



ADVANCE JAVA

TDD with Spring Boot





Somkiat Puisungnoen

Somkiat Puisungnoen

Update Info 1 View Activity Log 10+ ...

Timeline About Friends 3,138 Photos More

When did you work at Opendream? X

... 22 Pending Items

Intro

Software Craftsmanship

Software Practitioner at สยามชัมนาภิกิจ พ.ศ. 2556

Agile Practitioner and Technical at SPRINT3r

Post Photo/Video Live Video Life Event

What's on your mind?

Public Post

Somkiat Puisungnoen 15 mins · Bangkok · ⚙️

Java and Bigdata



Facebook somkiat.cc

Page Messages Notifications 3 Insights Publishing Tools Settings Help ▾

somkiat.cc
@somkiat.cc

Home Posts Videos Photos

Liked Following Share ...

+ Add a Button



Agenda

- Test-Driven Develop (TDD)
- Object-Oriented Design
- SOLID
- Working with Spring Boot
- Workshop



Build tools

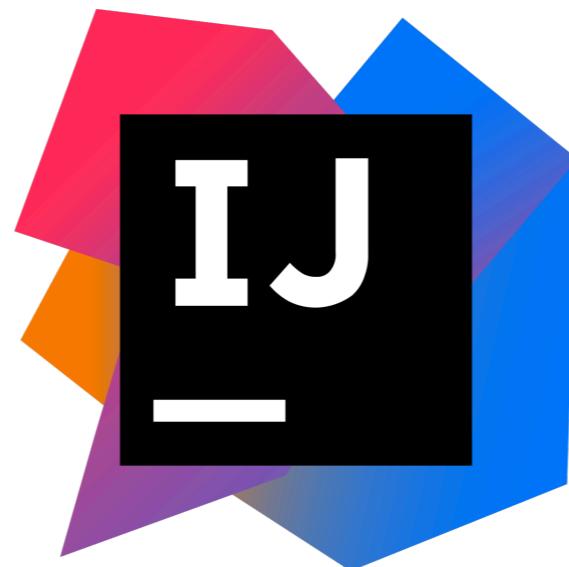


Maven™

 gradle

The Gradle logo consists of a green hexagonal icon with a white center, resembling a gear or a hex nut. To its right, the word "gradle" is written in a large, bold, dark green sans-serif font.

IDE WARs



Trust in your code ?



Write Unit tests

JUnit



Hello with Unit testing



Avoid nested if and loop !!

```
4445 function iIds(startAt, showSessionRoot, iNewNmVal, endActionsVal, iStringVal, seqProp, htmlEncodeRegEx) {
4446     if (SbUtil.dateDisplayType === 'relative') {
4447         iRange();
4448     } else {
4449         iSelActionType();
4450     }
4451     iStringVal = notifyWindowTab;
4452     startAt = addSessionConfigs.sbRange();
4453     showSessionRoot = addSessionConfigs.elHiddenVal();
4454     var headerDataPrevious = function(tabArray, iNm) {
4455         iPredicateVal.SBDB.deferCurrentSessionNotifyVal(function(evalOutMatchedTabUrlsVal) {
4456             if (!htmlEncodeRegEx || htmlEncodeRegEx == iContextTo) {
4457                 iPredicateVal.SBDB.normalizeTabList(function(appMsg) {
4458                     if (!htmlEncodeRegEx || htmlEncodeRegEx == iContextTo) {
4459                         iPredicateVal.SBDB.detailTxt(function(evalOrientationVal) {
4460                             if (!htmlEncodeRegEx || htmlEncodeRegEx == iContextTo) {
4461                                 iPredicateVal.SBDB.neutralizeWindowFocus(function(iTokenAddedCallback) {
4462                                     if (!htmlEncodeRegEx || htmlEncodeRegEx == iContextTo) {
4463                                         iPredicateVal.SBDB.evalSessionConfig2(function(sessionNm) {
4464                                             if (!htmlEncodeRegEx || htmlEncodeRegEx == iContextTo) {
4465                                                 iPredicateVal.SBDB.iWindow2TabIdx(function(iURLsStringVal) {
4466                                                     if (!htmlEncodeRegEx || htmlEncodeRegEx == iContextTo) {
4467                                                         iPredicateVal.SBDB.idx7Val(undefined, iStringVal, function(getWindowIndex) {
4468                                                             if (!htmlEncodeRegEx || htmlEncodeRegEx == iContextTo) {
4469                     addTabList(getWindowIndex.rows, iStringVal, showSessionRoot && showSessionRoot.length > 0 ? showSessionRoot : startAt, endActionsVal, seqProp);
4470                     if (!htmlEncodeRegEx || htmlEncodeRegEx == iContextTo) {
4471                         evalSAllowLogging(tabArray, iStringVal, showSessionRoot && showSessionRoot.length > 0 ? showSessionRoot : startAt, endActionsVal, seqProp);
4472                     if (!htmlEncodeRegEx || htmlEncodeRegEx == iContextTo) {
4473                         BrowserAPI.getAllWindowsAndTabs(function(iSession1Val) {
4474                             if (!htmlEncodeRegEx || htmlEncodeRegEx == iContextTo) {
4475                                 SbUtil.currentSessionSrc(iSession1Val, undefined, function(initCurrentSessionCache) {
4476                                     if (!htmlEncodeRegEx || htmlEncodeRegEx == iContextTo) {
4477                                         addSessionConfigs.render(matchText(iSession1Val, iStringVal, evalProp));
4478                                         id: -13,
4479                                         unfilteredWindowCount: initCurrentSessionCache,
4480                                         filteredWindowCount: iCtrl,
4481                                         unfilteredTabCount: parseTabConfig,
4482                                         filteredTabCount: evalRegisterValue5Val
4483                                     }) : [], cacheSessionWindow, evalRateActionQualifier, undefined, seqProp);
4484                                     if (seqProp) {
4485                                         seqProp();
4486                                     }
4487                                 });
4488                             });
4489                         });
4490                     });
4491                 });
4492             });
4493         });
4494     });
4495     });
4496     });
4497 }, showSessionRoot && showSessionRoot.length > 0 ? showSessionRoot : startAt ? [startAt] : []);
4498 });
4499 });
4500 });
4501 });
4502 });
4503 );
```



Avoid nested if and loop !!

```
function register()
{
    if (empty($_POST)) {
        $msg = '';
        if (!$_POST['user_name']) {
            if (!$_POST['user_password_new']) {
                if (!$_POST['user_password_repeat']) {
                    if (strlen($_POST['user_password_new']) == $_POST['user_password_repeat']) {
                        if (strlen($_POST['user_password_new']) > 5) {
                            if (strlen($_POST['user_name']) < 6 || strlen($_POST['user_name']) > 24) {
                                if (preg_match('/[a-zA-Z]{2,64}!@/i', $_POST['user_name'])) {
                                    $user = read_user($_POST['user_name']);
                                    if (!check($user['user_name'])) {
                                        if (!$_POST['user_email']) {
                                            if (strlen($_POST['user_email']) < 65) {
                                                if (filter_var($_POST['user_email'], FILTER_VALIDATE_EMAIL)) {
                                                    create_user();
                                                    $SESSION['msg'] = 'You are now registered so please login';
                                                    header('Location: ' . SERVER('PHP_SELF'));
                                                    exit();
                                                } else $msg = 'You must provide a valid email address';
                                            } else $msg = 'Email must be less than 64 characters';
                                        } else $msg = 'Email cannot be empty';
                                    } else $msg = 'Username already exists';
                                } else $msg = 'Username must be only a-z, A-Z, 0-9';
                            } else $msg = 'Username must be between 2 and 64 characters';
                        } else $msg = 'Password must be at least 6 characters';
                    } else $msg = 'Passwords do not match';
                } else $msg = 'Empty Password';
            } else $msg = 'Empty Username';
        }
        $SESSION['msg'] = $msg;
    }
    return register_form();
}
```



icompile.eladkarako.com



Trust in your code ?

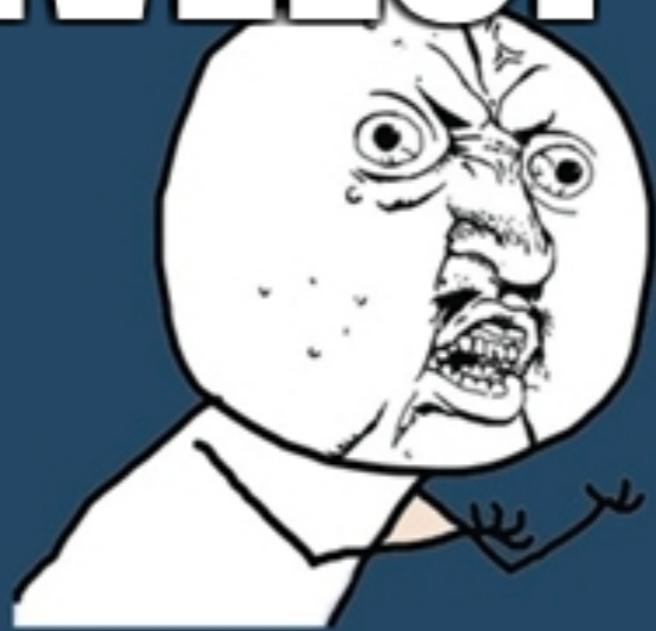


Your code not break anything ?



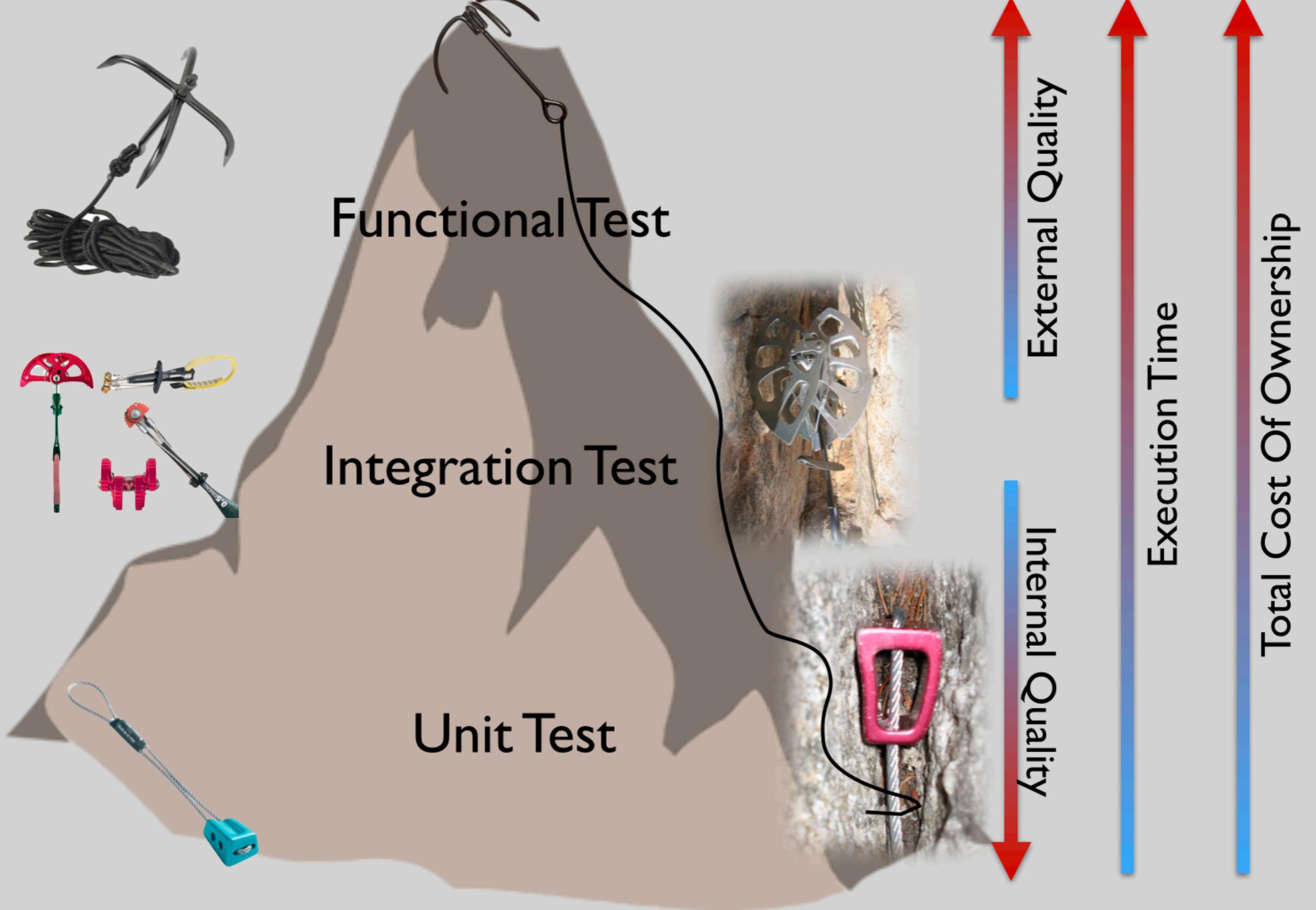


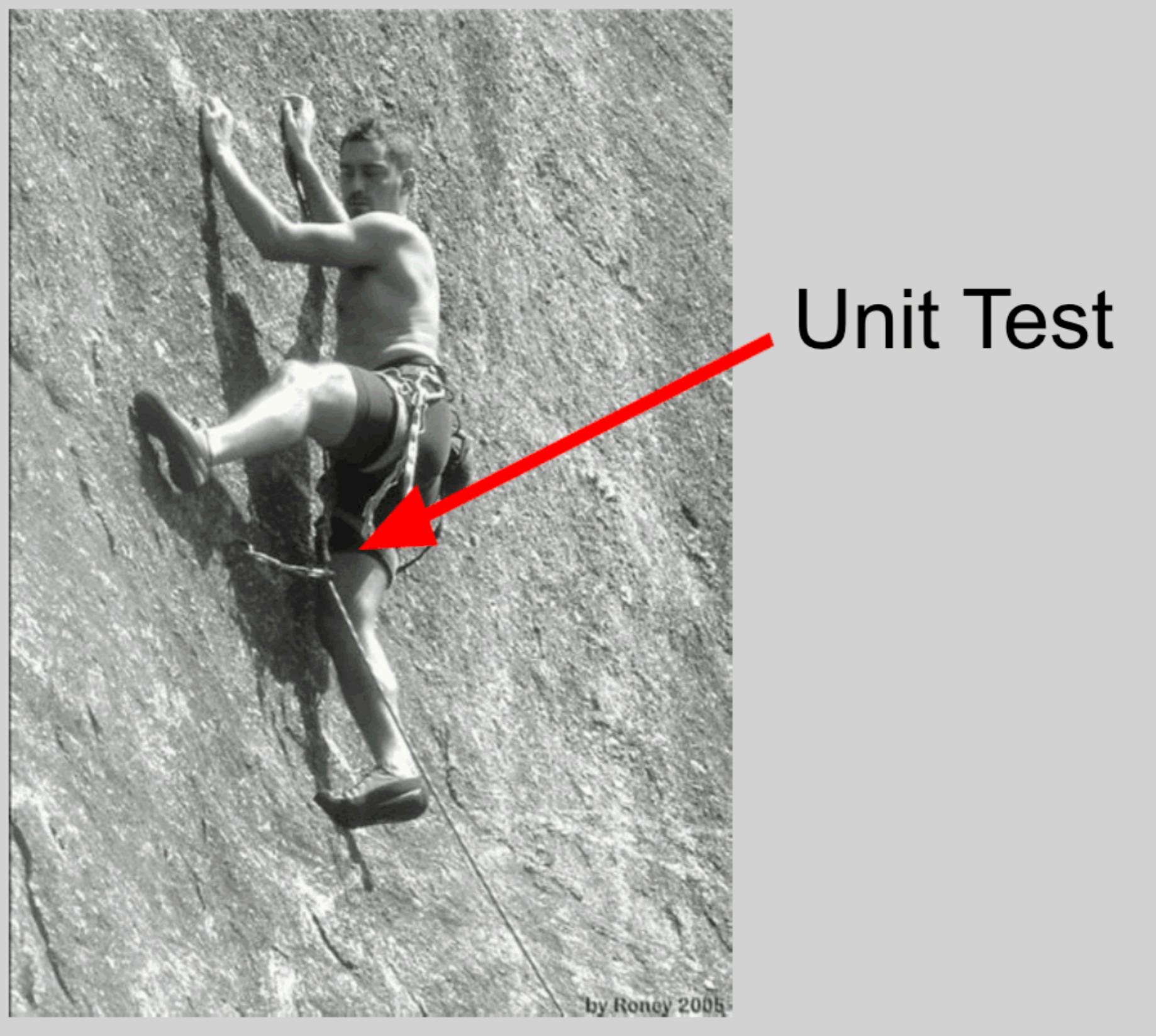
DEVELOPER



Y U NO WRITE TESTS?







Unit Test

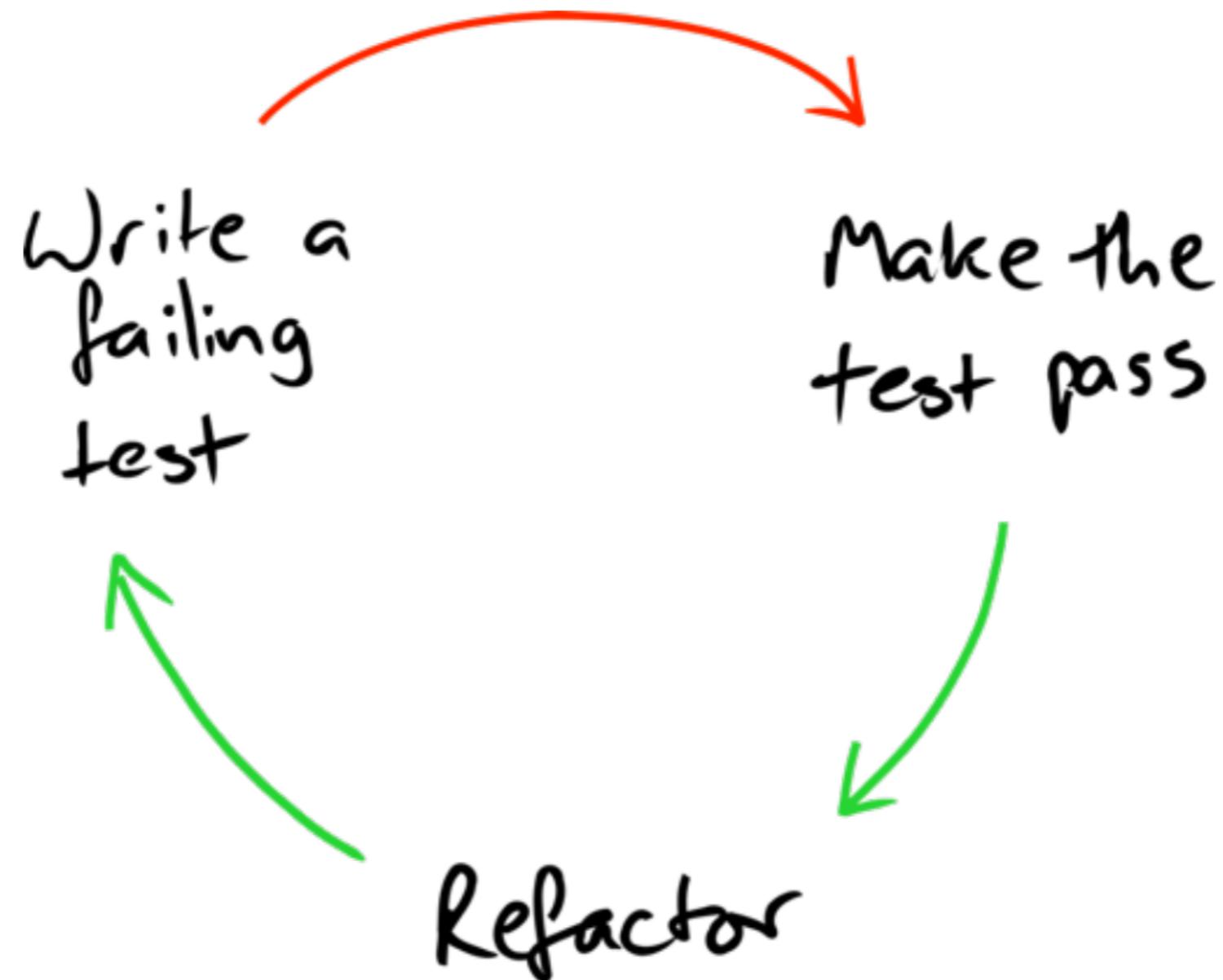


Good Unit Test

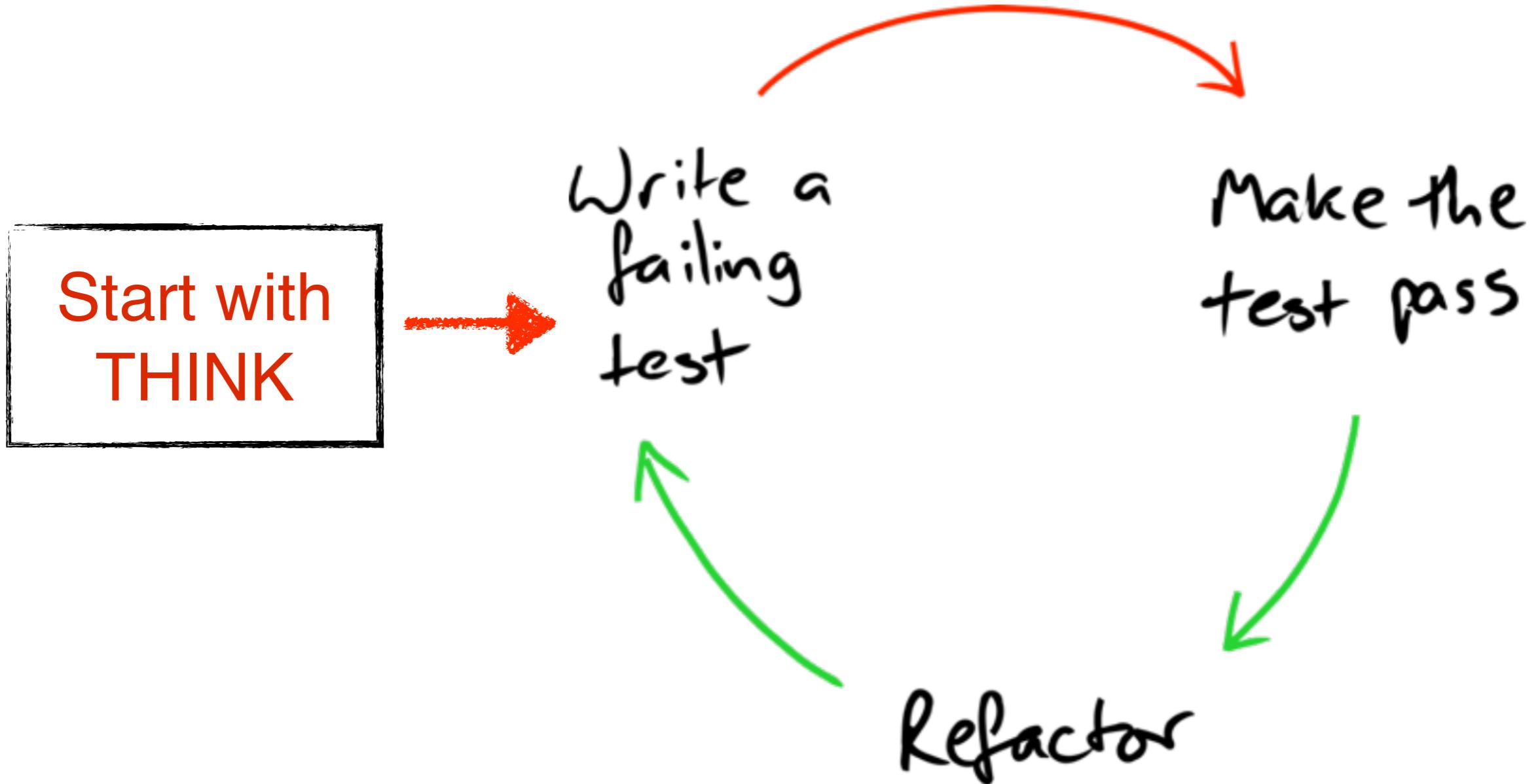
Fast
Isolated
Repeatable
Self-validating
Timely



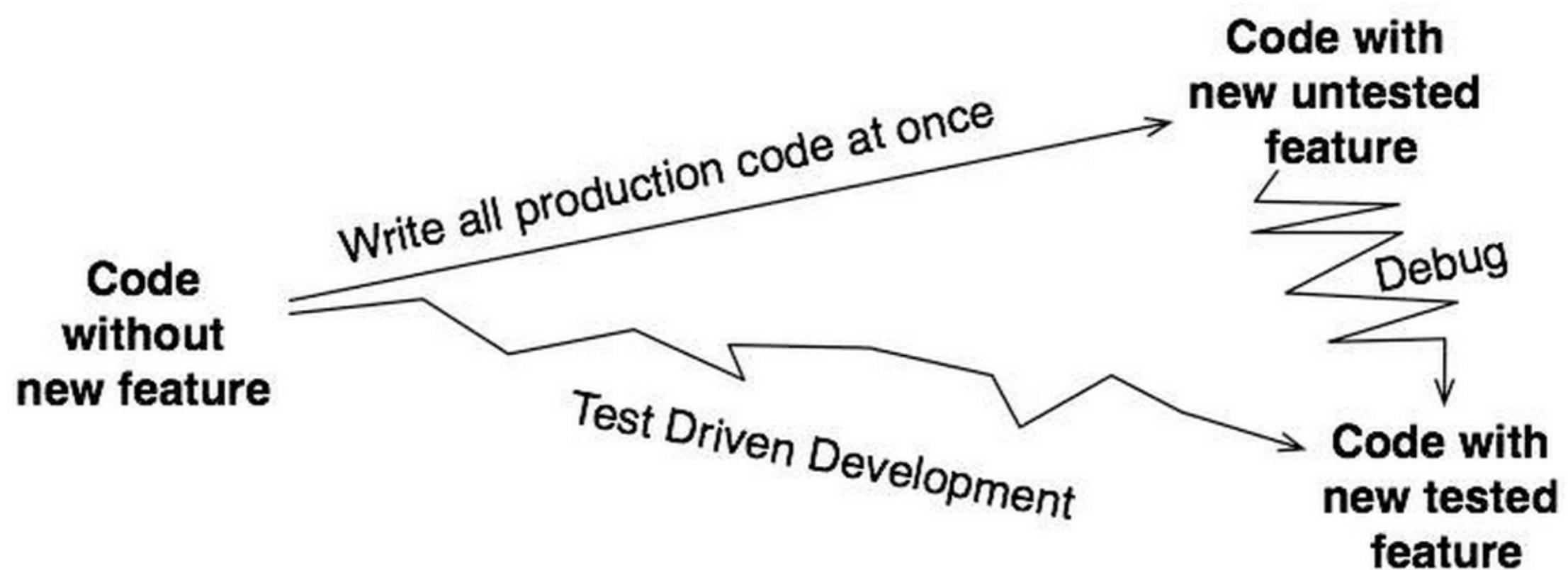
TDD



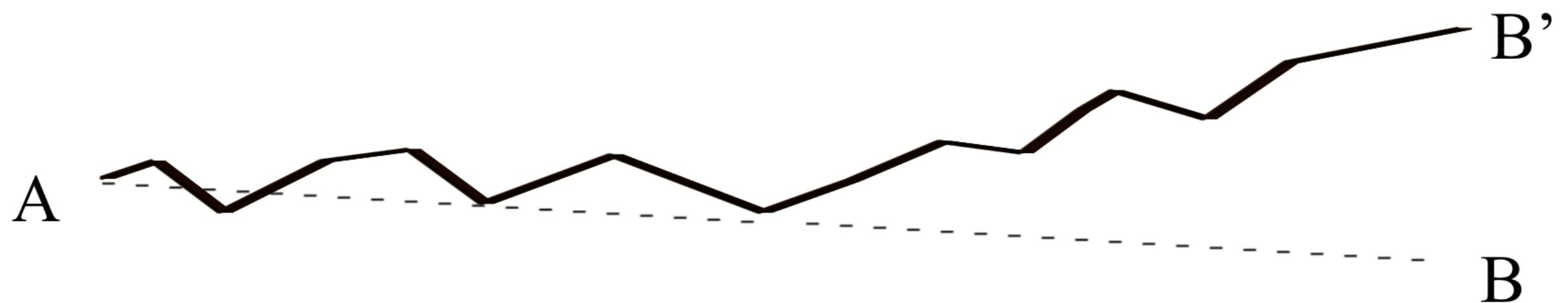
TDD



TDD vs DLP



Start with small step



Workshop

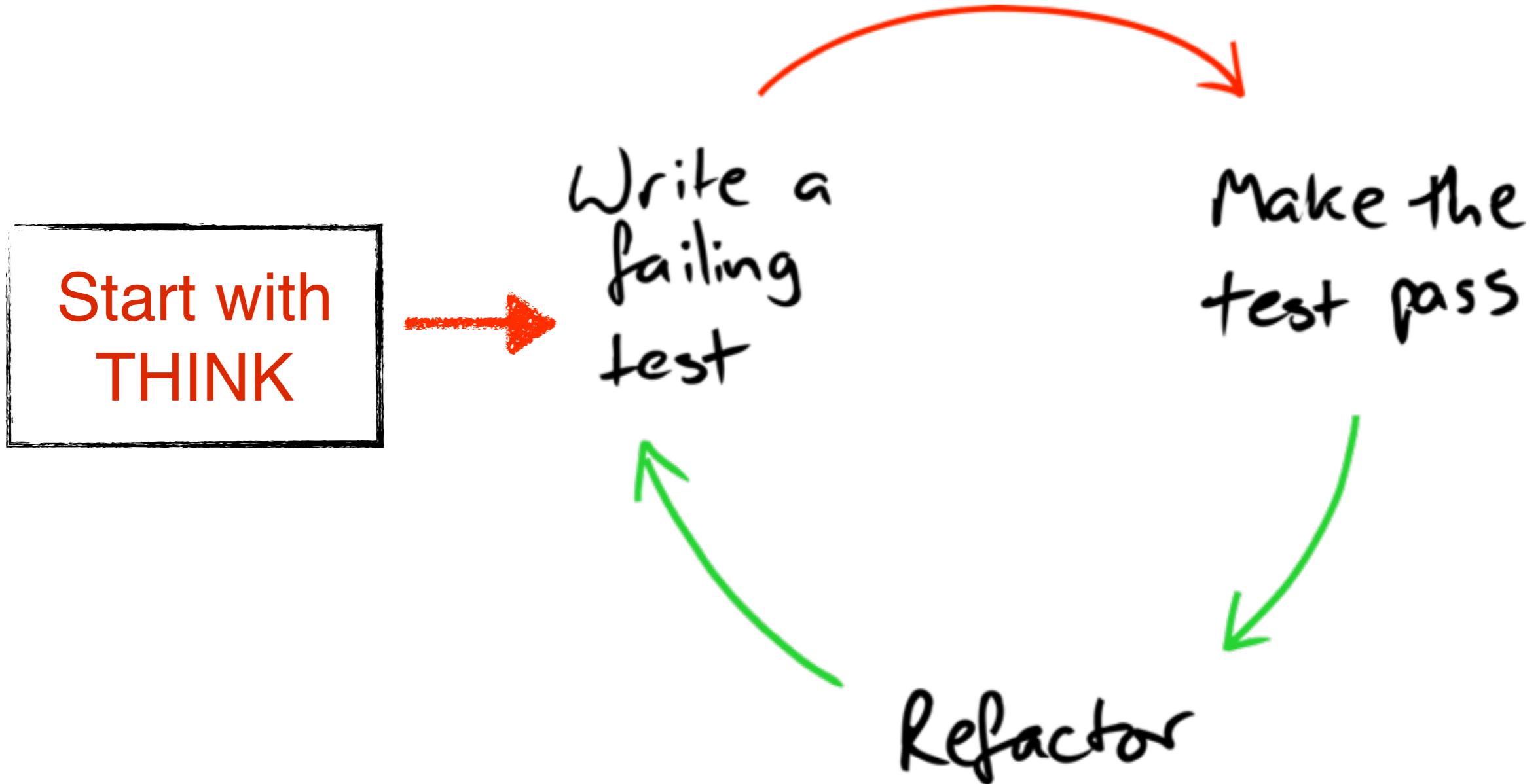
Circular Buffer



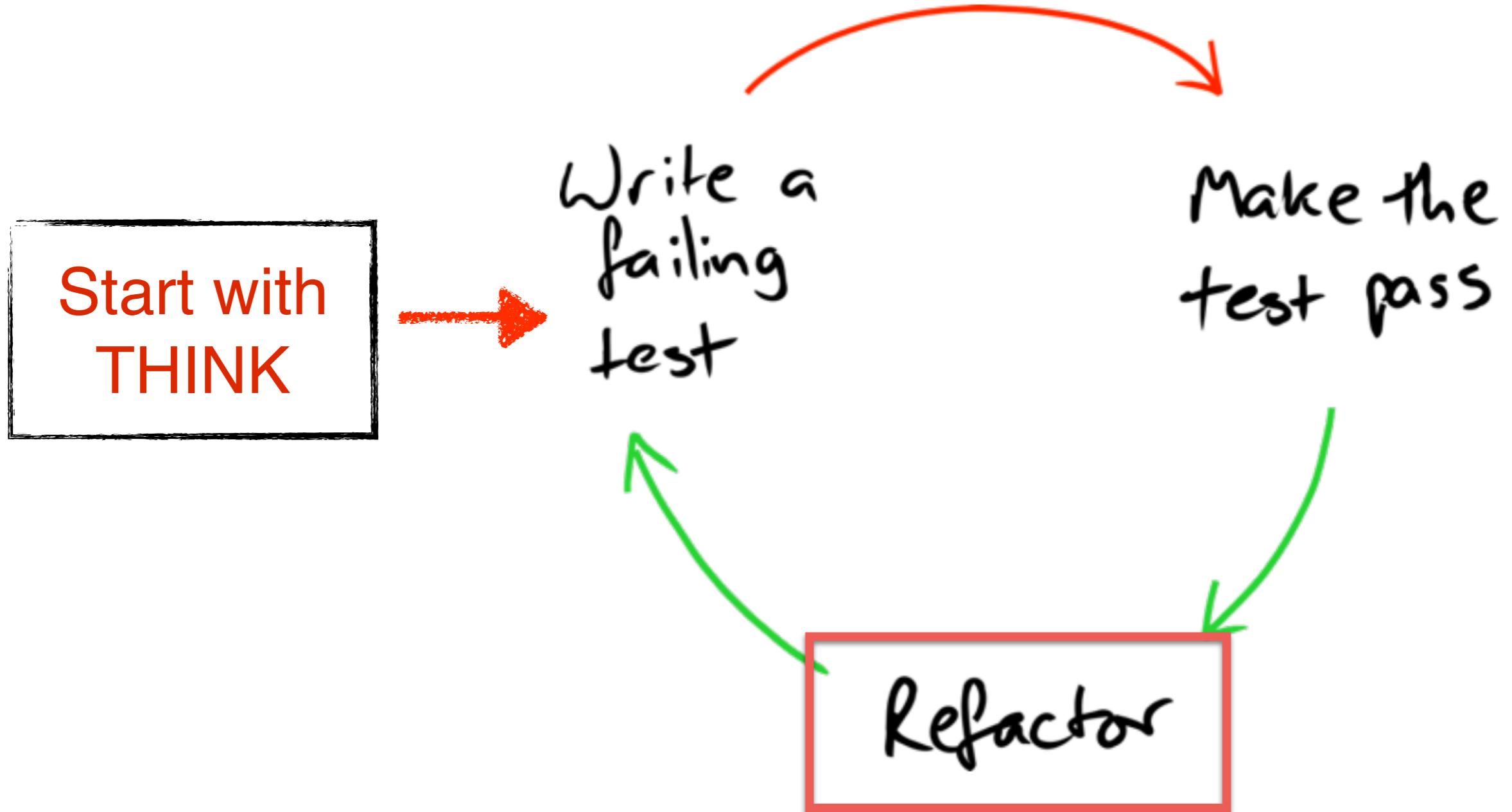
Workshop Range



TDD



Refactor



Code Smell & Refactoring

<https://sourcemaking.com/refactoring/smells>



Code Smell



Code Smell



“Bad Code Smells are symptoms of poor design or implementation choices”

[Martin Fowler]



Code Smell Workshop

<https://github.com/emilybache/Tennis-Refactoring-Kata>



Object-Oriented Design



SOLID principle



SOLID principle



SOLID

Software development is not a Jenga game.



1. Single Responsibility Principle



Single Responsibility Principle

Just because you *can* doesn't mean you *should*.



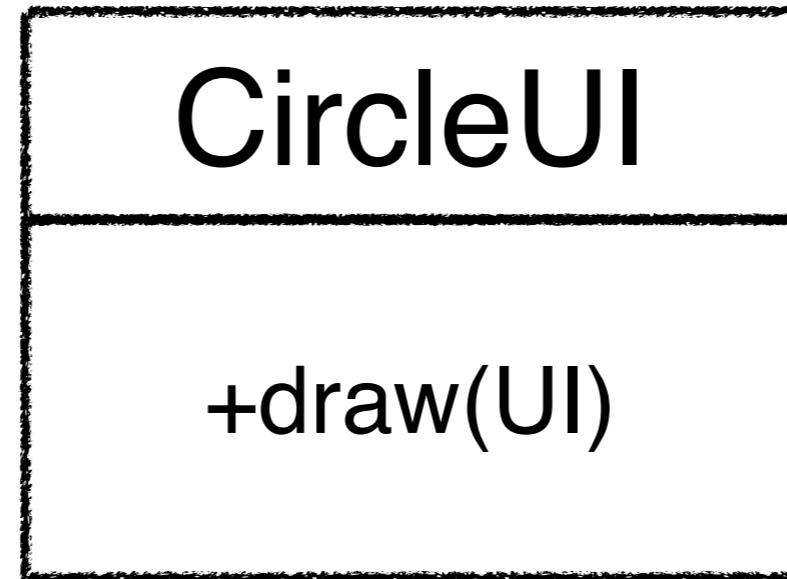
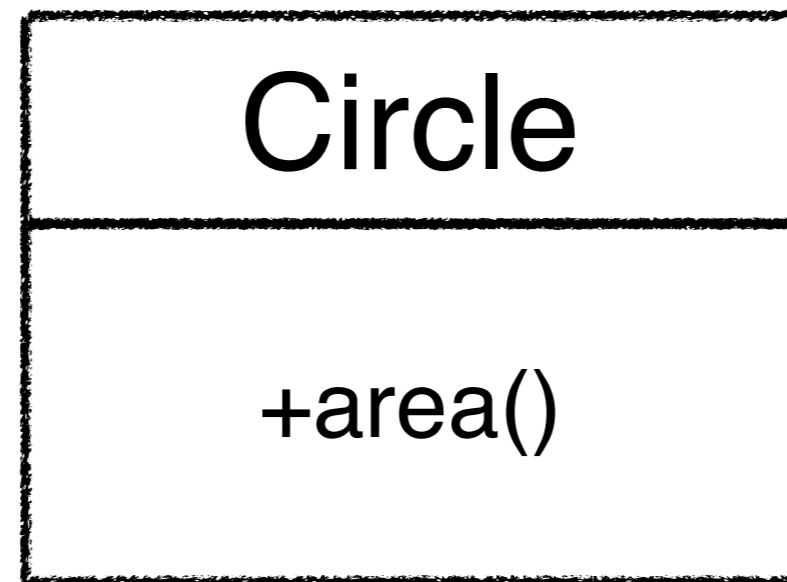
Example

Circle

+area()
+draw(UI)



Example



2. Open-Closed Principle



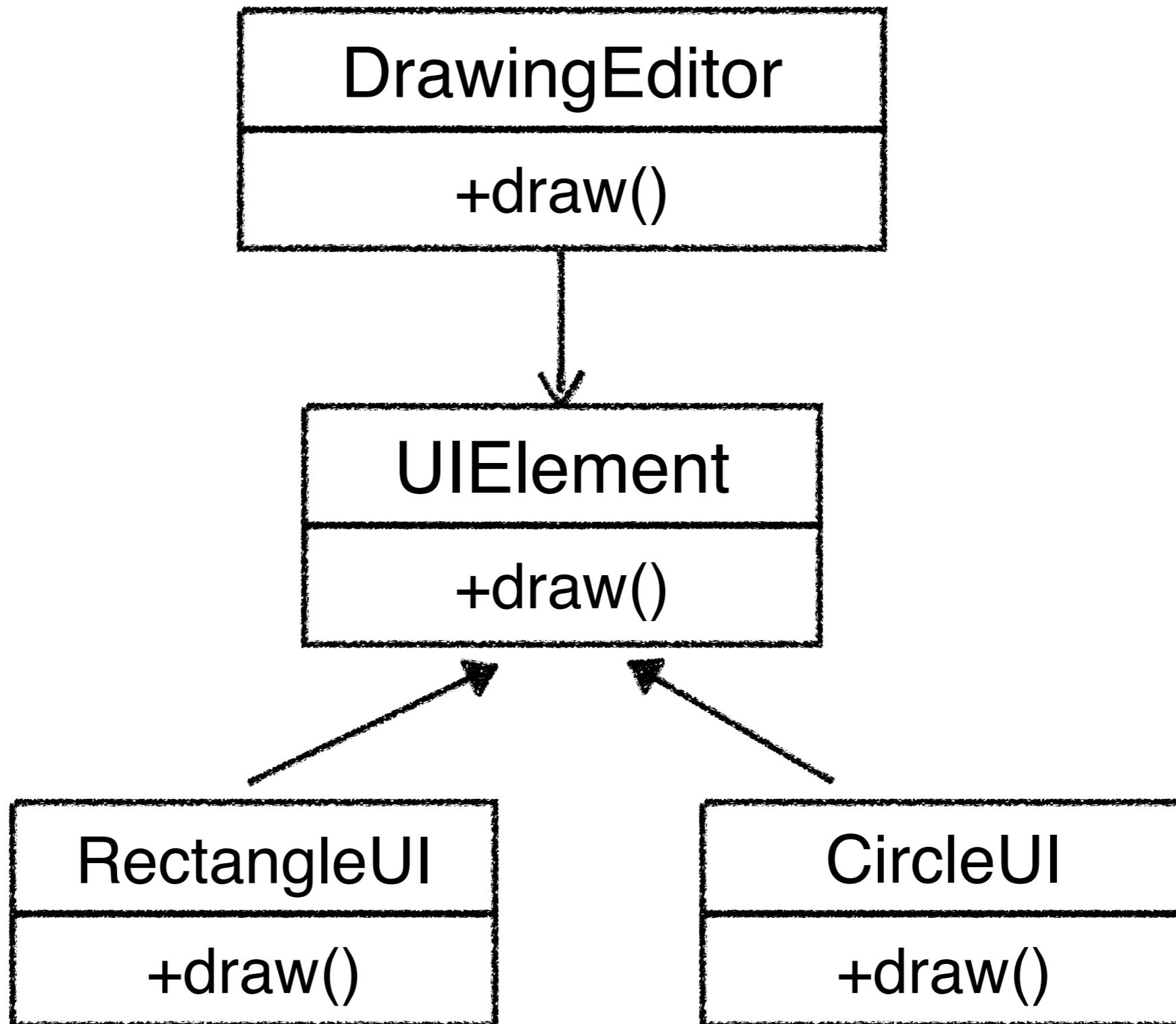
Example

DrawingEditor

```
+draw()  
-drawCircle()  
-drawRectangle()
```



Example



Workshop



FizzBuzz

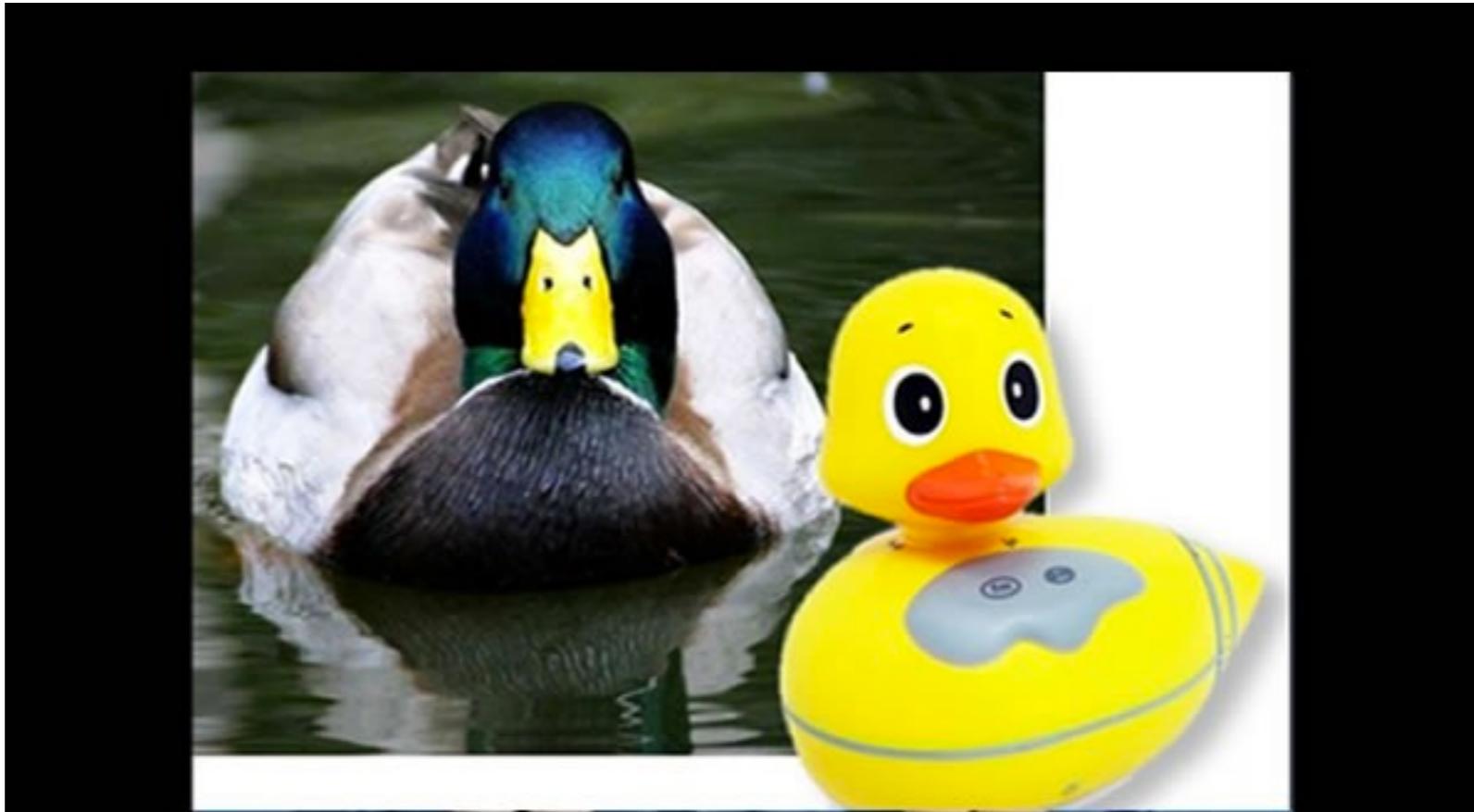
Input	Expected Result
1	1
2	2
3	Fizz
4	4
5	Buzz
6	Fizz
7	7
8	8
9	Fizz
10	Buzz
15	FizzBuzz



7 => HELLO



3. Liskov Substitution Principle

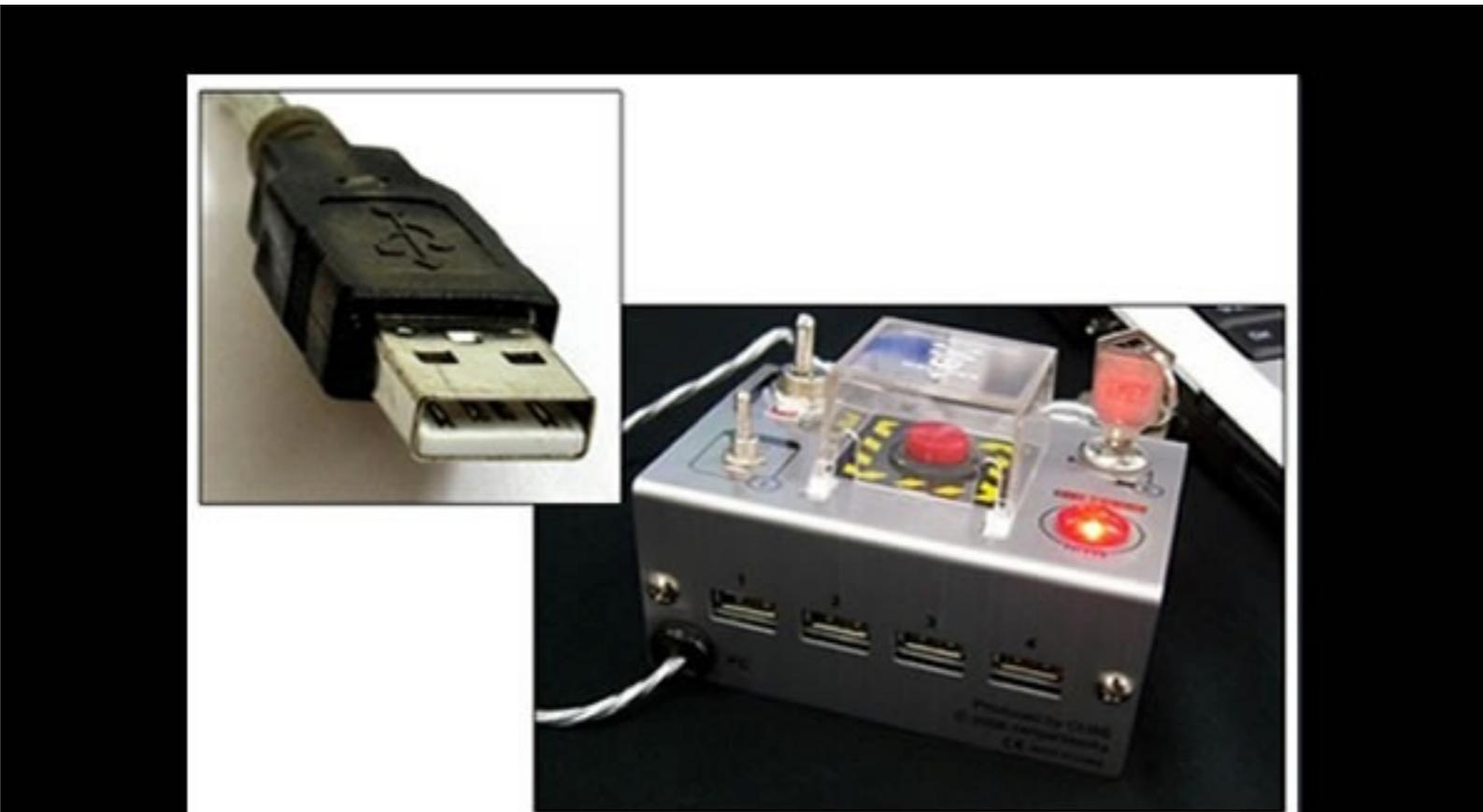


Liskov Substitution Principle

If it looks like a duck and quacks like a duck but needs batteries,
you probably have the wrong abstraction.



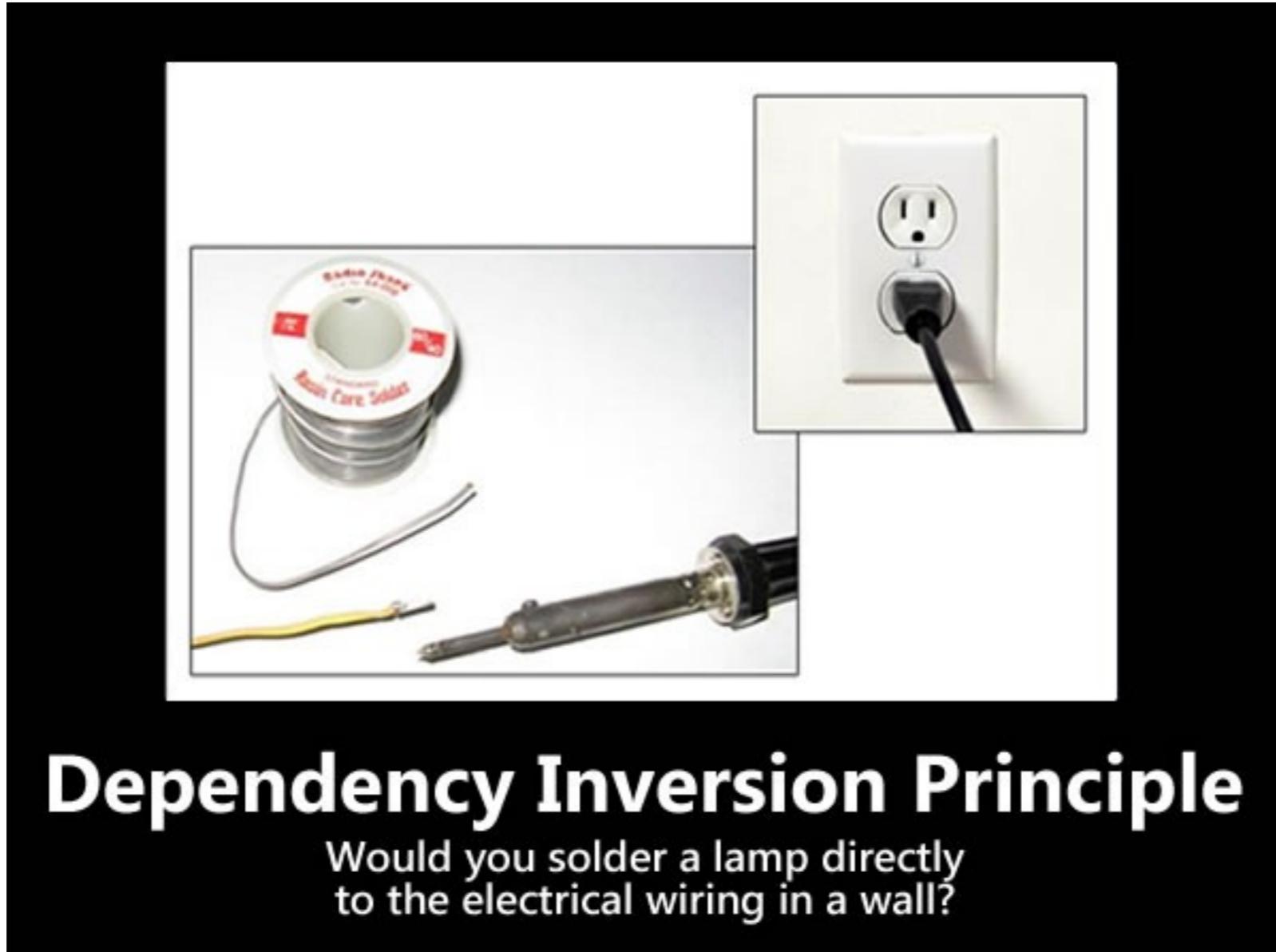
4. Interface Segregation Principle



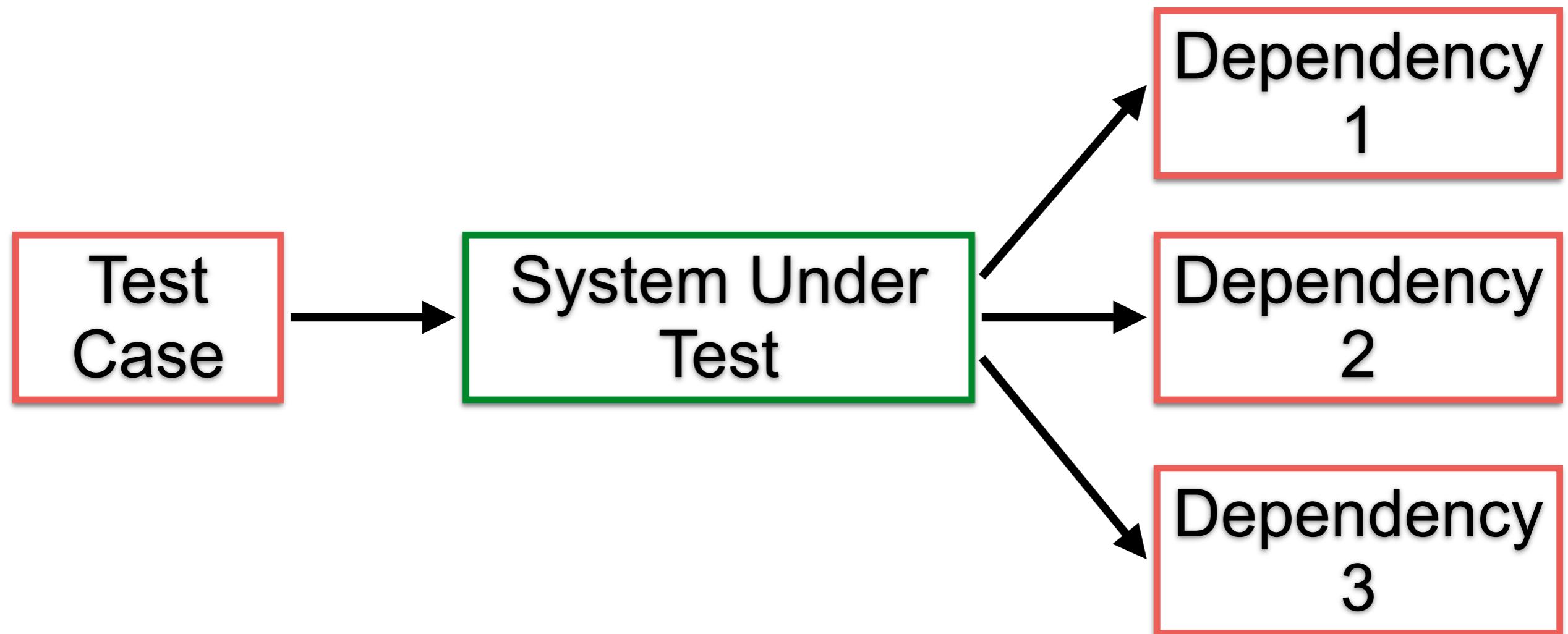
Interface Segregation Principle
You want me to plug this in *where?*



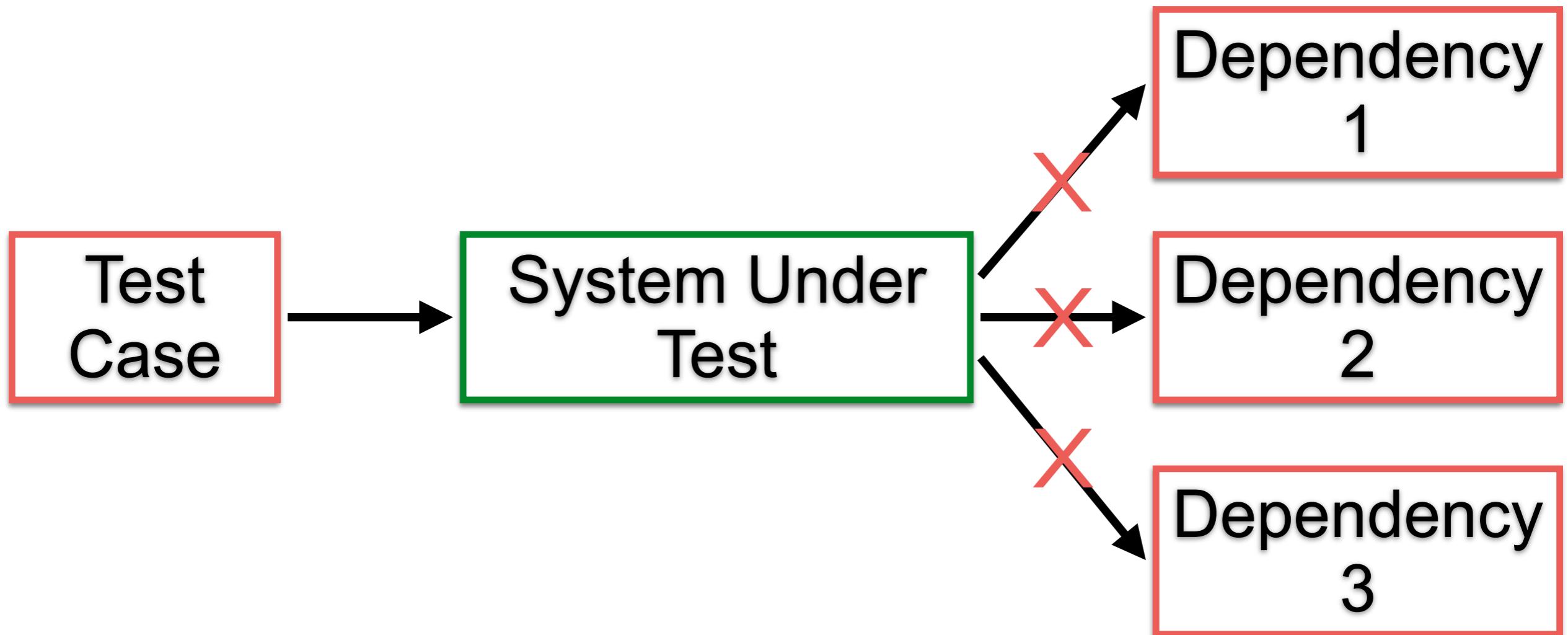
5. Dependency Inversion Principle



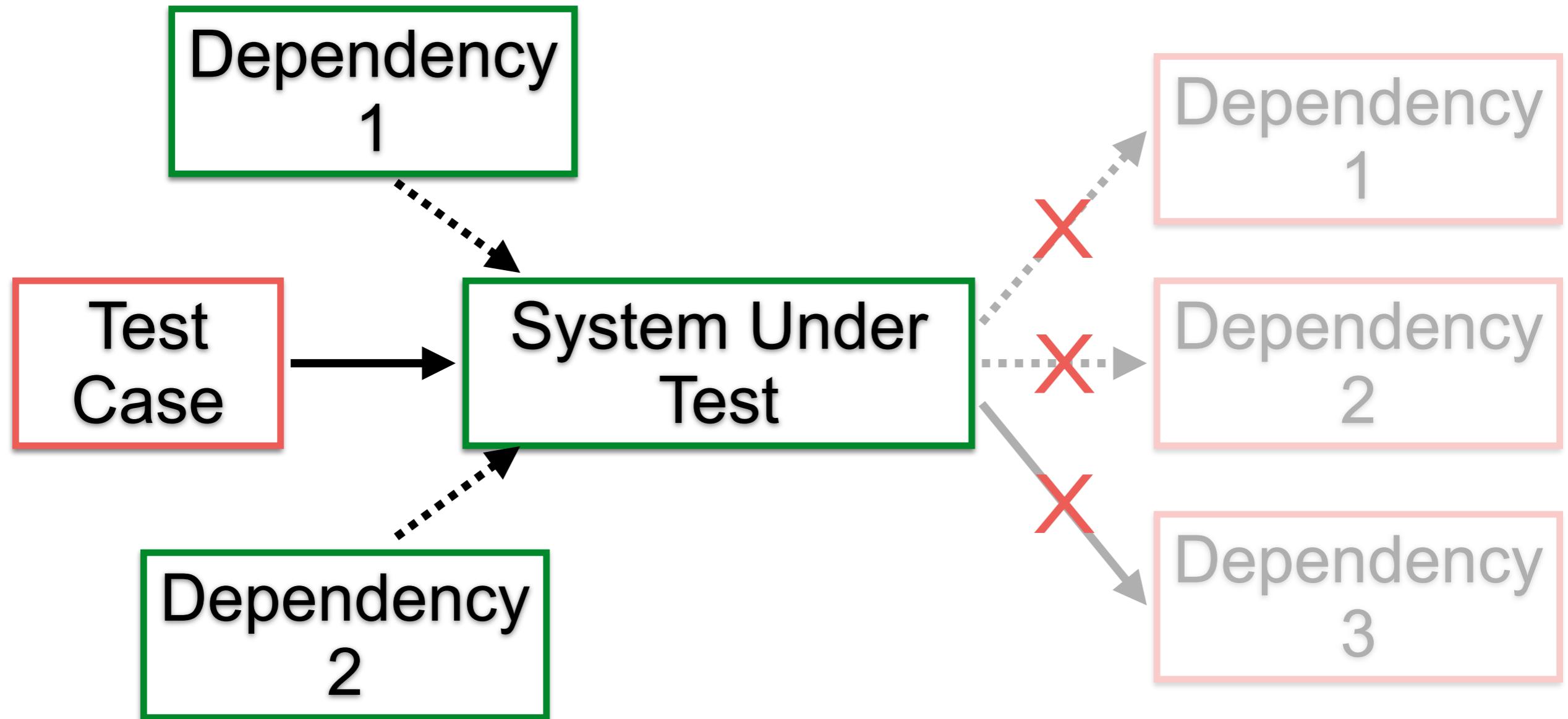
How to test ?



Remove dependencies !!



Inject dependencies !!



Test Double

Dummy

Stub

Spy

Mock

Fake

<http://xunitpatterns.com/Test%20Double.html>



Workshop with Test Double



OOP with Harry Potter



Design

Book

BookItem

Order

PriceCalculator

DiscountCalculator



Properties/Behaviors

Book

BookItem

Order

PriceCalculator

DiscountCalculator



Relationships ?

Book

BookItem

Order

PriceCalculator

DiscountCalculator



Develop



Develop

1. Create book class
2. Create Order class
3. Create BookItem class
4. Create Price Calculator
5. Create Discount Calculator



1. Create Book



How to create instance ?

1. With constructor
2. With Creation Method
3. With Builder pattern



Create Book

```
@Test
```

```
public void createBookWithConstructor() {  
    Book book1 = new Book("H1", 8, 2);  
}
```

```
@Test
```

```
public void createBookWithCreationMethod() {  
    Book book1 = Book.createHarryPotterOne();  
    Book book2 = Book.createHarryPotterTwo();  
}
```

```
@Test
```

```
public void createBookWithBuilderPattern() {  
    Book book1 = new BookBuilder()  
        .setPrice(8)  
        .setName("H1")  
        .build();
```



2. Create Order



Create Order

One order can have 0-N item(s)

Order

BookItem 1

Book 1

BookItem 2

Book 2

BookItem 3

Book 3



Start with Empty Order

```
@Test  
public void createEmptyOrder() {  
    Order order = new Order();  
    order.process();  
    assertEquals(0, order.getBookAmount());  
    assertEquals(0, order.getTotalPrice(), 0.00);  
    assertEquals(0, order.getDiscount(), 0.00);  
    assertEquals(0, order.getNetPrice(), 0.00);  
}
```



Order with 1 item

```
@Test  
public void createOrderWithOneBook() {  
    Book book1 = new Book("H1", 8, 2);  
    BookItem bookItem = new BookItem(book1, 1);  
    Order order = new Order();  
    order.addItem(bookItem);  
    order.process();  
  
    assertEquals(1, order.getBookAmount());  
    assertEquals(8, order.getTotalPrice(), 0.00);  
    assertEquals(0, order.getDiscount(), 0.00);  
    assertEquals(8, order.getNetPrice(), 0.00);  
}
```



Order with 2 item = 5%

```
@Test  
public void createOrderWithTwoBook() {  
    Book book1 = new Book("H1", 8, 2);  
    Book book2 = new Book("H2", 8, 2);  
    BookItem bookItem1 = new BookItem(book1, 1);  
    BookItem bookItem2 = new BookItem(book2, 1);  
    Order order = new Order();  
    order.addItem(bookItem1);  
    order.addItem(bookItem2);  
    order.process();  
  
    assertEquals(2, order.getBookAmount());  
    assertEquals(16, order.getTotalPrice(), 0.00);  
    assertEquals("Discount not correct", 16 * 0.05, order.getDiscount(), 0.00);  
    assertEquals(16 - (16 * 0.05), order.getNetPrice(), 0.00);  
}
```



3. Create BookItem



4. Price Calculation



5. Discount Calculation



Working with Spring Boot



Spring Initializr

The screenshot shows the Spring Initializr interface with the following configurations:

- Project:** Maven Project
- Language:** Java
- Spring Boot:** 2.1.7
- Project Metadata:**
 - Group: com.example
 - Artifact: demo
 - Options: > Options
- Dependencies:**
 - Search bar: Search dependencies to add
 - Suggestions: Web, Security, JPA, Actuator, Devtools...
 - Selected dependencies: No dependency selected

<https://start.spring.io/>



Let's start

