



DEVOPS 2015

開發敏捷與維運高效的IT新典範

從DevOps觀念看Web前端開發測試先行

From devOps to front end Ops



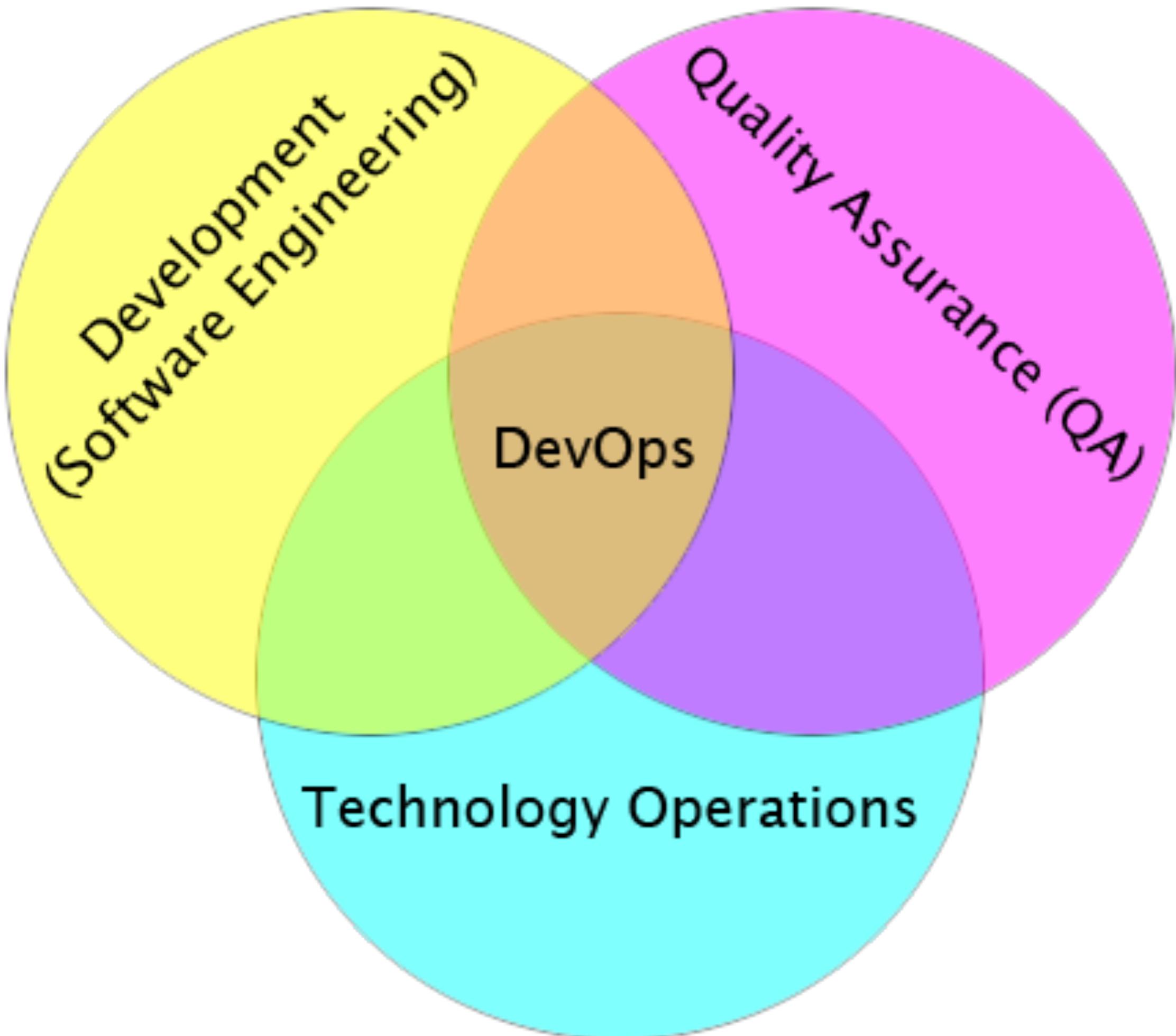
@clonncd

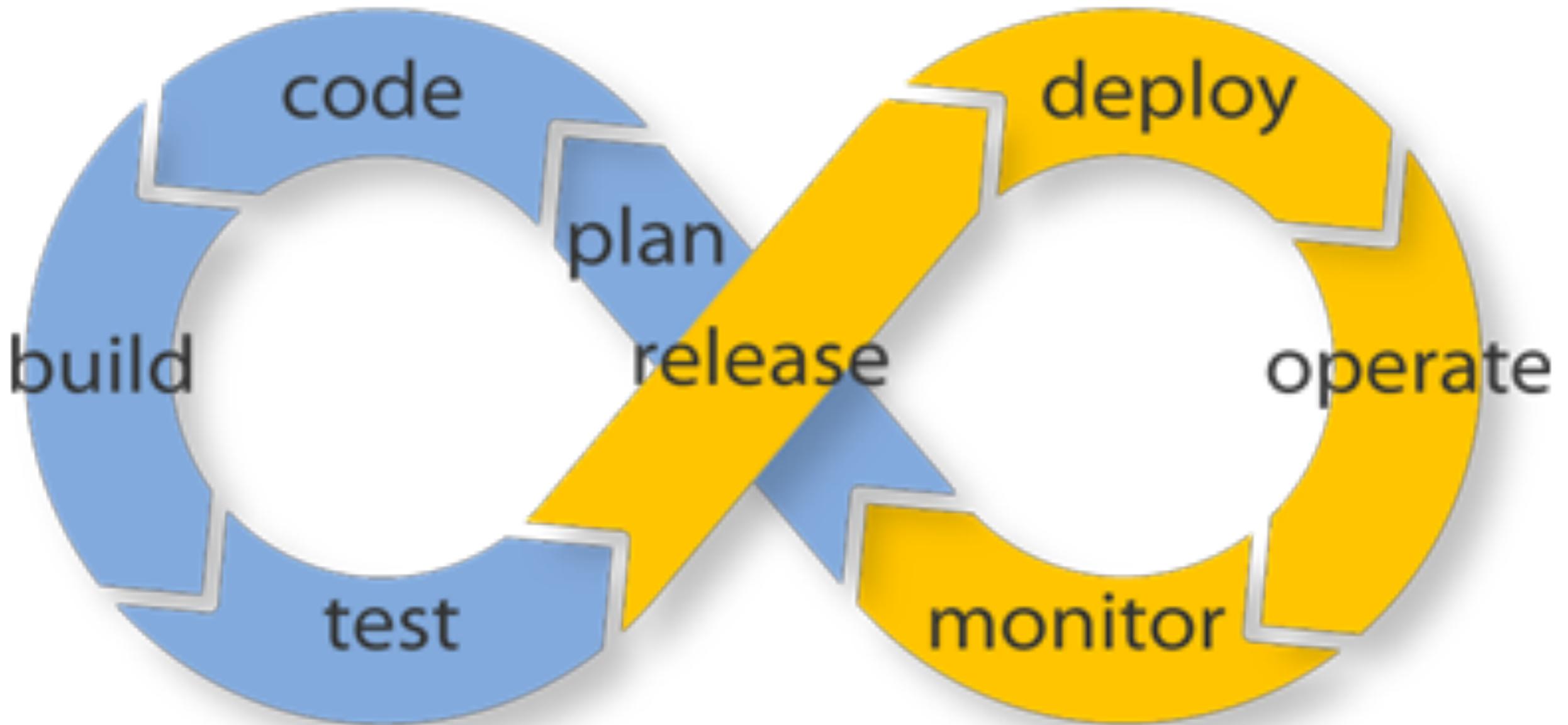
Caesar Chi
戚務漢

What is DevOps

What is DevOps

Developer + Operation





TEST IS ALL

沒有測試的佈署，就像是裸奔

Deploy without test, it is naked

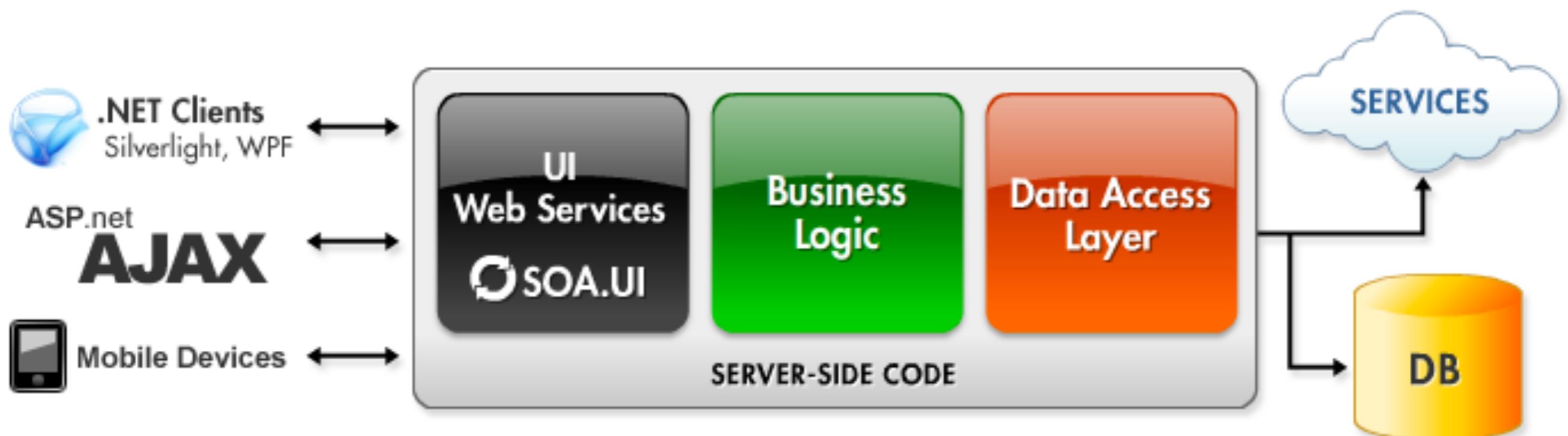
“Any tests than none.”

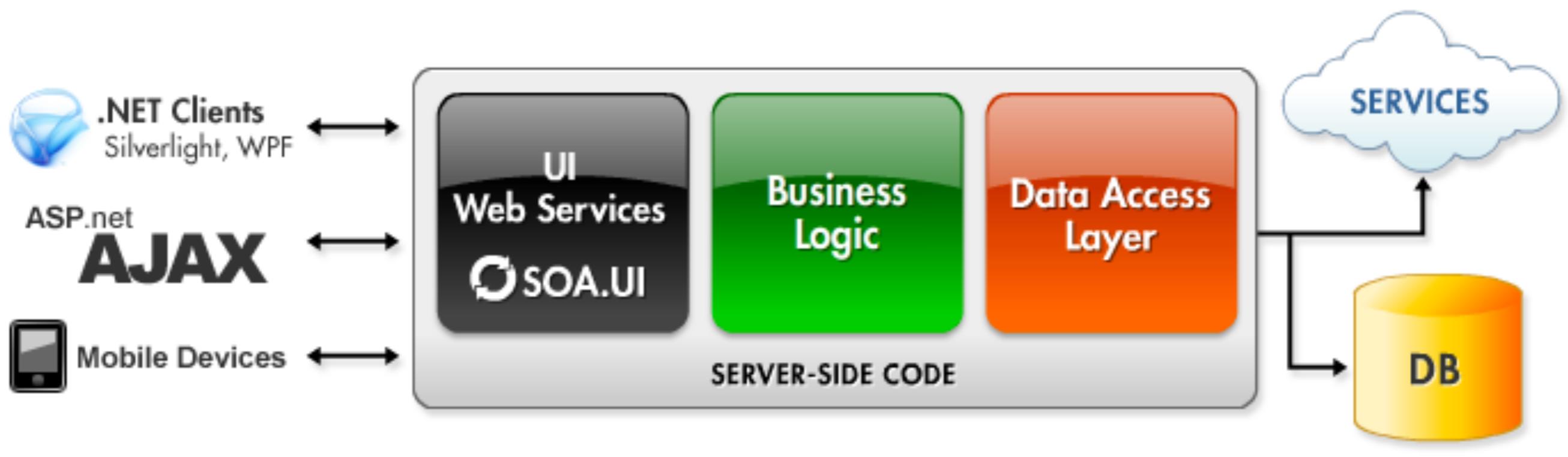
–DevOps

Everything has test
(at least)

BDD, TDD, Unit test, XDD, Whatever



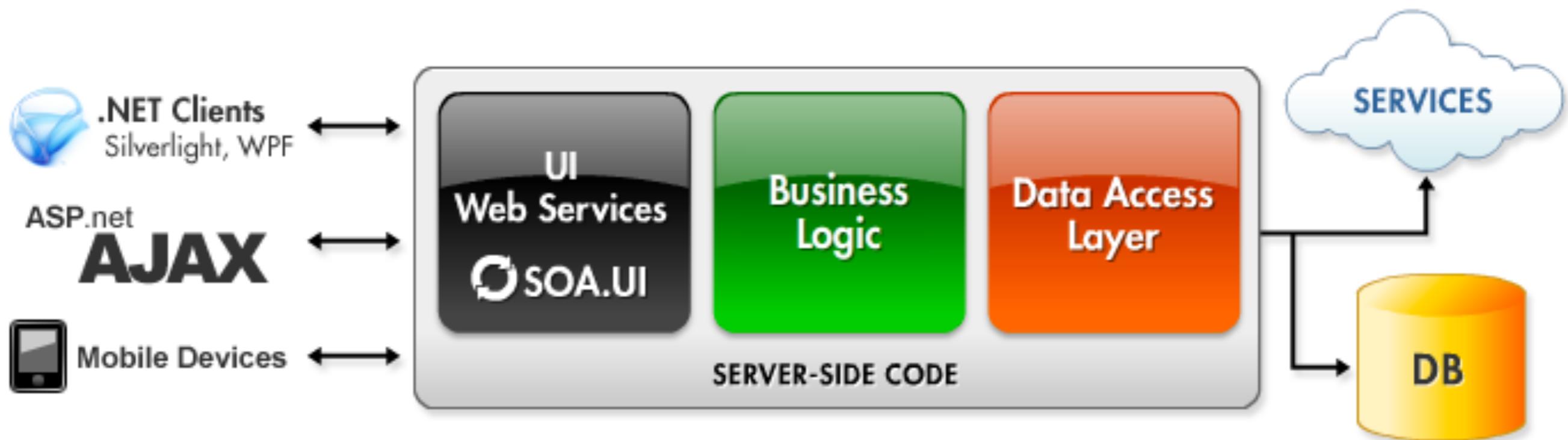




Test

Test

Test



Test?

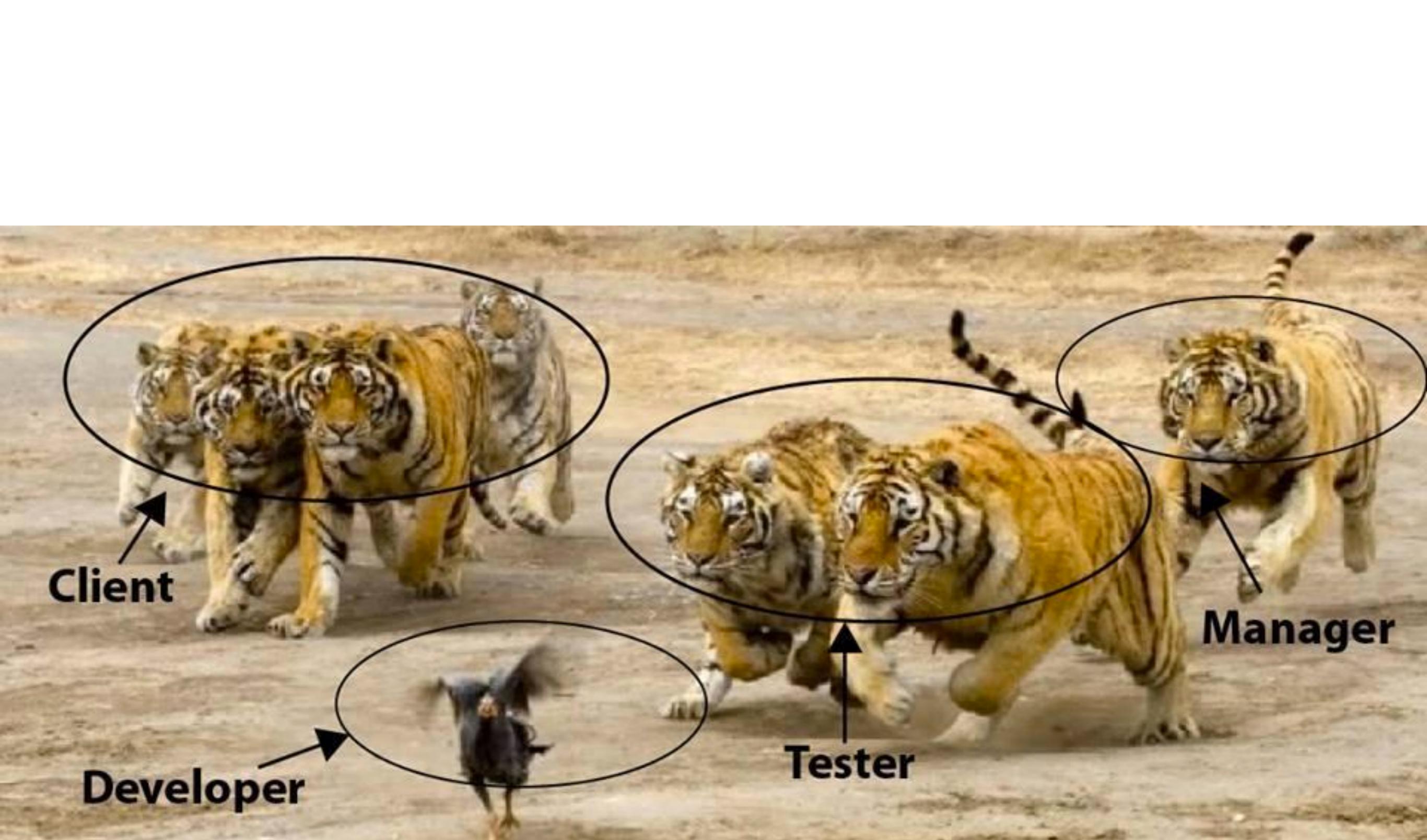
Test

Test

Do you have ever front end test yet?



Noor Kinani 2007



Trigger

Developer / QA/ Anyone

Open browser

Key / input / submit / mouse

Success / Fail

Trigger

Developer / QA/ Anyone

Open browser

Key / input / submit / mouse

Success / Fail

Deploy





Trigger

Developer / QA/ Anyone

Open browser

Key / input / submit / mouse

Success / Fail



Deploy

Daily



Trigger

Developer / QA/ Anyone

Open browser

Key / input / submit / mouse

Success / Fail

Deploy

Daily

Feature

Trigger

Developer / QA/ Anyone

Open browser

Key / input / submit / mouse

Success / Fail

Deploy

Daily

Feature

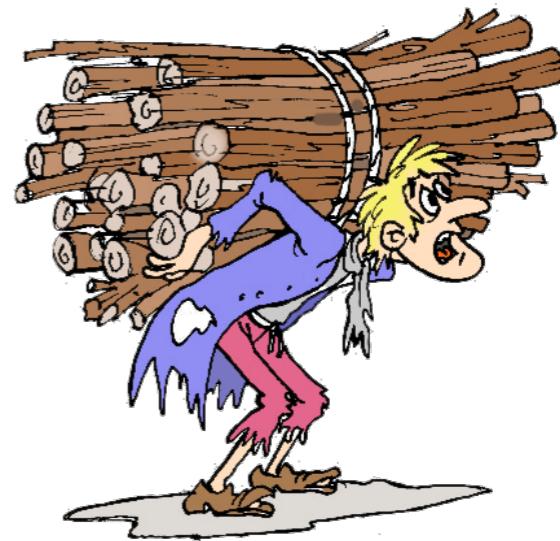
Hotfix



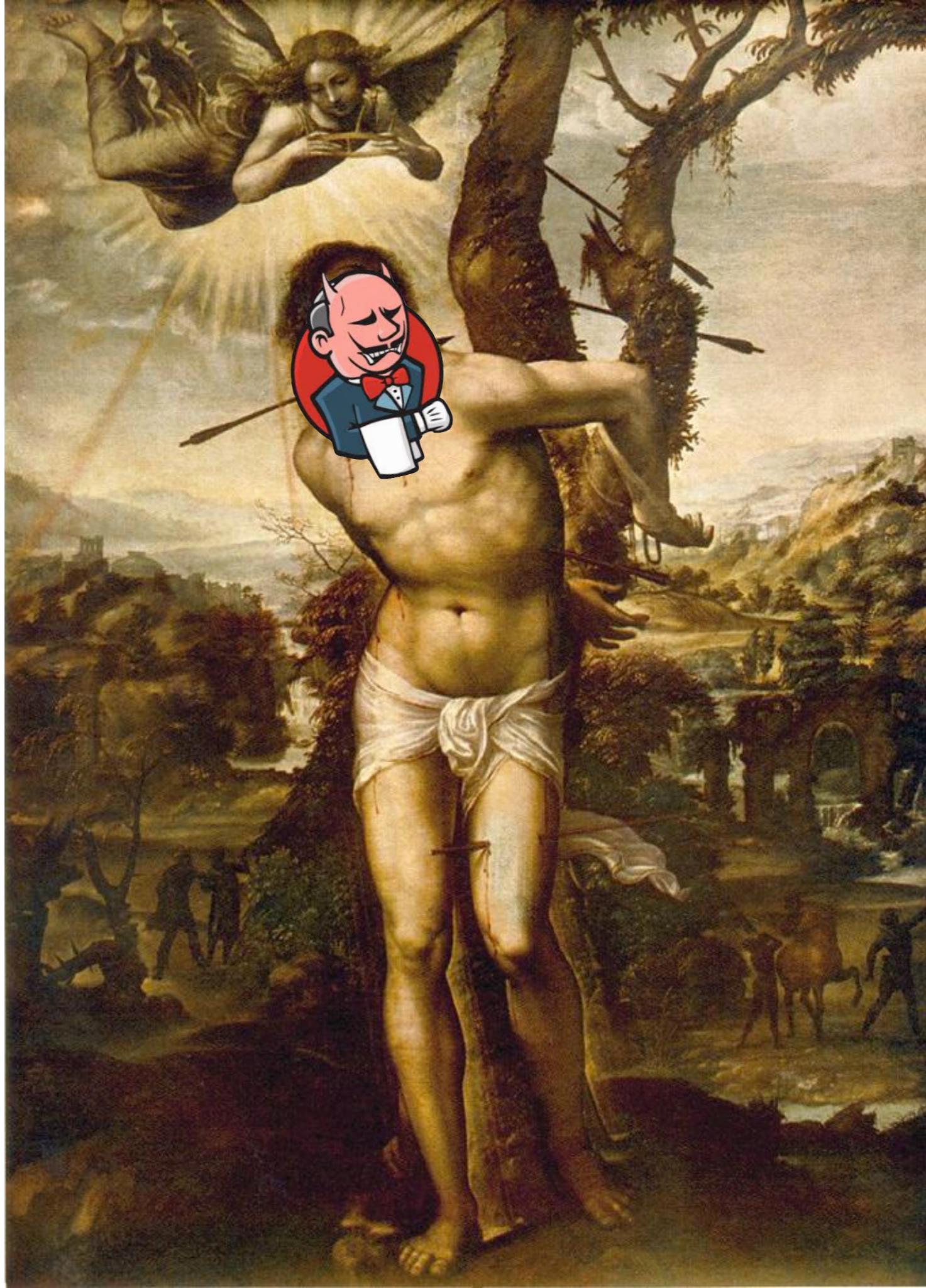


“Boss Driven Development.”

=====
BDD
=====







“If test is all,
why not test front end / UI.”

– John Doe



HTML



JS



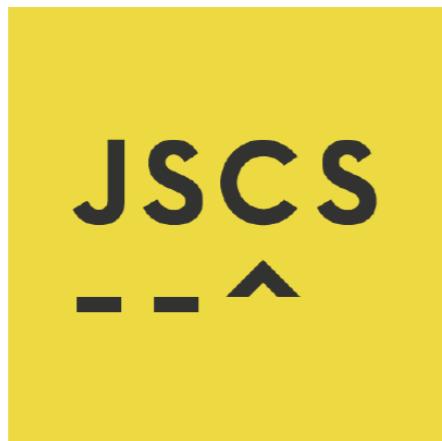
CSS



Convention
Controller
Compressor

Convention

“Everyone’s code, must be same code.”



+ ‘use strict’

JavaScript

\$jscs .

```
Expected indentation of 4 characters at app/scripts/quicksort.js :
4 |     if (items.length > 1) {
5 |         left = typeof left != 'number' ? 0 : left;
6 |         right = typeof right != 'number' ? items.length-1 : right;
-----^
7 |         index = partition(items, left, right);
8 |         if (left < index-1) {

Operator - should not stick to preceding expression at app/scripts/quicksort.js :
4 |     if (items.length > 1) {
5 |         left = typeof left != 'number' ? 0 : left;
6 |         right = typeof right != 'number' ? items.length-1 : right;
-----^
7 |         index = partition(items, left, right);
8 |         if (left < index-1) {
```

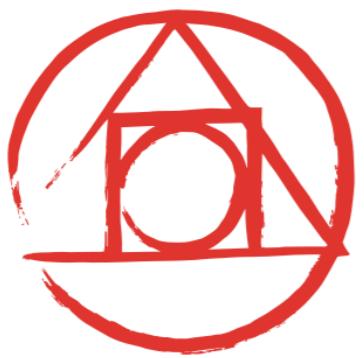
► Uncaught SyntaxError: Unexpected identifier
at Object.InjectedScript._evaluateOn (<anonymous>:905:140)
at Object.InjectedScript._evaluateAndWrap (<anonymous>:838:34)
at Object.InjectedScript.evaluate (<anonymous>:694:21)

jade

```
doctype html
html(lang="en")
  head
    title= pageTitle
    script(type='text/javascript').
      if (foo) {
        bar(1 + 5)
      }
  body
    h1 Jade - node template engine
    #container.col
      if youAreUsingJade
        p You are amazing
      else
        p Get on it!
    p.
      Jade is a terse and simple
      templating language with a
      strong focus on performance
      and powerful features.
```

HTML

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Jade</title>
    <script type="text/javascript">
      if (foo) {
        bar(1 + 5)
      }
    </script>
  </head>
  <body>
    <h1>Jade - node template engine</h1>
    <div id="container" class="col">
      <p>You are amazing</p>
      <p>
        Jade is a terse and simple
        templating language with a
        strong focus on performance
        and powerful features.
      </p>
    </div>
  </body>
</html>
```



Sass

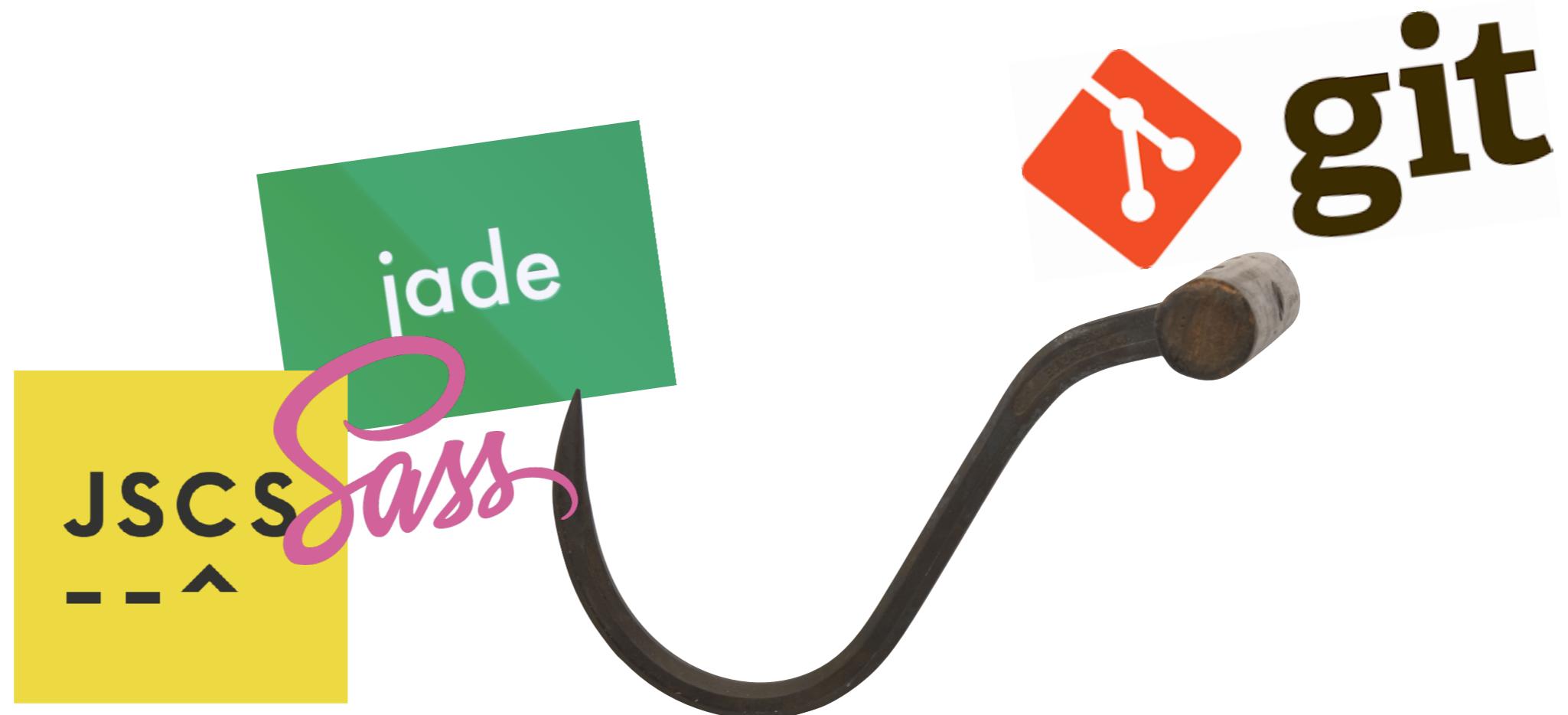
CSS

```
nav {  
  ul {  
    margin: 0;  
    padding: 0;  
    list-style: none;  
  }  
  
  li { display: inline-block; }  
  
  a {  
    display: block;  
    padding: 6px 12px;  
    text-decoration: none;  
  }  
}
```

```
nav ul {  
  margin: 0;  
  padding: 0;  
  list-style: none;  
}  
  
nav li {  
  display: inline-block;  
}  
  
nav a {  
  display: block;  
  padding: 6px 12px;  
  text-decoration: none;  
}
```

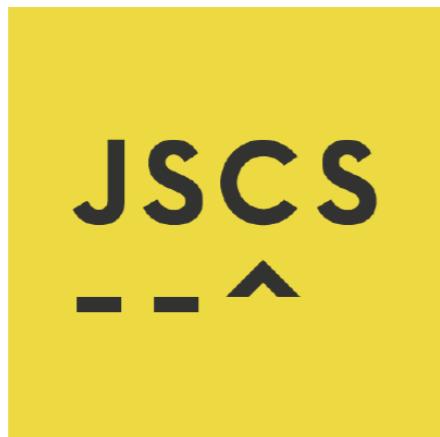
ghooks
use precommit-hook

to validate all things in local before commit



Convention

“Everyone’s code, must be same code.”



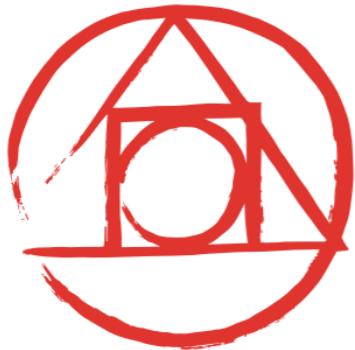
+

‘use strict’

JavaScript



HTML



CSS



Controller

“User Interface.”



WEB COMPONENTS

TEMPLATES

```
<template id="">  
/</template>
```

SHADOW DOM

```
div  
#document-fragment  
span
```

HTML IMPORTS

```
<link rel="import"  
href="part.html">
```

CUSTOM ELEMENTS

```
<my-elem>  
</my-elem>
```

Controller

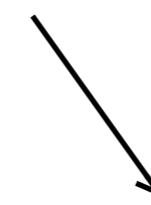
UI event
Logic function

Controller

UI event

Logic function

user input -> login -> **Validate** ->~~Auth -> success~~



result verify

Mock data



Logic function

```
<div id="mocha"><p><a href=".">Index</a></p></div>
<div id="messages"></div>
<div id="fixtures"></div>
<script src="vendor/mocha.js"></script>
<script src="vendor/chai.js"></script>
<script src="cow.js"></script>
<script>mocha.setup('bdd')</script>
<script src="cow_test.js"></script>
<script>mocha.run();</script>
```



passes: 6 failures: 0 duration: 2.03s 100%

Index

Cow

constructor

- ✓ should have a default name
- ✓ should set cow's name if provided

#greets

- ✓ should throw if no target is passed in
- ✓ should greets passed target

#lateGreets

- ✓ should send back an error if no target is passed in 1002ms
- ✓ should greets passed target after one second 1002ms



Logic function (Angular)

```
describe('sorting the list of users', function() {
  it('sorts in descending order by default', function() {
    var users = ['jack', 'igor', 'jeff'];
    var sorted = sortUsers(users);
    expect(sorted).toEqual(['jeff', 'jack', 'igor']);
  });
});
```

Jasmine 1.3.1 revision 1354556913

finished in 0.024s

.

Passing 1 spec

No try/catch

sqrt

should compute the square root of 4 as 2



Jasmine

```
describe('PasswordController', function() {  
  beforeEach(module('app'));  
  
  var $controller;
```

Mock data

```
beforeEach(inject(function(_$controller_){  
  // The injector unwraps the underscores (_) from around the parameter names when matching  
  _$controller_ = _$controller_;  
}));
```

```
describe('$scope.grade', function() {  
  it('sets the strength to "strong" if the password length is >8 chars', function() {  
    var $scope = {};  
    var controller = $controller('PasswordController', { $scope: $scope });  
    $scope.password = 'longerthaneightchars';  
    $scope.grade();  
    expect($scope.strength).toEqual('strong');  
  });  
});  
});
```

“Make Test as Simple as Possible.”

– John Doe

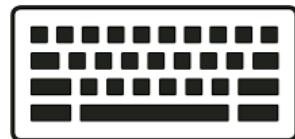
Controller

UI event

Logic function

Old school

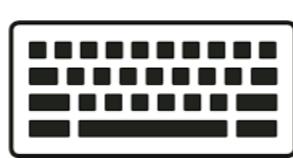
Code save



Open browser



..... // do sth



Success / Fail



, wait ...

too heavy to run with browser.

Phantom JS



Phantom.js

```
$ phantomjs test-runner.js  
Testing http://viget.com/
```

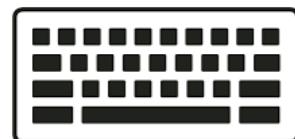
Viget Home Test

- ✓ tracks outbound links
- ✓ tracks clicks on the news items section
- ✓ tracks clicks on careers links

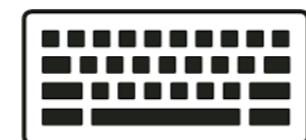
```
var page = require('webpage').create();  
page.open('http://example.com', function(status) {  
    console.log("Status: " + status);  
    if(status === "success") {  
        page.render('example.png');  
    }  
    phantom.exit();  
});
```

Welcome to 20 Century

Test save

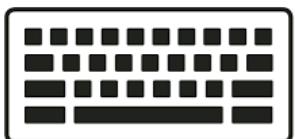


Code save



Success / Fail

Test save



Fail

WHO'S AWESOME?

YOU'RE AWESOME!



, you turn

run all test on real browser ... GO

use WebDriver to trigger browser



Protractor

end to end testing for AngularJS

No more extra code

Testing Against Multiple Browsers

If you would like to test against multiple browsers, use the `multiCapabilities` configuration option.

```
multiCapabilities: [{}  
  'browserName': 'firefox'  
, {}  
  'browserName': 'chrome'  
}]
```



</> protractor.conf.js





UI event

Logic function

UI event

User basic behavior

Logic function

Backend

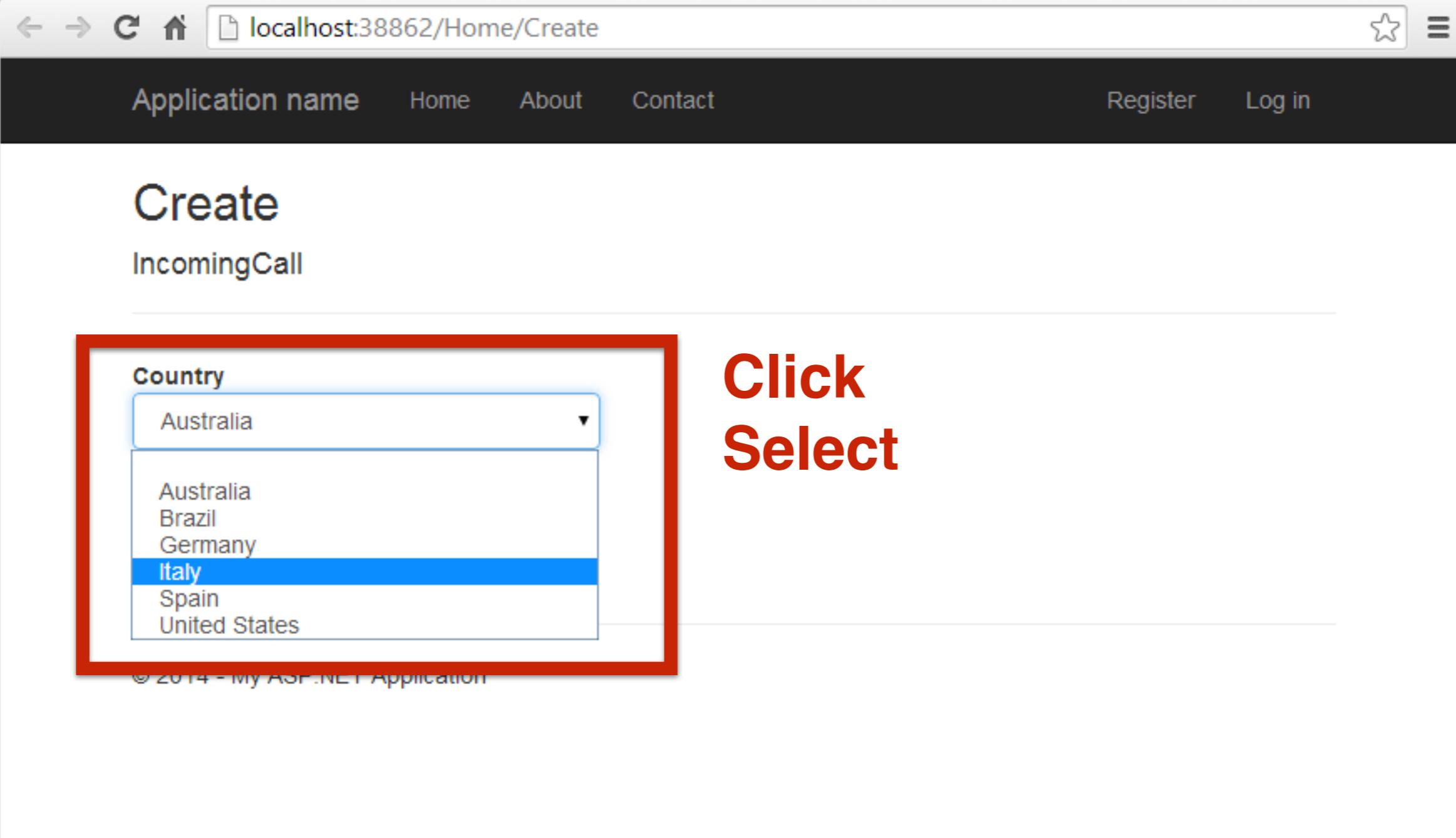
Logic function

Backend

Input



Output



A screenshot of a web browser displaying an ASP.NET application. The address bar shows "localhost:38862/Home/Create". The page has a dark header with navigation links: "Application name", "Home", "About", "Contact", "Register", and "Log in". The main content area has a title "Create" and a subtitle "IncomingCall". Below this is a form field labeled "Country" with a dropdown menu. The dropdown contains the following options: Australia, Brazil, Germany, Italy (which is highlighted with a blue selection bar), Spain, and United States. The entire dropdown menu is enclosed in a thick red rectangular border. To the right of the dropdown, the text "Click Select" is displayed in large red letters.

Country

Australia

Australia

Brazil

Germany

Italy

Spain

United States

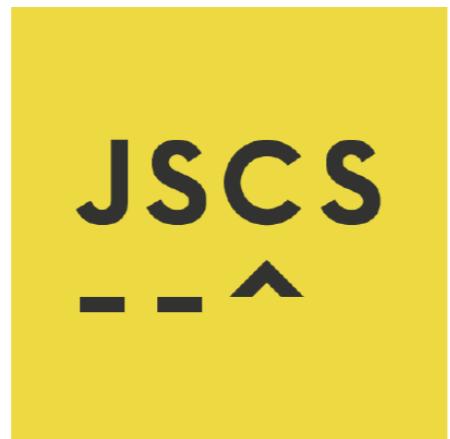
Click Select

© 2014 - My ASP.NET Application

Compressor

Deploy





concat minify





DEPLOY!

```
// STYLES
link(rel="stylesheet", href="/linker/styles/home.css")
link(rel="stylesheet", href="/bower/angular-bootstrap-datetimepicker/dist/css/bootstrap-datetimepicker.min.css")
link(rel="stylesheet", href="/bower/bootstrap-datepicker/dist/css/bootstrap-datepicker3.min.css")
link(rel="stylesheet", href="/bower/fontawesome/css/font-awesome.min.css")
link(rel="stylesheet", href="/bower/jquery-timepicker-addon/dist/css/timepicker.css")
link(rel="stylesheet", href="/bower/ng-date-grammar/dist/ng-grammar.css")
link(rel="stylesheet", href="/bower/ng-loading-bar/dist/loading-bar.css")
link(rel="stylesheet", href="/bower/ng-mk-modals/dist/ng-mk-modals.css")
link(rel="stylesheet", href="/bower/ng-table/ng-table.css")
link(rel="stylesheet", href="/bower/nvd3/nv.d3.css")
link(rel="stylesheet", href="/bower/select2/select2.css")
link(rel="stylesheet", href="/bower/tmd-bootstrap-tour/dist/tmd-tour.css")
link(rel="stylesheet", href="/linker/styles/iconfont.css")
link(rel="stylesheet", href="/linker/styles/iconfont2.css")
link(rel="stylesheet", href="/linker/styles/iconfont3.css")
link(rel="stylesheet", href="/linker/styles/iconfont4.css")
// STYLES END
// SCRIPTS
script(src="/bower/underscore.string/underscore.string.js")
script(src="/bower/jquery/jquery.js?1431486497")
script(src="/bower/angular/angular.js?1431486497")
script(src="/bower/sails.io.js/sails.io.js?1431486497")
script(src="/bower/angular-sails/angular-sails.js")
script(src="/bower/moment/moment.js?1431486497")
script(src="/bower/ng-bs-daterangepicker/ng-bs-daterangepicker.js")
script(src="/bower/moment-timezone/moment-timezone.js")
script(src="/bower/angular-translate/angular-translate.js")
script(src="/bower/angular-translate-loader-stub/angular-translate-loader-stub.js")
script(src="/bower/angular-translate-storage-cookie/angular-translate-storage-cookie.js")
script(src="/bower/angular-animate/angular-animate.js")
script(src="/bower/angular-bootstrap/ui-bootstrap.js")
script(src="/bower/angular-busy/angular-busy.js")
script(src="/bower/angular-charts/angular-charts.js")
script(src="/bower/angular-cookies/angular-cookies.js")
script(src="/bower/angular-file-upload/angular-file-upload.js")
script(src="/bower/angular-jquery-timepicker/jquery-timepicker.js")
script(src="/bower/angular-moment/angular-moment.js")
script(src="/bower/angular-nvd3/angular-nvd3.js")
script(src="/bower/angular-route/angular-route.js")
script(src="/bower/angular-sanitize/angular-sanitize.js")
script(src="/bower/angular-ui-router/angular-ui-router.js")
```

```
// STYLES
link(rel="stylesheet", href="/linker/styles/h
link(rel="stylesheet", href="/bower/angular-bu
link(rel="stylesheet", href="/bower/bootstrap-
link(rel="stylesheet", href="/bower/fontawesome
link(rel="stylesheet", href="/bower/jquery-tim
link(rel="stylesheet", href="/bower/ng-date-gr
link(rel="stylesheet", href="/bower/ng-loading
link(rel="stylesheet", href="/bower/ng-mk-moda
link(rel="stylesheet", href="/bower/ng-table/n
link(rel="stylesheet", href="/bower/nvd3/nv.d3
link(rel="stylesheet", href="/bower/select2/se
link(rel="stylesheet", href="/bower/tmd-bootst
link(rel="stylesheet", href="/linker/styles/im
link(rel="stylesheet", href="/linker/styles/im
```

```
// STYLES
link(rel="stylesheet", href="production.css")
// STYLES END
// SCRIPTS
script(src="/js/production.js")
// CONTENTS END
```

```
script(src="/bower/ng-os-datepicker/ng-os-
script(src="/bower/moment-timezone/moment-time
script(src="/bower/angular-translate/angular-t
script(src="/bower/angular-translate-loader-st
script(src="/bower/angular-translate-storage-c
script(src="/bower/angular-animate/angular-ani
script(src="/bower/angular-bootstrap/ui-bootst
script(src="/bower/angular-busy/angular-busy.j
script(src="/bower/angular-charts/angular-char
script(src="/bower/angular-cookies/angular-coo
script(src="/bower/angular-file-upload/angular
script(src="/bower/angular-jquery-timepicker/t
script(src="/bower/angular-moment/angular-mome
script(src="/bower/angular-nvd3/angular-nvd3.m
script(src="/bower/angular-route/angular-route
script(src="/bower/angular-sanitize/angular-sa
script(src="/bower/angular-ui-router/angular-u
```



Sass

concat minify



 Protractor
end to end testing for AngularJS



THEN ?

As Developer

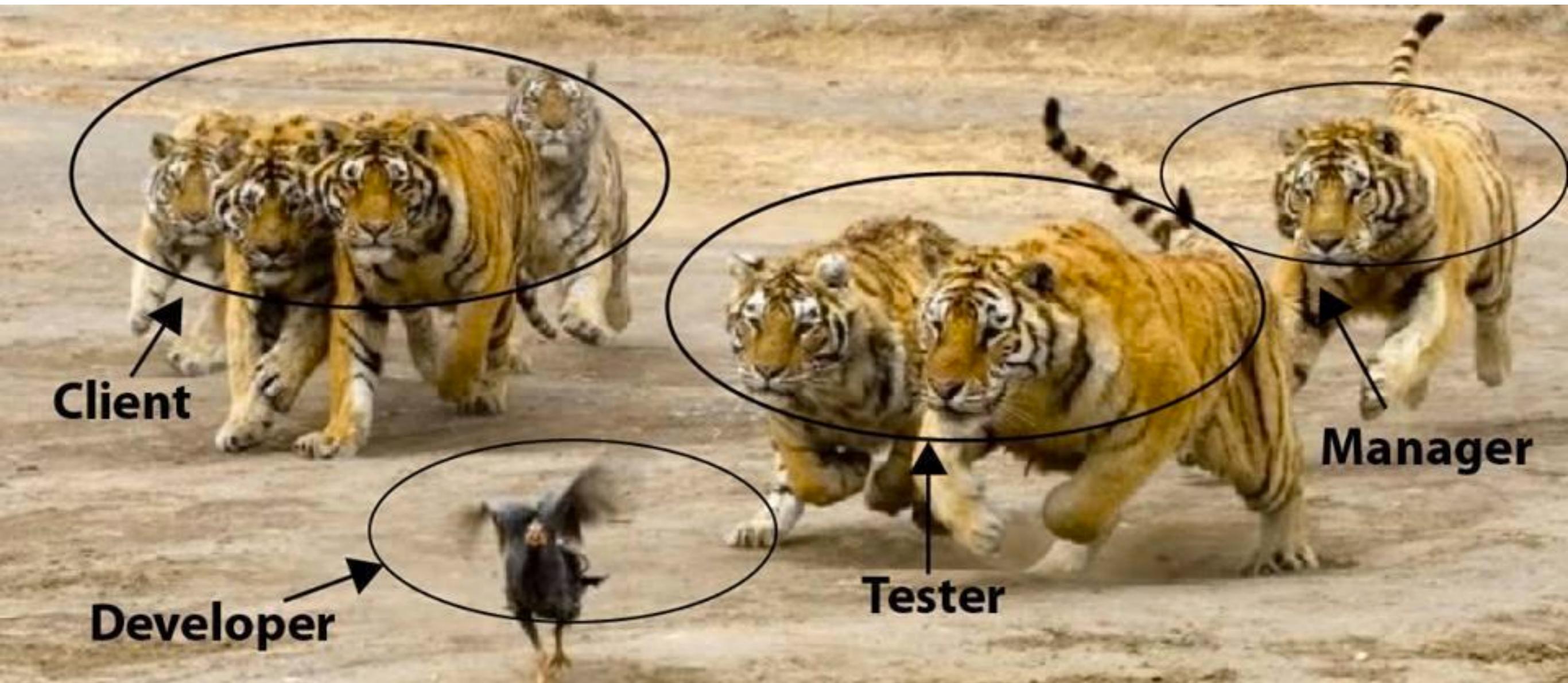
- Keep test running
- Share test concept
- Build a jenkins server
- Keep your task done on time.
- Wash your boss' brain.



You

We are here

As Manager



Push them, do the right thing

Make resource for developer,
ex, time, machine, env ...



You

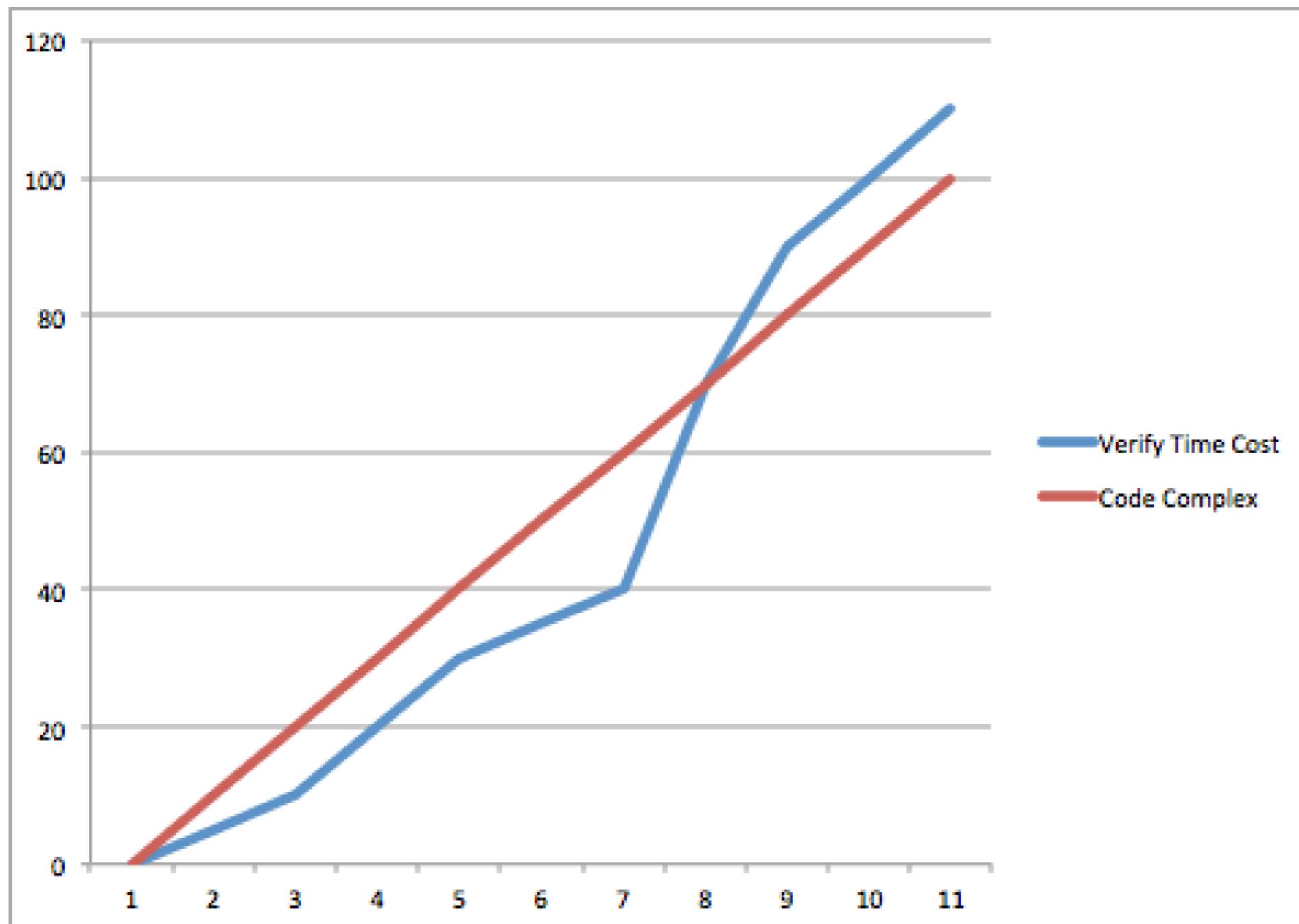
We are here



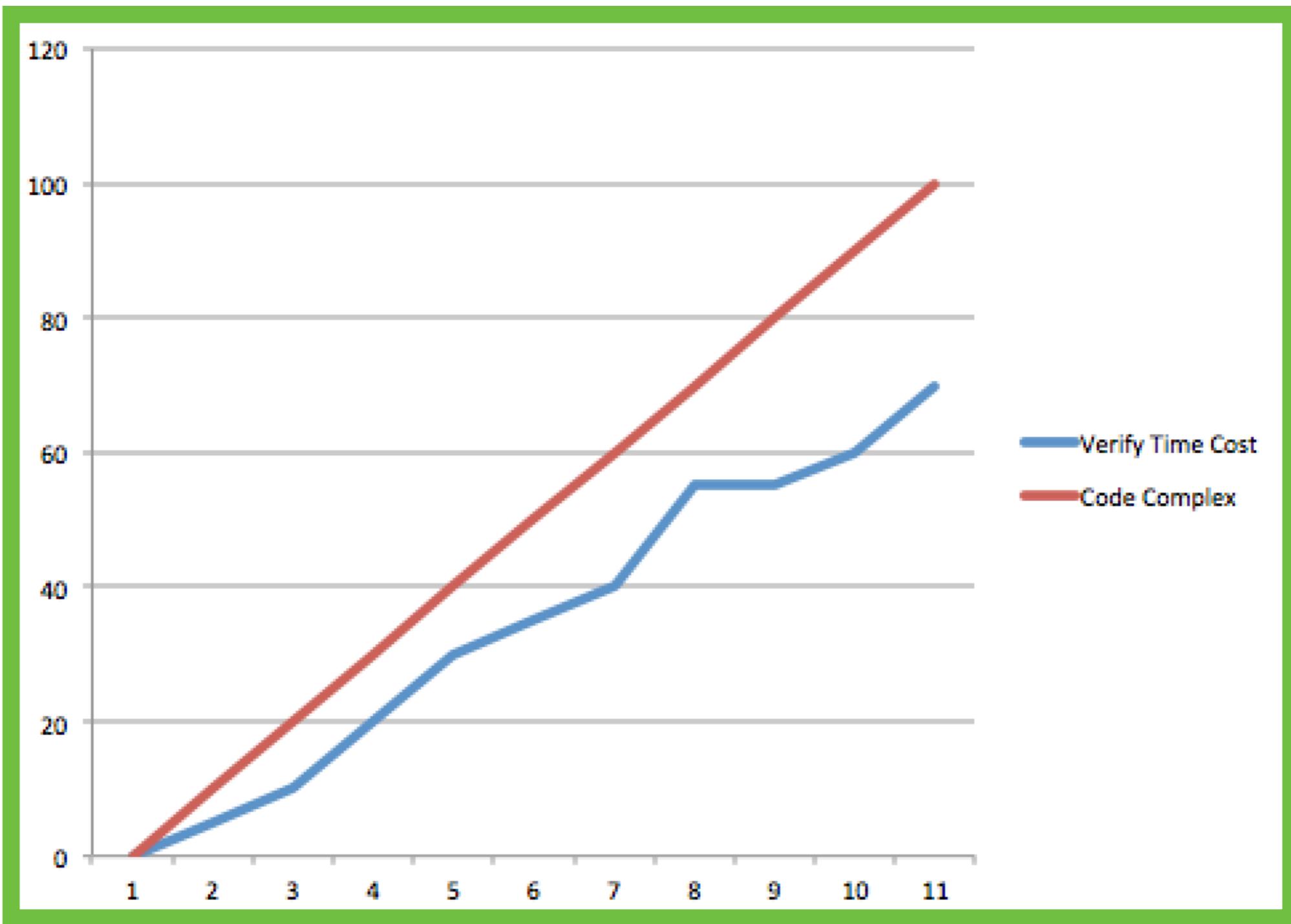
**NO PAIN
NO GAIN**

Effect

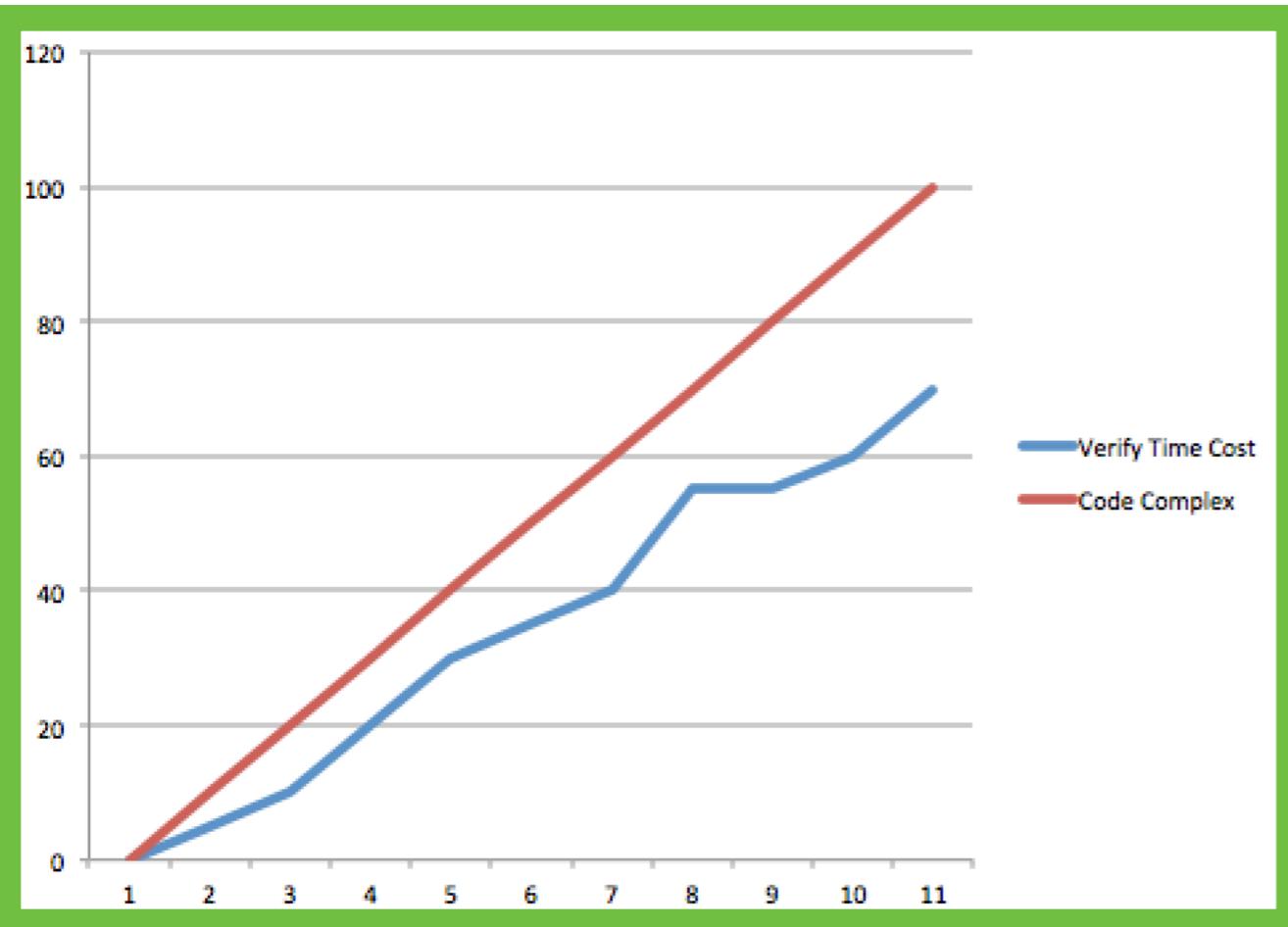
Code without Test



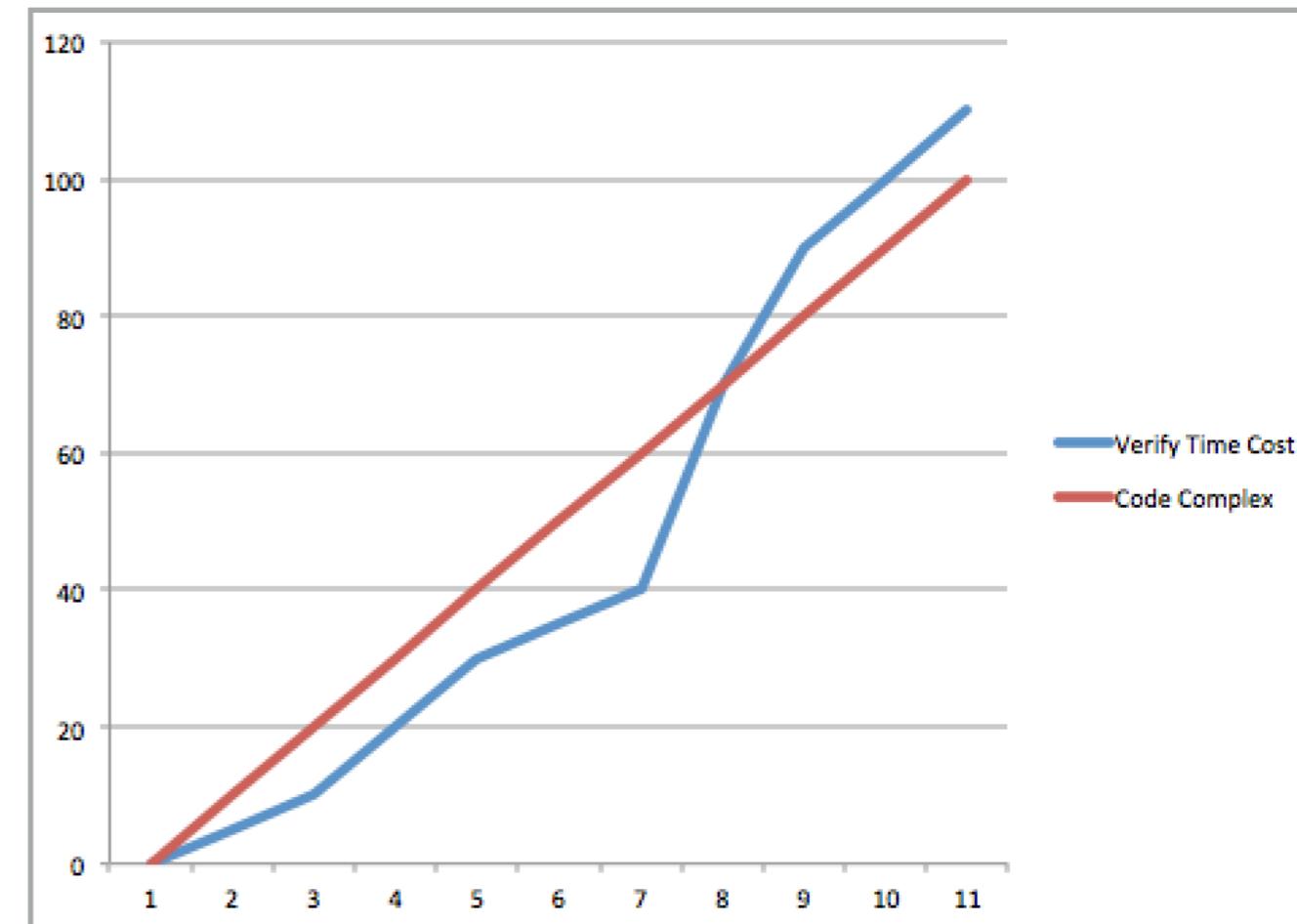
Code with Test



Compare



Test



No test

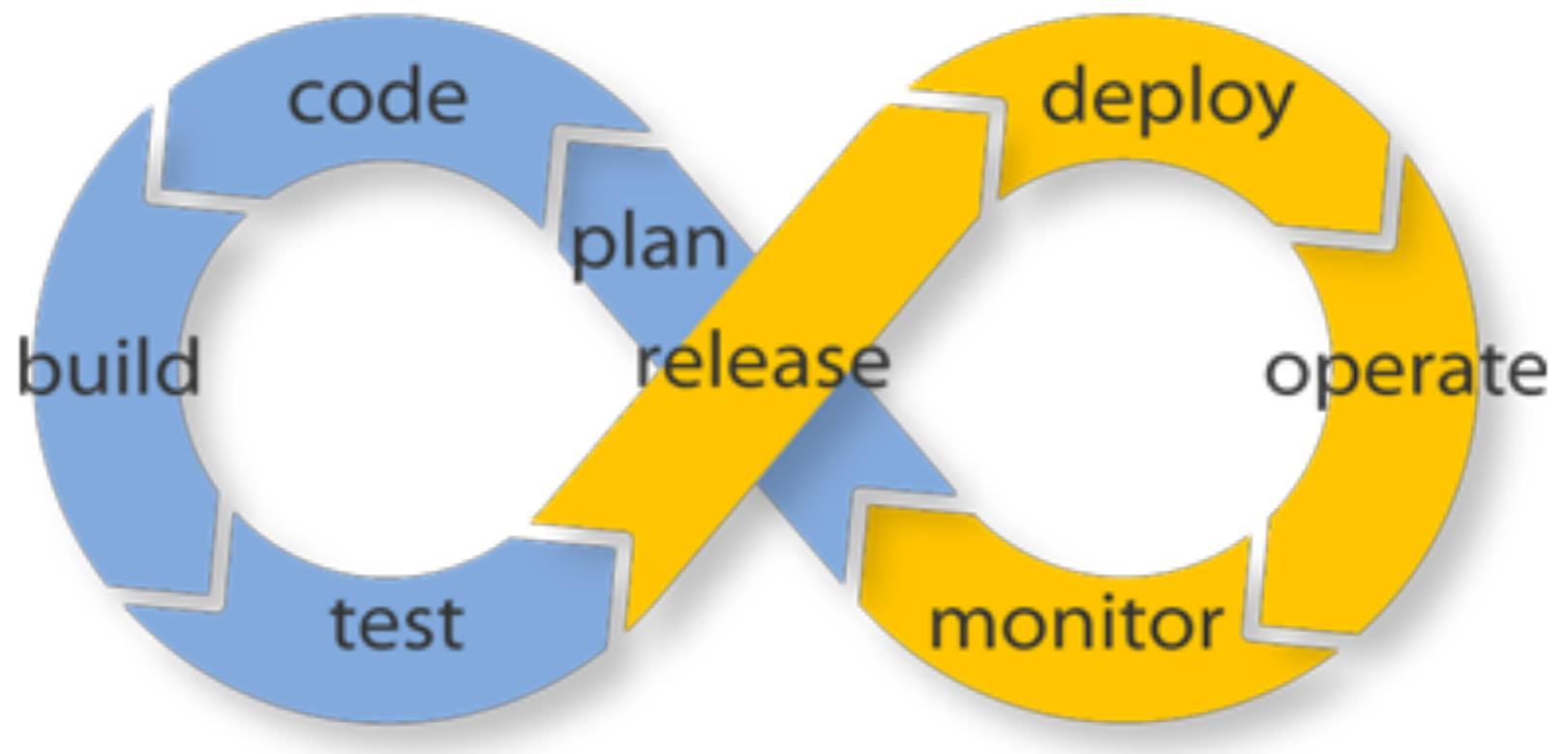
Test more, keep test move on with logic complex, it is more easy figure out problem.
Then you will save more time



**NO PAIN
NO GAIN**

Front end Ops

- Face problem
- Accept Result
(fail / success)
- Refactor code
- Deploy code
- Trade off code



至嚴



放下它
處理它
接受它
面對它

