



DevOps for Defense

September 2023

Let there be Tests!

JD Black

<https://devopsfordefense.org>

<https://www.meetup.com/DevOps-for-Defense/>

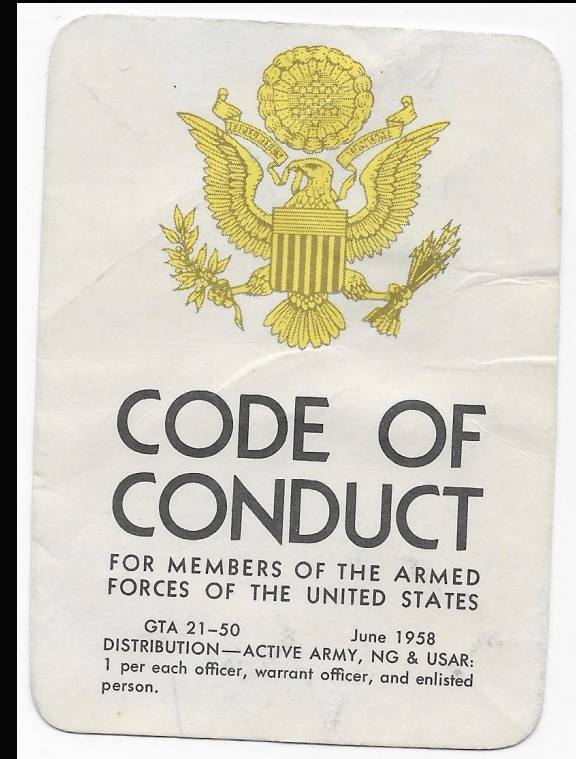
<https://github.com/jondavid-black/DevOpsForDefense>

devopsfordefense@gmail.com

<https://twitter.com/devops4defense>

DevOps for Defense Meetup: Code of Conduct

- UNCLASSIFIED ONLY!!!!
- Treat each other with respect and professionalism.
- Do not talk about private, sensitive, or proprietary work.
- Do talk about your experiences, needs, desires to improve work in our domain.
- Do share your thoughts.
- Do learn from others.
- Do respect & tip your bartenders!



No Meetup in October...DOES Time!

DEVOPS
ENTERPRISE
SUMMIT

DevOps Enterprise Summit Las Vegas 2023

The Cosmopolitan | October 3-5

The conference for technology leaders of large, complex organizations.

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Can we Just Agree...Good Testing Is Important



Major Benefits Of Software Testing



Launch a Flawless
Software Application



Prevent targeted
malware attacks



Improves the
User Experience



Curtail
maintenance costs



Improve
Time-to-Market

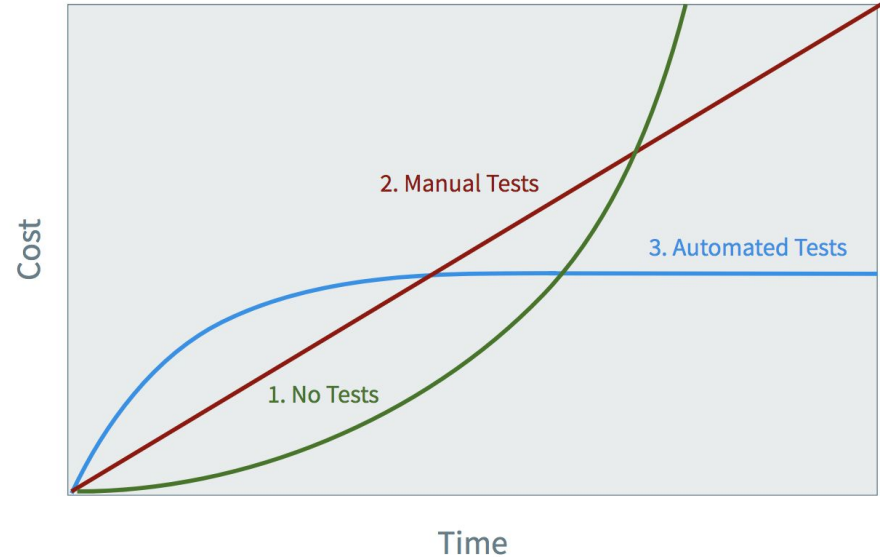


Enhance Quality
of Application

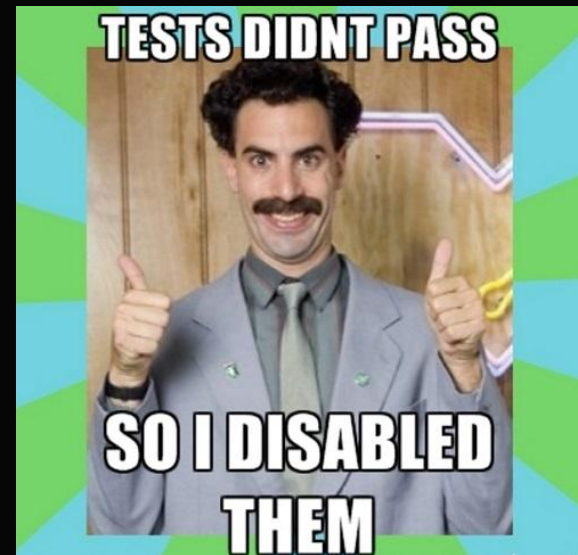
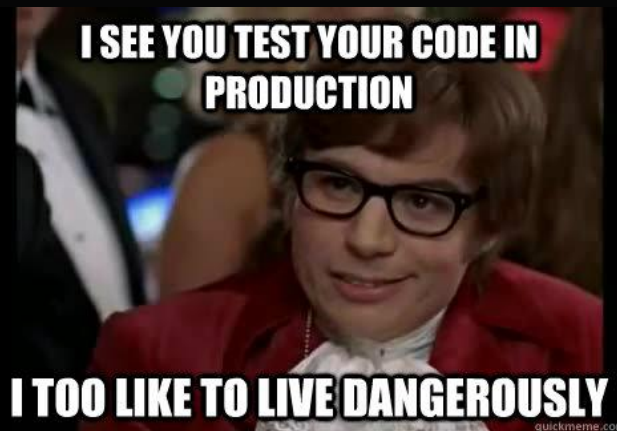
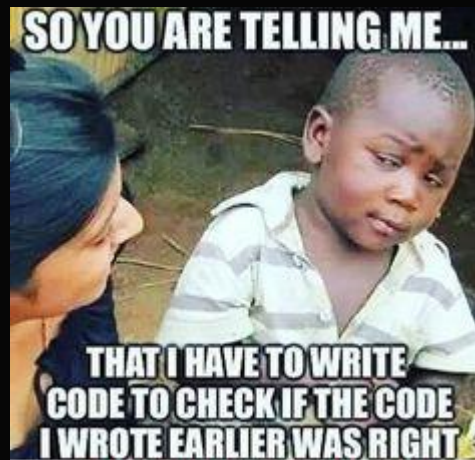


Boost
Competitiveness

The Cost of Testing Over Time

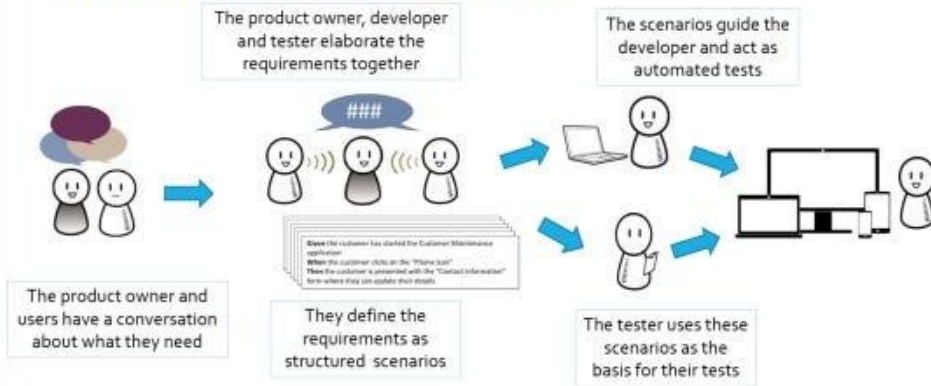


Optimized Legacy Test Process



Modern Test Strategies

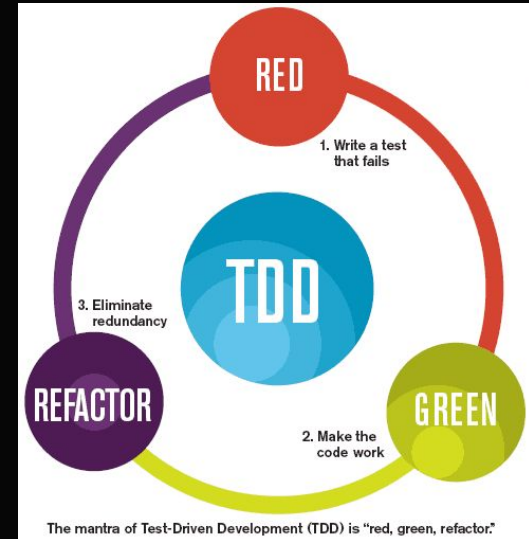
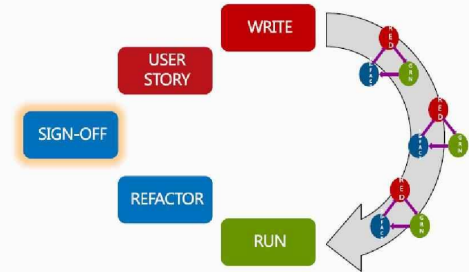
BDD Development Process



Just start by writing down what good would look like based on what you know today, and update that as you learn.

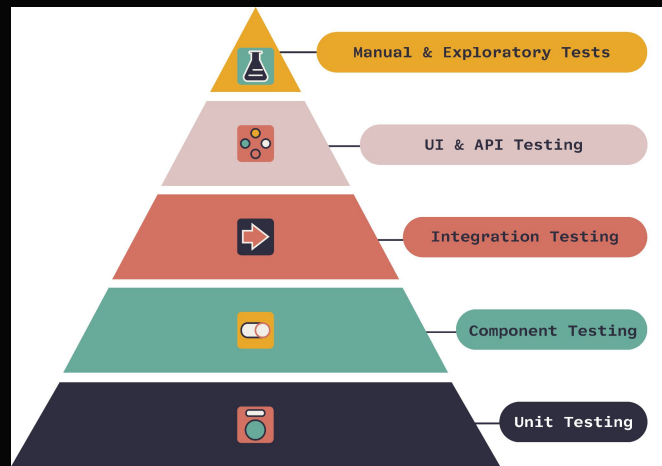
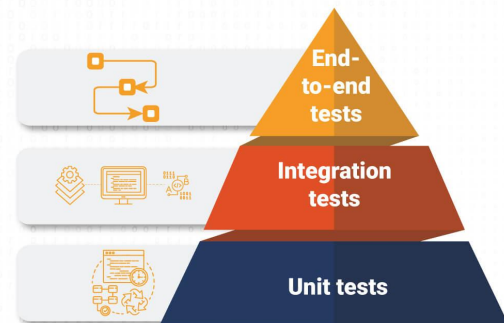
(Acceptance Test Driven Development)

- ▶ Select User story
- ▶ Write Acceptance Test
- ▶ Implement User Story
- ▶ Run Acceptance Test
- ▶ (Refactor)
- ▶ Get Sign-Off



Testing in CI/CD

CI/CD Model

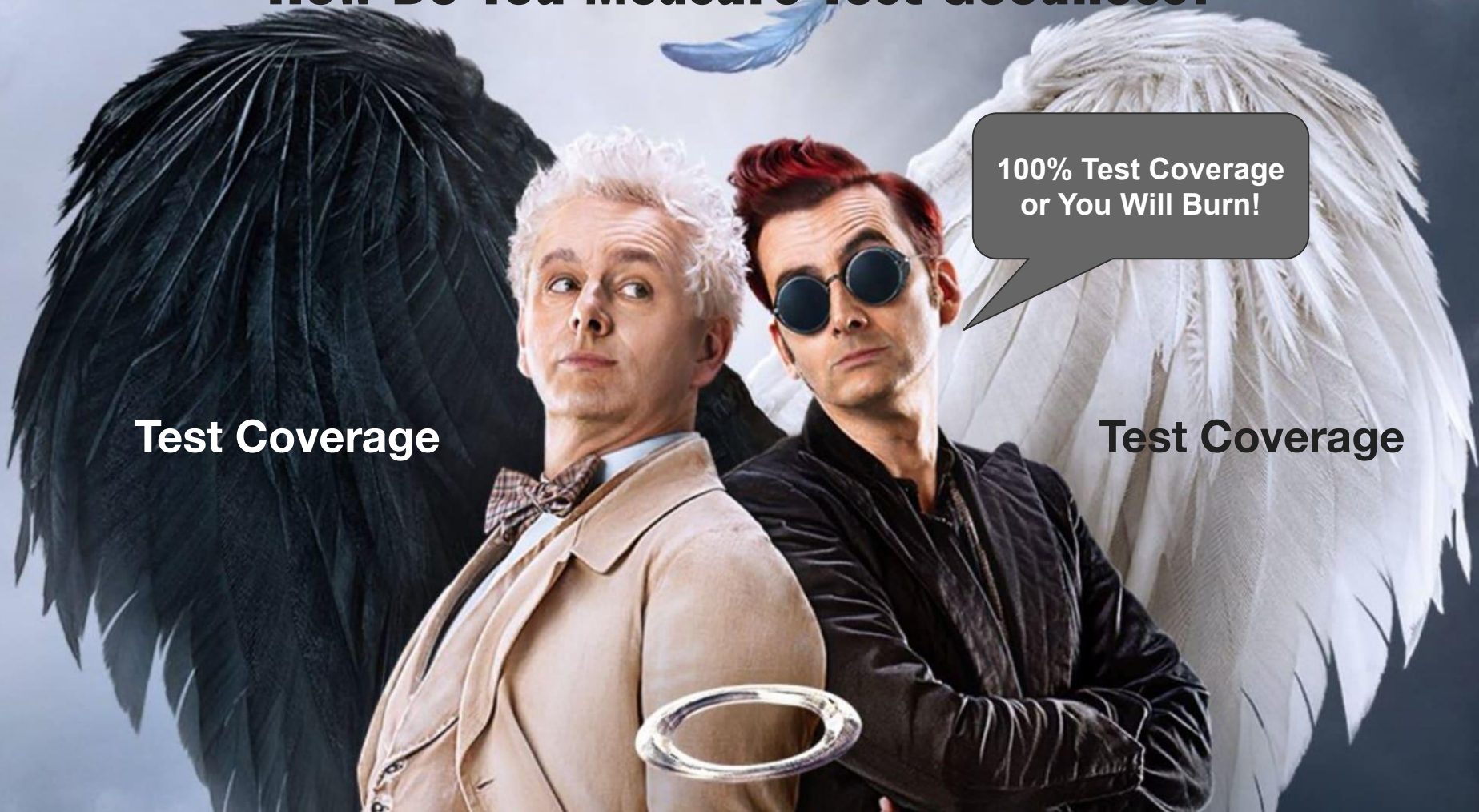


How Do You Measure Test Goodness?

Test Coverage

100% Test Coverage
or You Will Burn!

Test Coverage

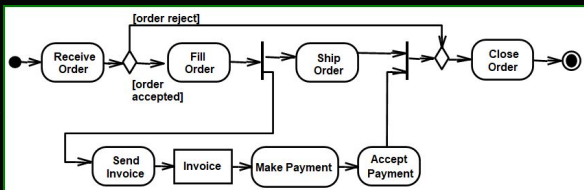


Test Goodness Through Traceability

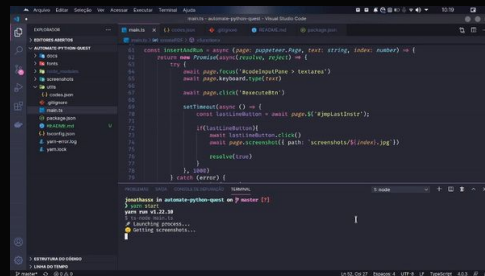


Feature: Addition
In order to avoid silly mistakes
As a math idiot
I want to be told the sum of two numbers

Scenario: Add two numbers
Given I have entered 50 into the calculator
And I have entered 70 into the calculator
When I press add
Then the result should be 120 on the screen



```
5 type Task struct {
6     Id      int
7     Title   string
8     Priority int
9 }
10 func createTables(db *sql.DB) {
11     db.Exec("CREATE TABLE tasks (id INTEGER PRIMARY KEY, title TEXT, priority INTEGER)")
12 }
13 func selectTaskByPriority(db *sql.DB, priority int) {
14 }
```



```
1 package demo.tests;
2
3 import static org.junit.Assert.*;
4
5 public class JUnitProgram {
6
7     @Before
8     public void setUp() throws Exception {
9     }
10
11     @After
12     public void tearDown() throws Exception {
13     }
14
15     @Test
16     public void test() {
17         fail("Not yet implemented");
18     }
19 }
20
21
22
23
24 }
```

Requirement / Use Case Coverage:

- Trace from Automated Test to Acceptance Test Spec to Use Cases and Requirements
- Use Case / Requirements Coverage Metric
- "Then Count" per Use Case / Requirement

Unit Test Coverage:

- Trace from Automated Unit Test to Code Implementation
- Code Coverage Metric
- Assertion Count / Tested Unit Under Test

A person with short dark hair, wearing a green and white checkered shirt, is seen from behind, sitting in a brown leather office chair. They are at a wooden desk with two large computer monitors displaying code. Their arms are raised in a celebratory gesture, with fists clenched. On the desk, there is a small potted plant on the left, a smartphone in the center, and a computer mouse on the right. The background is a textured, grey wall.

Joy Through Accomplishment

DevOps Resources

<https://devopsfordefense.org/resources/>

<https://www.meetup.com/DevOps-for-Defense/>
<https://github.com/jondavid-black/DevOpsForDefense>
devopsfordefense@gmail.com

Books / Publications:

Conference Presentations (YouTube):

- DevOps Enterprise Summit (DOES)
- IT Revolution
- Velocity
- GoTo

