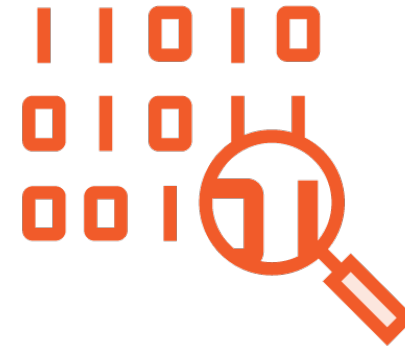**Complex integration tests can fail periodically due to external conditions**

What to Avoid

Unpredictable Tests

Tests that can be subject to different outcome based on race conditions or third parties

Too Much Detail

Tests that are written with a unit testing mentality or focus on too many testable features at once

Test Discovery

```
v  📁 tasks
   v  📁 tests
      📄 __init__.py
      📄 test_views.py
```
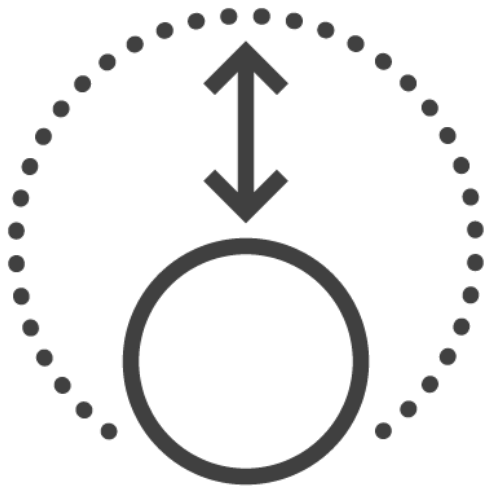
◄ **Integration tests are created and stored the same way as unit tests**

- Integration/unit tests can be stored together

- Group tests by functional area, not type

Transaction Test Case

Supports database transactions

- Assumes chosen database supports them

Creates a new database for each test

- Removes need for ordered tests
- Can run tests in parallel
- Slow as a result

Demo

Writing database integration tests

- Identify candidates for `TransactionTestCase`

- Test our models

Django Test Case

Most common test case

- Extends the popular `unittest.TestCase`

Supports all integrations

- Database lookup
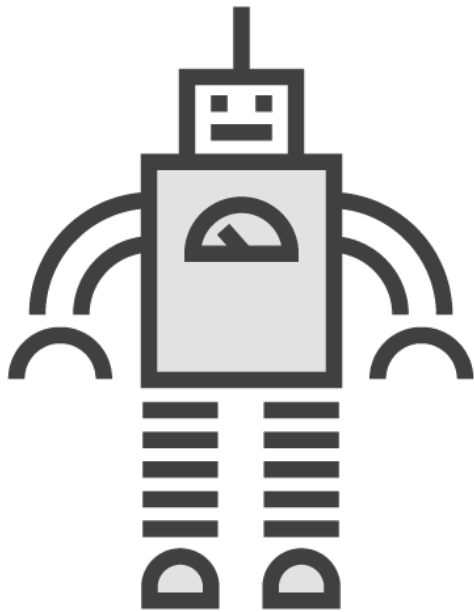- HTTP requests and responses
- Middleware

Demo

Writing view integration tests

- Identify candidates for TestCase
- Test our views

Live Server Test Case

Creates a live running Django server

- Equivalent to running `runserver`
- Can specify port, other settings

Used for

- Remote testing
- Continuous Integration
- Third party test tools

Demo

Writing third party integration tests

- Identify candidates for `LiveServerTestCase`

- Explore options for third party testing

Summary

Integration Testing in Django

- Integration test best practices

- Two main test case options

- Live server test case and third part tools