Presentation at
http://bit.ly/codemash-testing

Are You Satisfied with Your Tests?

-- or --

Why don't we do it like this ...

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@jimweirich

EdgeCase
software artisans

Testing

Your Doing it All Wrong!!!!

Survey ...

Java VS .Net VS Python VS Ruby Developers?

Unit Tests?
Functional?
Javascript?
End to end?

Testing:
TDD/BDD?
Unit Testing?
Any Testing?

Java VS .Net VS Python VS Ruby Developers?

Unit Tests?
Functional?
Javascript?
End to end?

Are you happy with your testing?

Testing:
TDD/BDD?
Unit Testing?
Any Testing?

✗ Slow Tests

Jeff Nielsen

Psychology of Build Times

- Unit Tests
- Checkin Tests

Jeff Nielsen

Psychology of Build Times

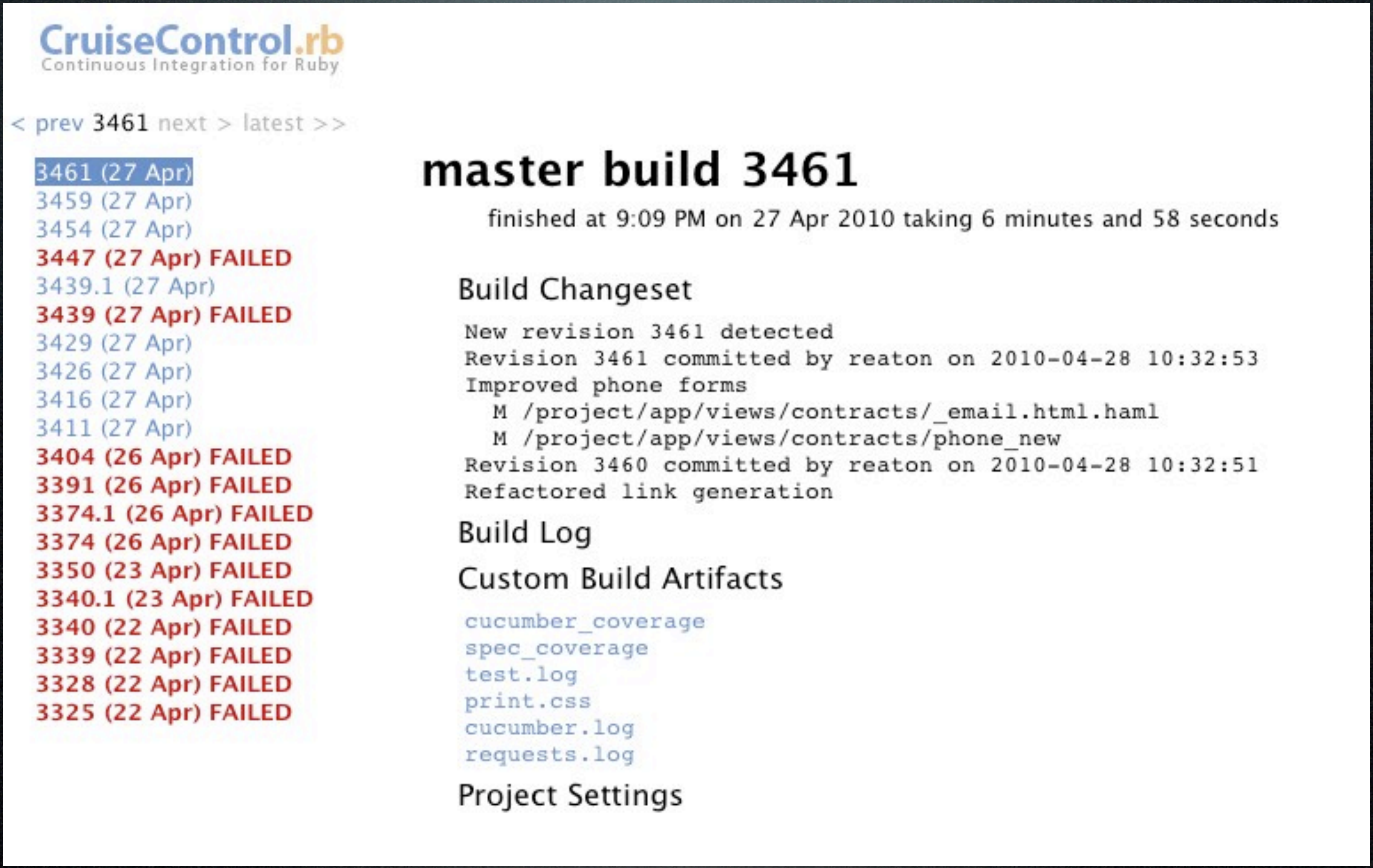
- Unit Tests		<10 seconds
- Checkin Tests

Jeff Nielsen

Psychology of Build Times

• Unit Tests	<10 seconds
• Checkin Tests	<10 Minutes

❌ Blasé Attitude toward Failing Tests



3461 (27 Apr)
3459 (27 Apr)
3454 (27 Apr)
3447 (27 Apr) FAILED
3439.1 (27 Apr)
3439 (27 Apr) FAILED
3429 (27 Apr)
3426 (27 Apr)
3416 (27 Apr)
3411 (27 Apr)
3404 (26 Apr) FAILED
3391 (26 Apr) FAILED
3374.1 (26 Apr) FAILED
3374 (26 Apr) FAILED
3350 (23 Apr) FAILED
3340.1 (23 Apr) FAILED
3340 (22 Apr) FAILED
3339 (22 Apr) FAILED
3328 (22 Apr) FAILED
3325 (22 Apr) FAILED

master build 3461

finished at 9:09 PM on 27 Apr 2010 taking 6 minutes and 58 seconds

Build Changeset

```
New revision 3461 detected
Revision 3461 committed by reaton on 2010-04-28 10:32:53
Improved phone forms
  M /project/app/views/contracts/_email.html.haml
  M /project/app/views/contracts/phone_new
Revision 3460 committed by reaton on 2010-04-28 10:32:51
Refactored link generation
```

Build Log

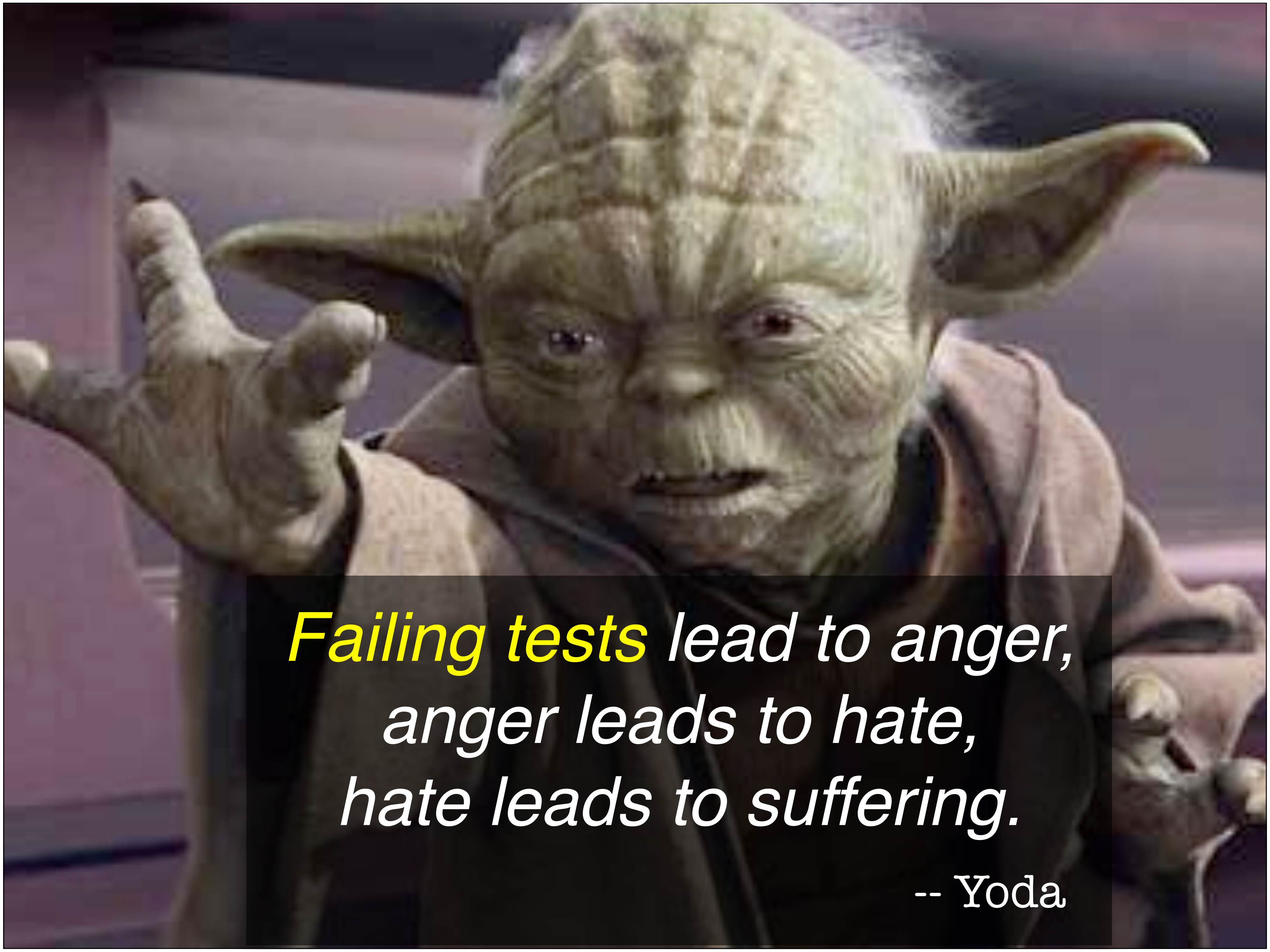
Custom Build Artifacts

```
cucumber_coverage
spec_coverage
test.log
print.css
cucumber.log
requests.log
```

Project Settings

Fear leads to anger,
anger leads to hate,
hate leads to suffering.

-- Yoda



Failing tests lead to anger,
anger leads to hate,
hate leads to suffering.

-- Yoda

✗ Over Mocking

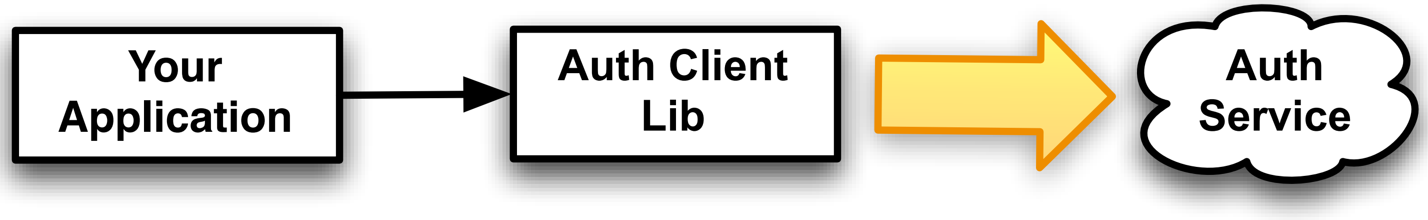
When to Mock

- Using an external service
- Verifying a protocol
- Objects are complicated to create

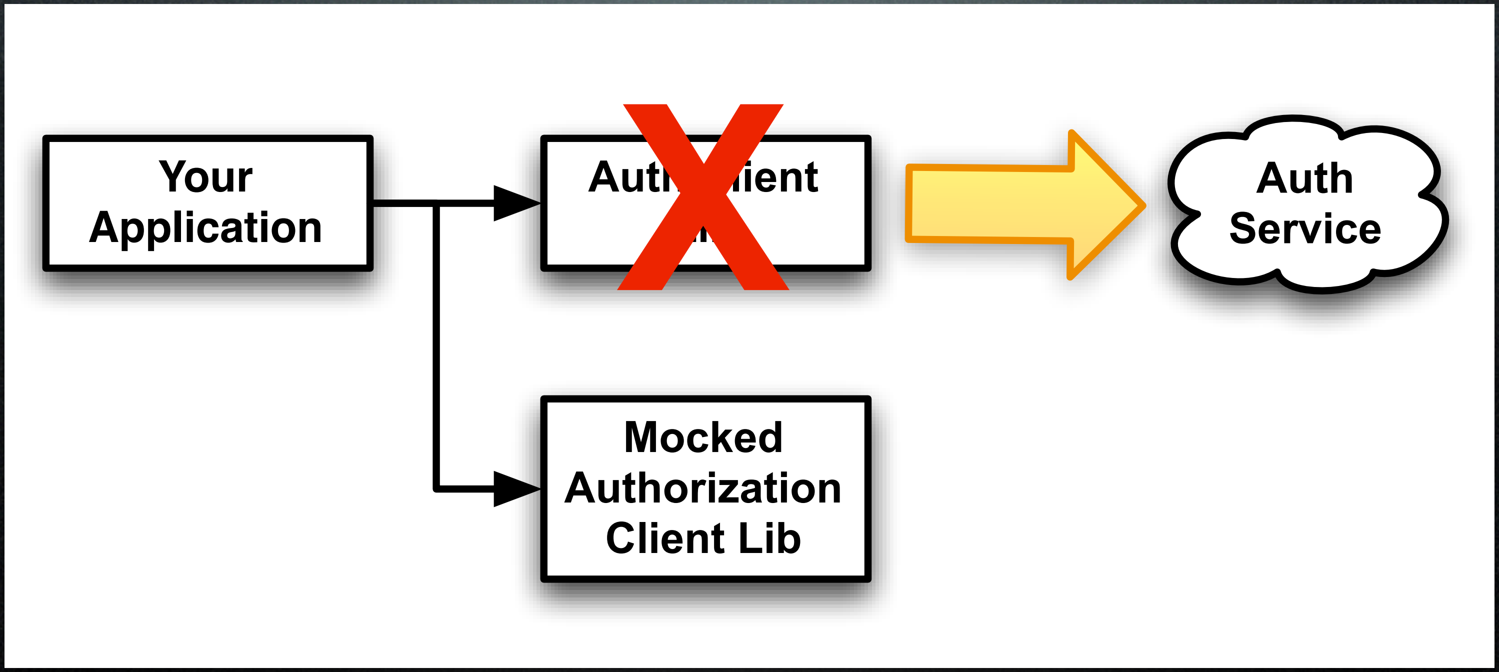
When to Mock

- Using an external service
- Verifying a protocol
- ~~Objects are complicated to create~~

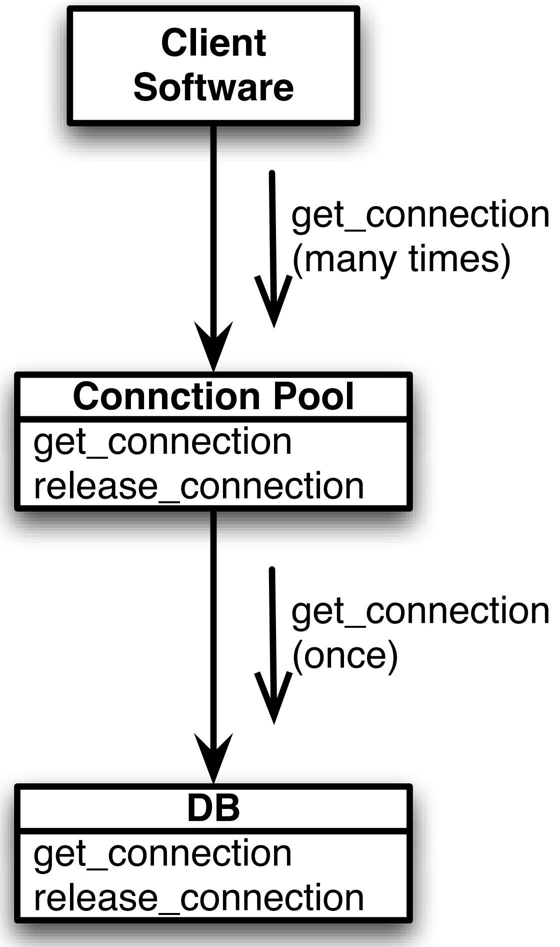
External Service



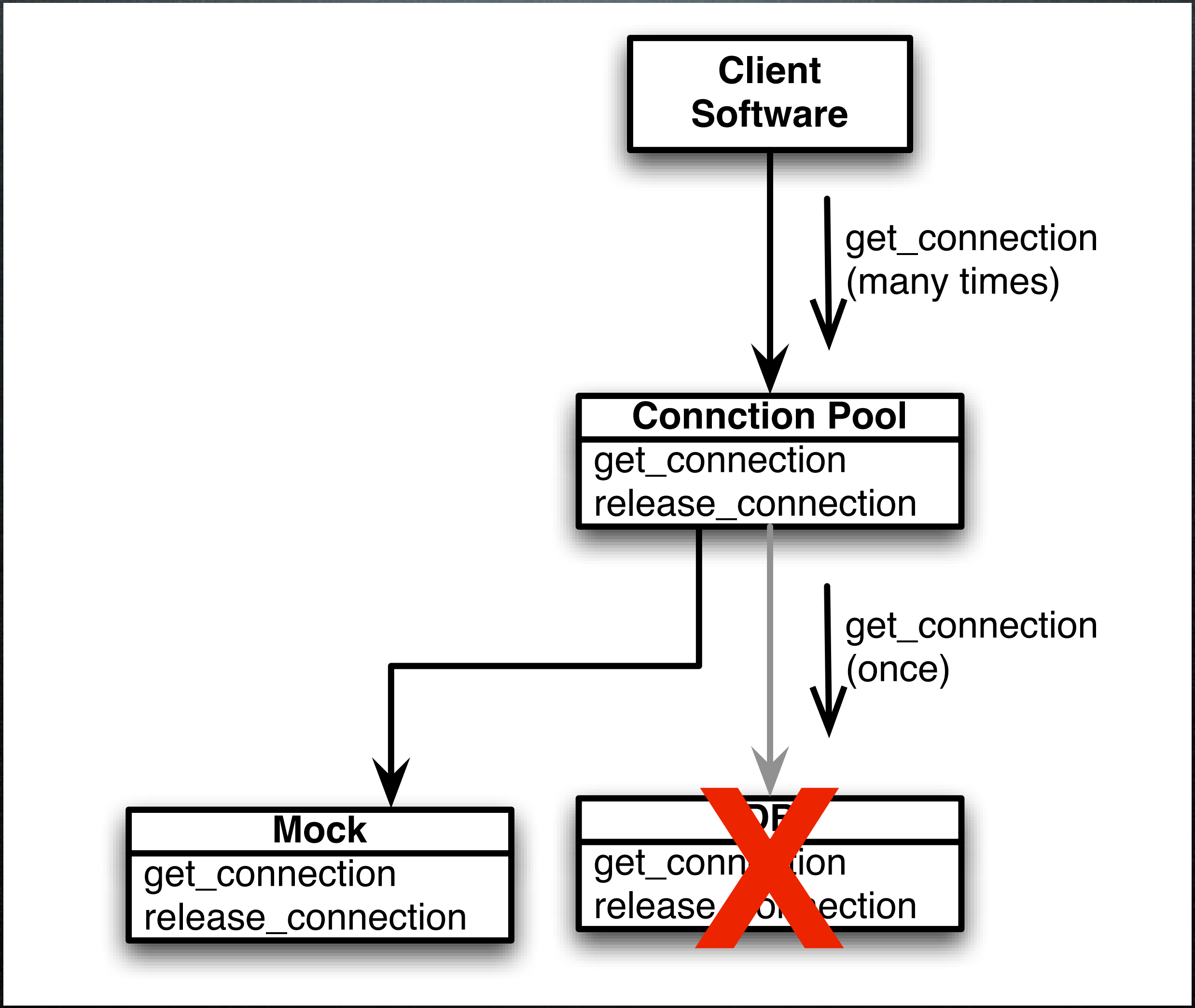
External Service



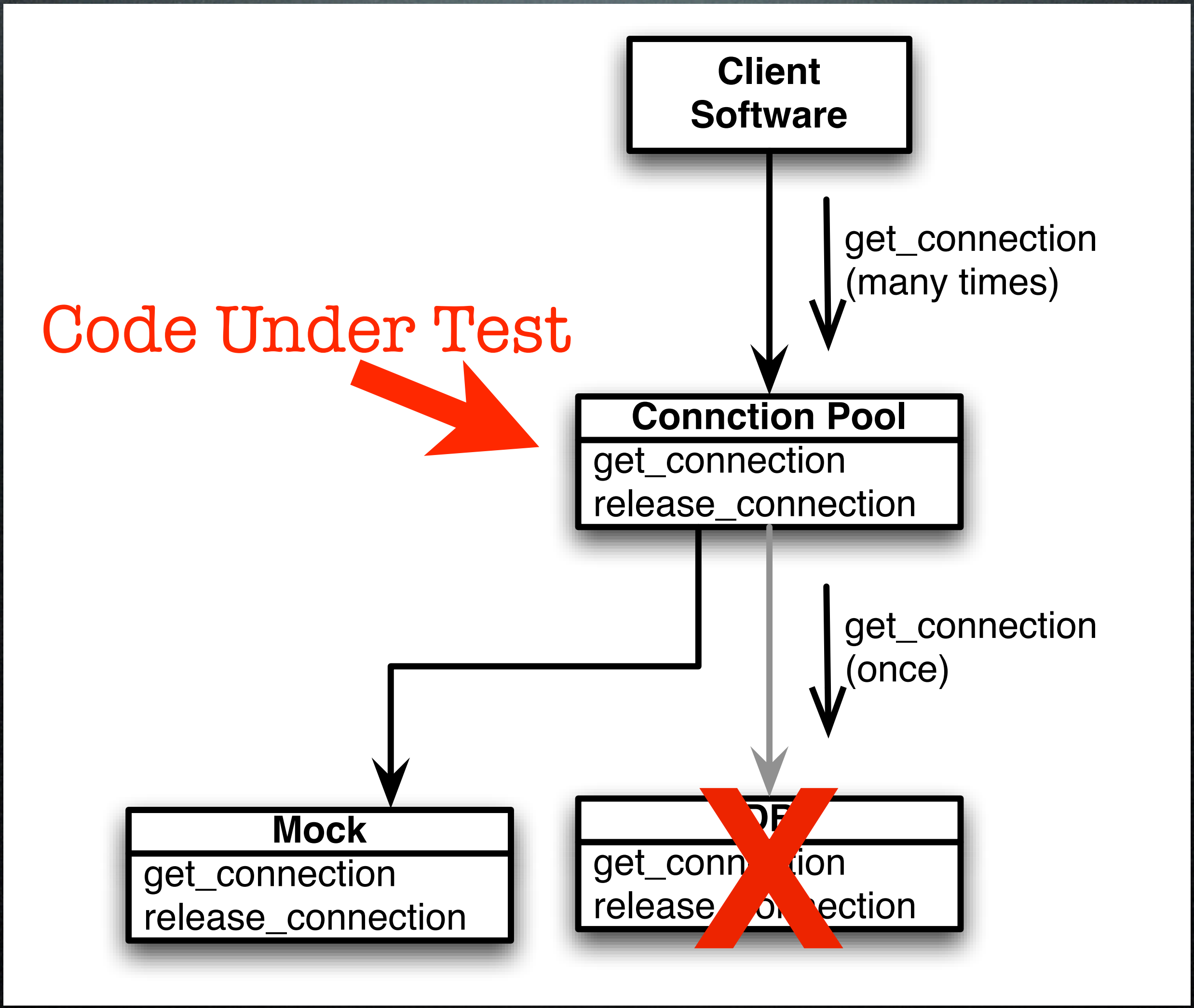
Verifying a Protocol



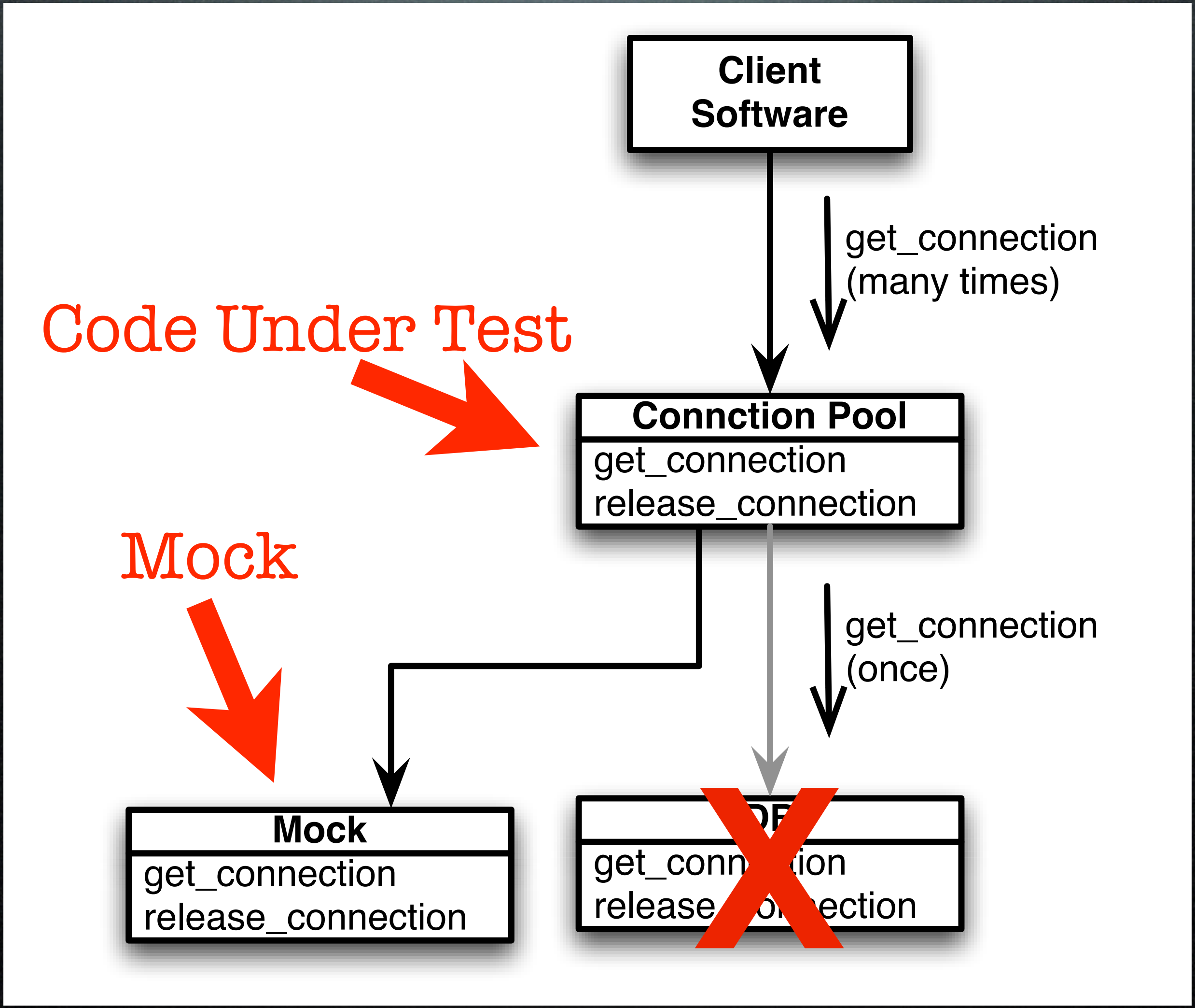
Verifying a Protocol



Verifying a Protocol

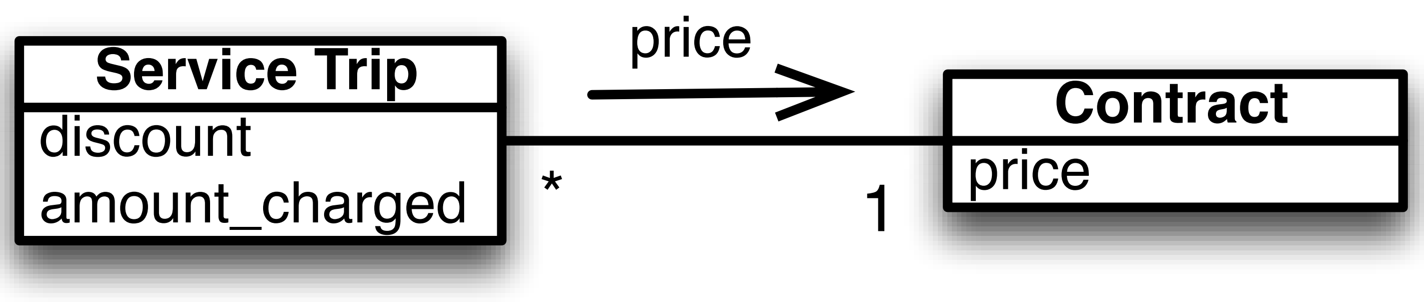


Verifying a Protocol



Overmocking Clues

- You create mocks returning mocks
- You have fantasy tests

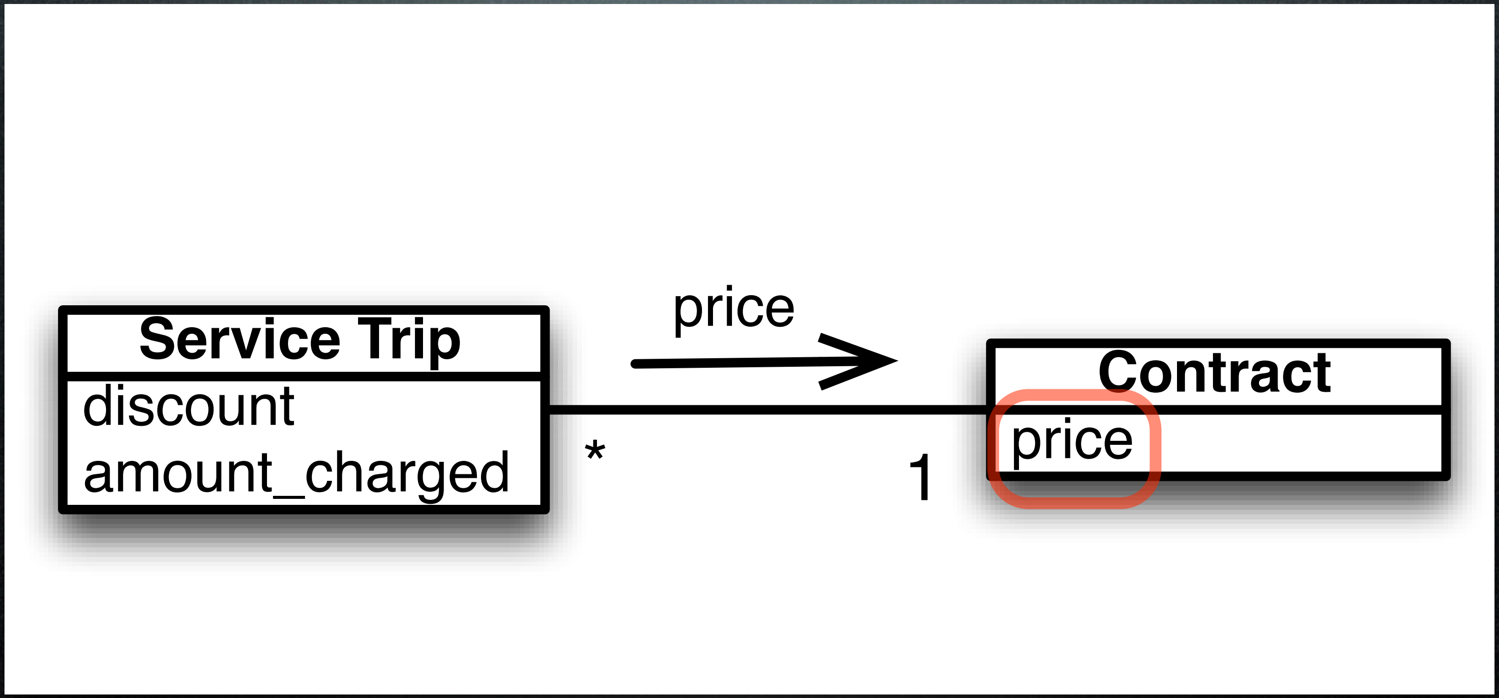

Service Trip
discount
amount_charged
price
*
1
Contract
price

```ruby
test "applies discounts to service price" do
  contract = flexmock(:model, Contract,
    :price => 100.0)
  trip = Factory.build(:service_trip,
    :discount => 0.30,
    :contract => contract)

  assert_equal 70.00, trip.amount_charged
end
```

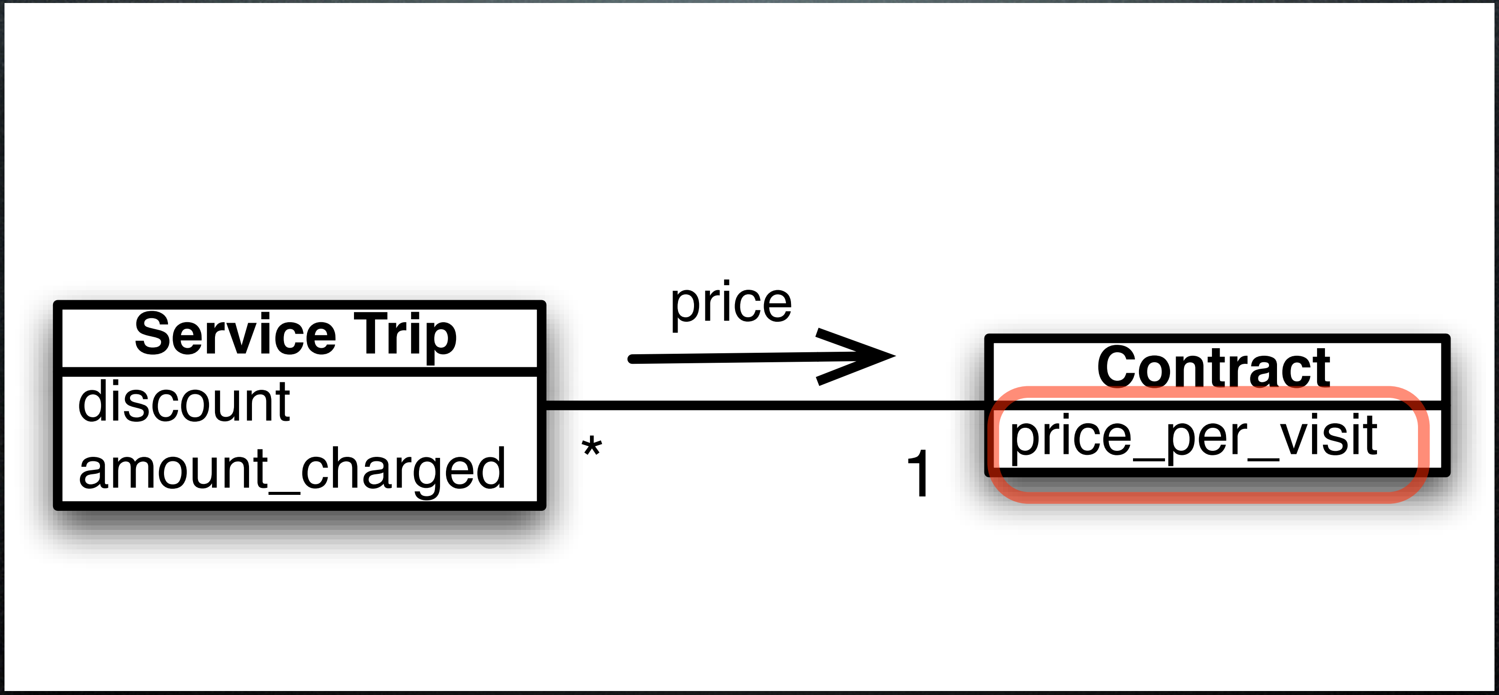
Mocked to return value

```
test "applies discounts to service price" do
  contract = flexmock(:model, Contract,
    :price => 100.0)
  trip = Factory.build(:service_trip,
    :discount => 0.30,
    :contract => contract)

  assert_equal 70.00, trip.amount_charged
end
```

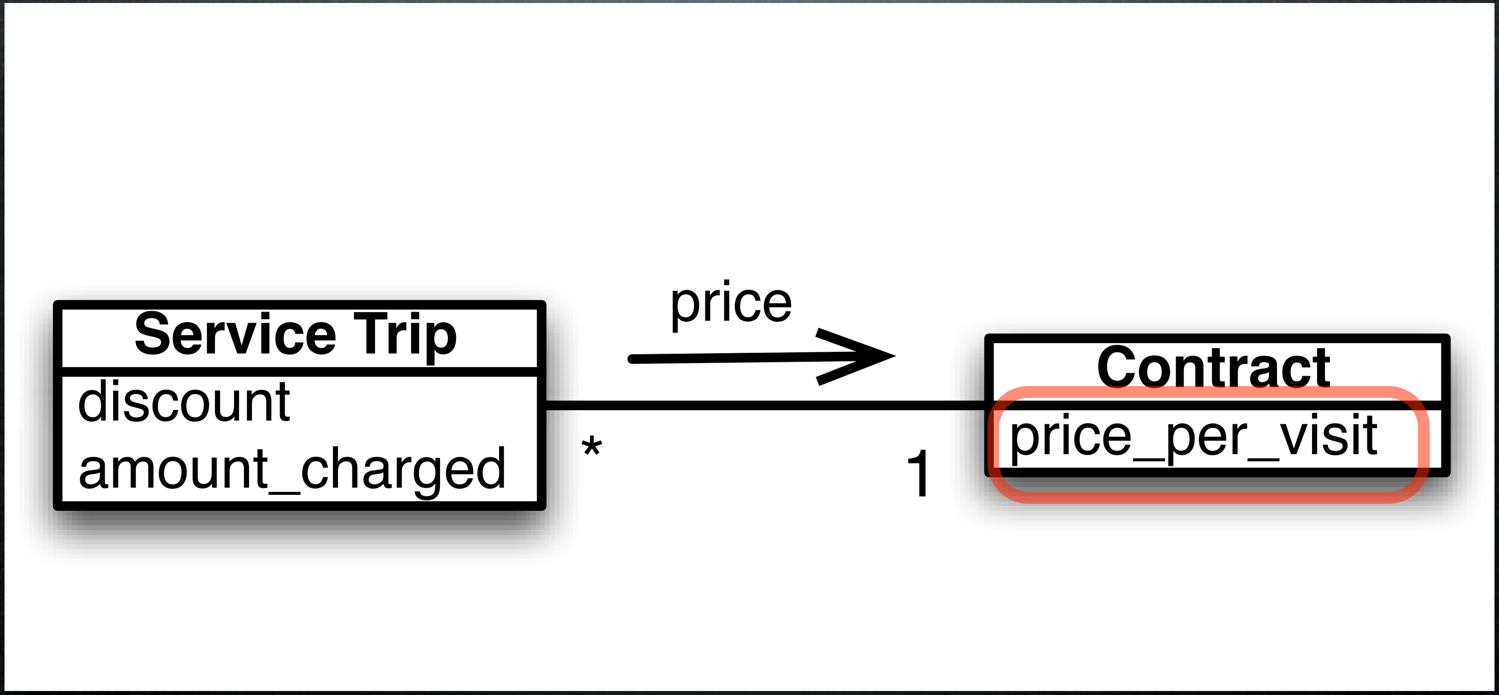
Refactor!


Service Trip
discount
amount_charged
price
*
1
Contract
price

Refactor!

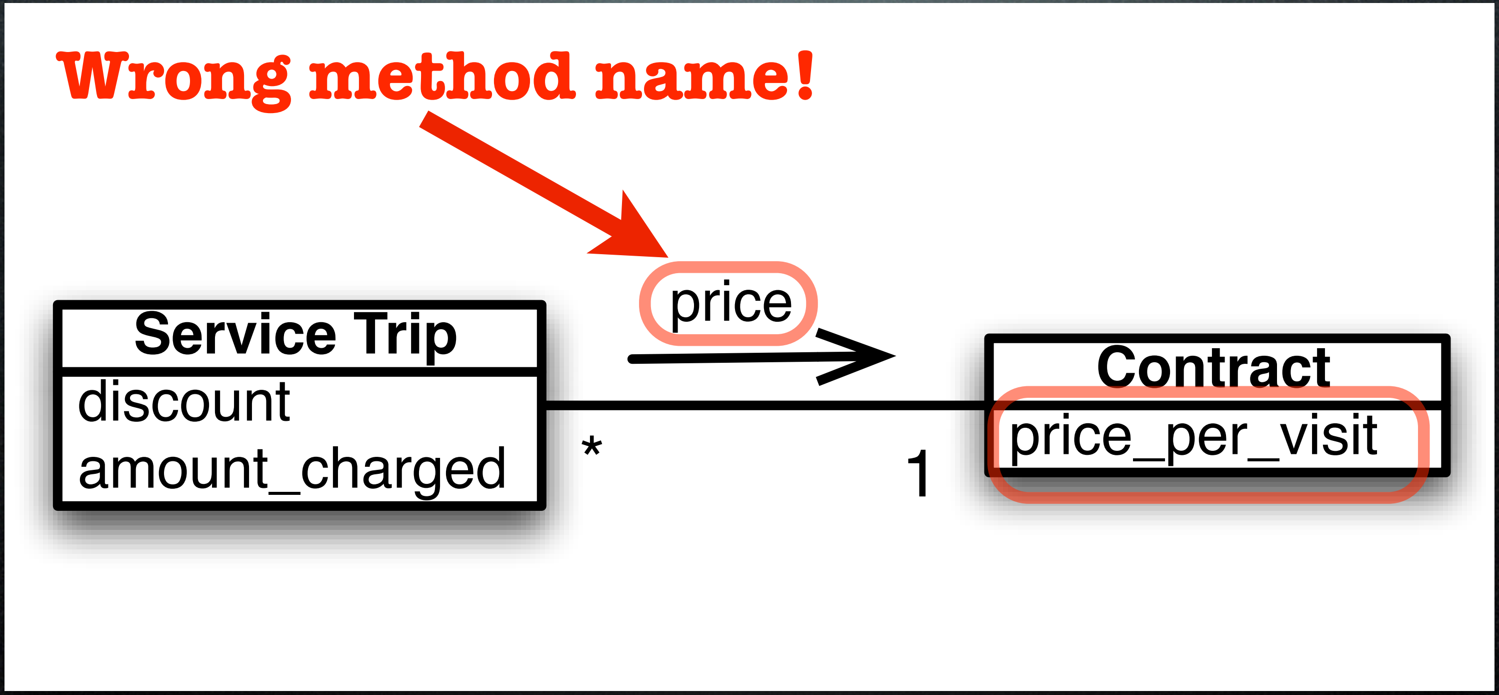

Service Trip
discount
amount_charged
price
*
1
Contract
price_per_visit

Refactor!



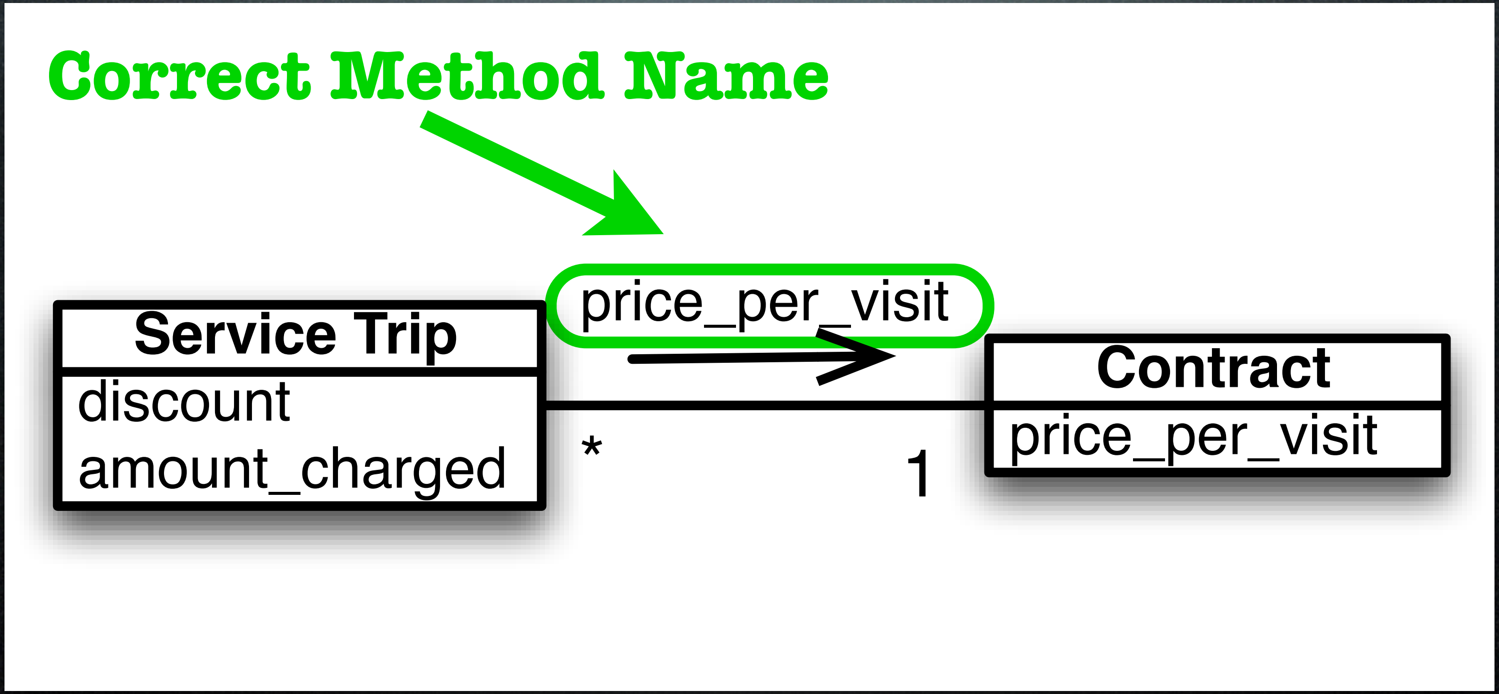
```
1 tests, 1 assertions, 0 failures, 0 errors, 0 skips
```

Refactor!

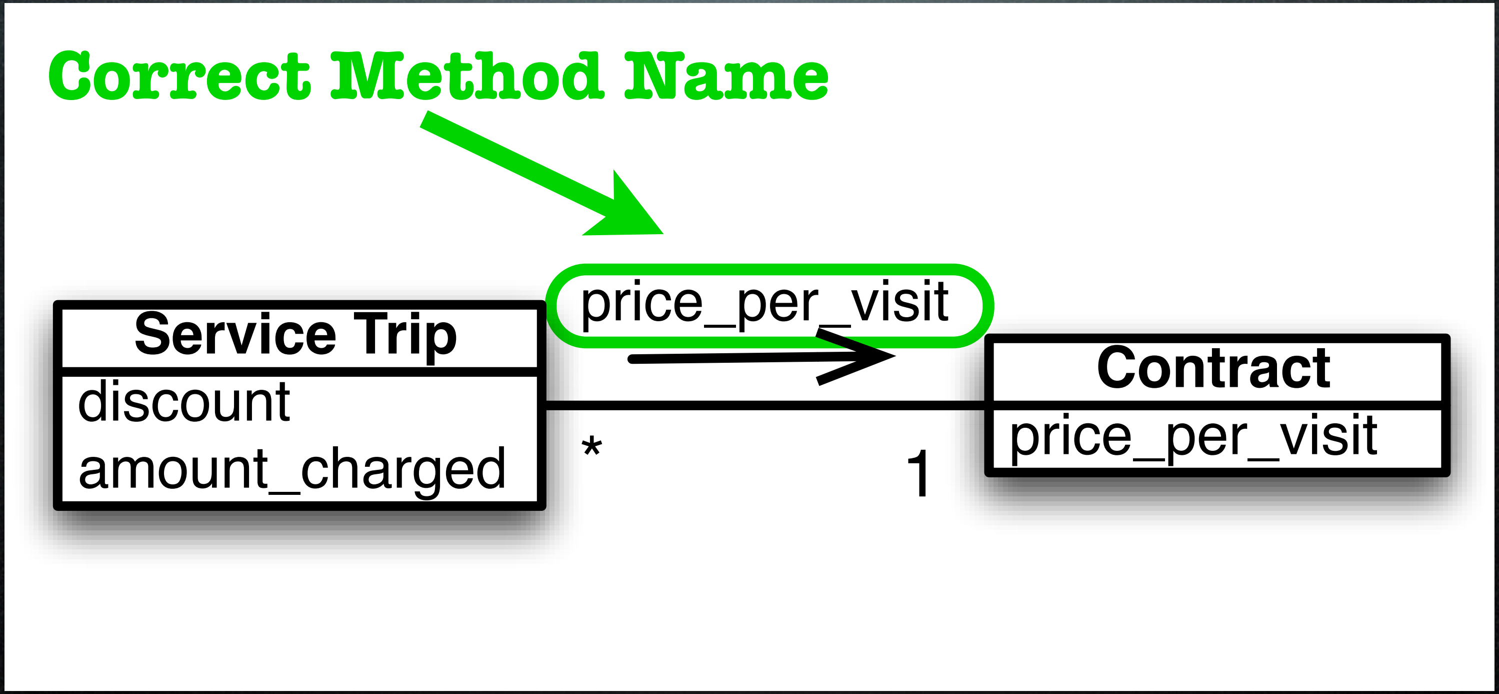


```
1 tests, 1 assertions, 0 failures, 0 errors, 0 skips
```

Fix Service Trip



Fix Service Trip



```
NoMethodError: undefined method `price_per_visit'
     for "#<FlexMock>":Service
1 tests, 0 assertions, 0 failures, 1 errors, 0 skips
```

Fantasy Tests

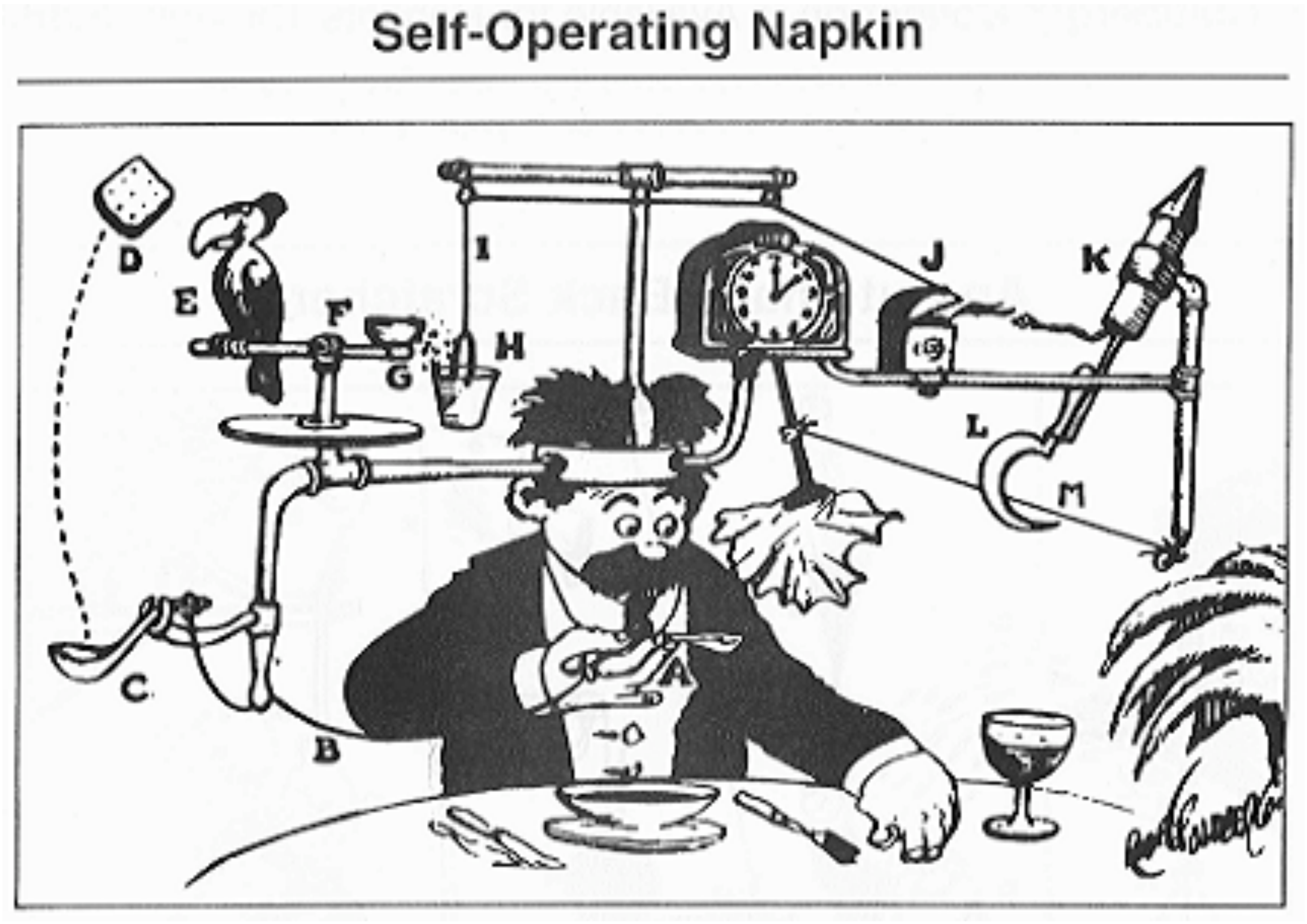
- Pass when the code is incorrect.
- Fail when the code is correct.

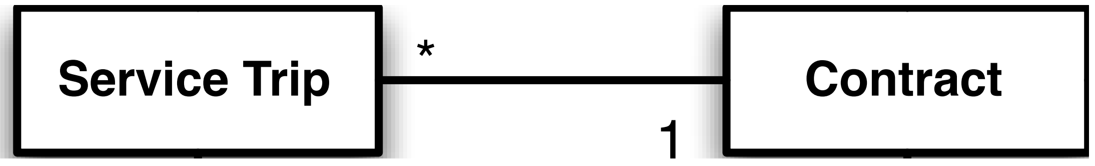
Summary

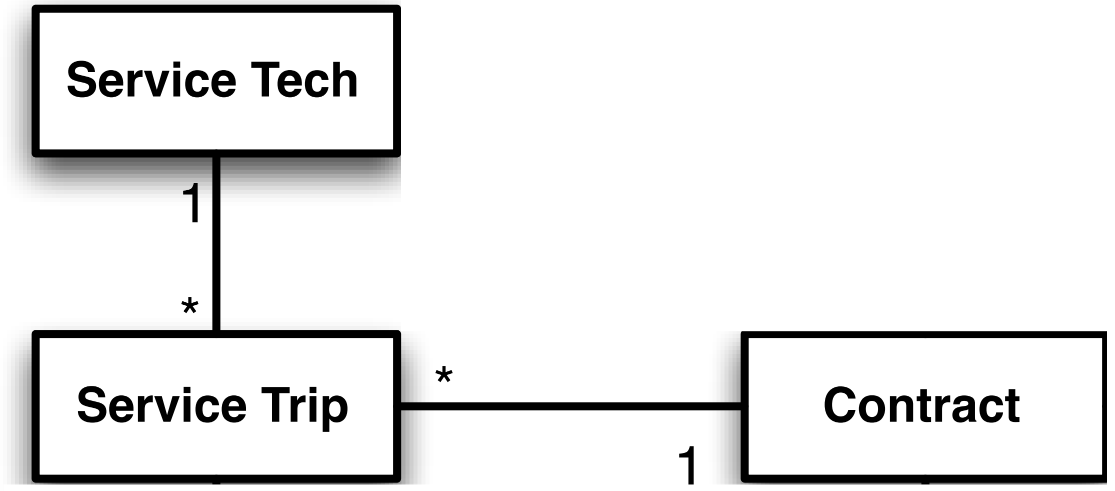
✓
- Use a mock to
    - Mock an external service
    - Verify a protocol

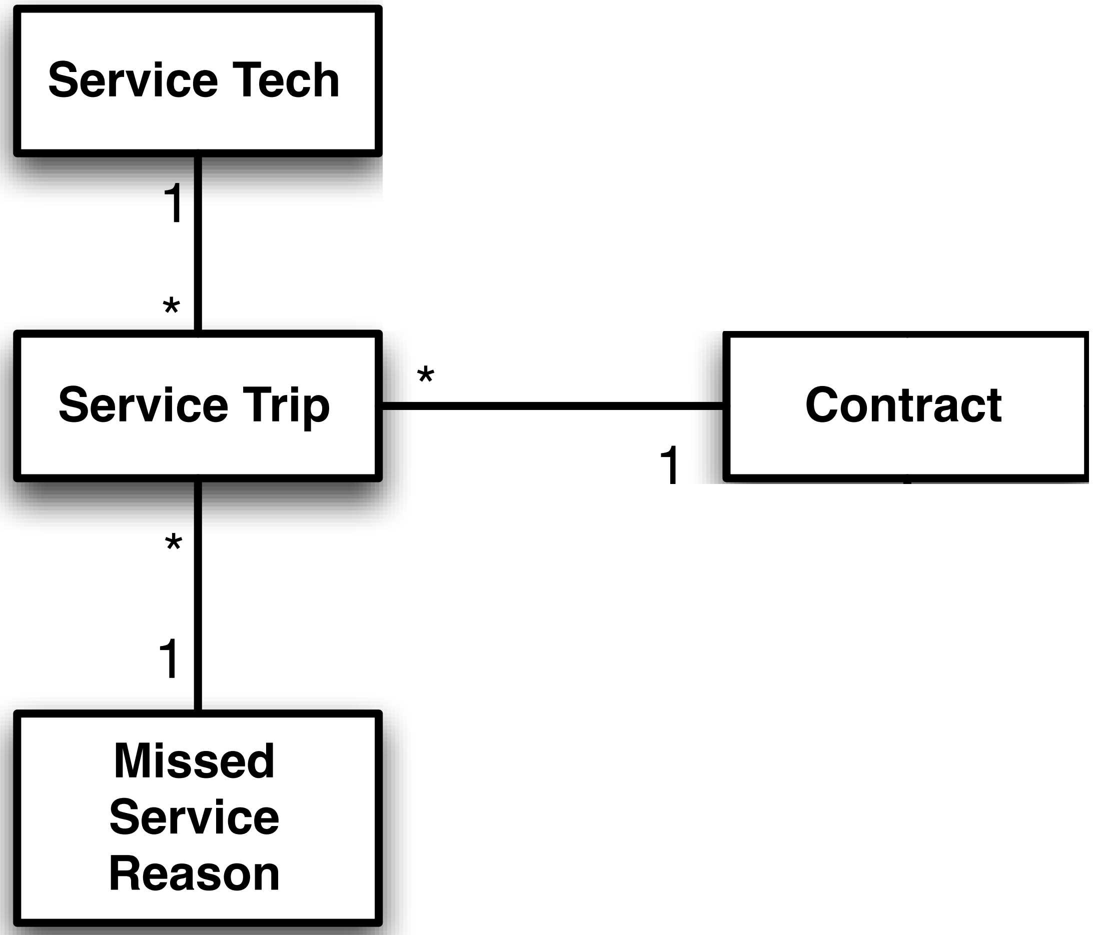
✗
- Don't use a mock to:
    - Avoid creating complex Objects

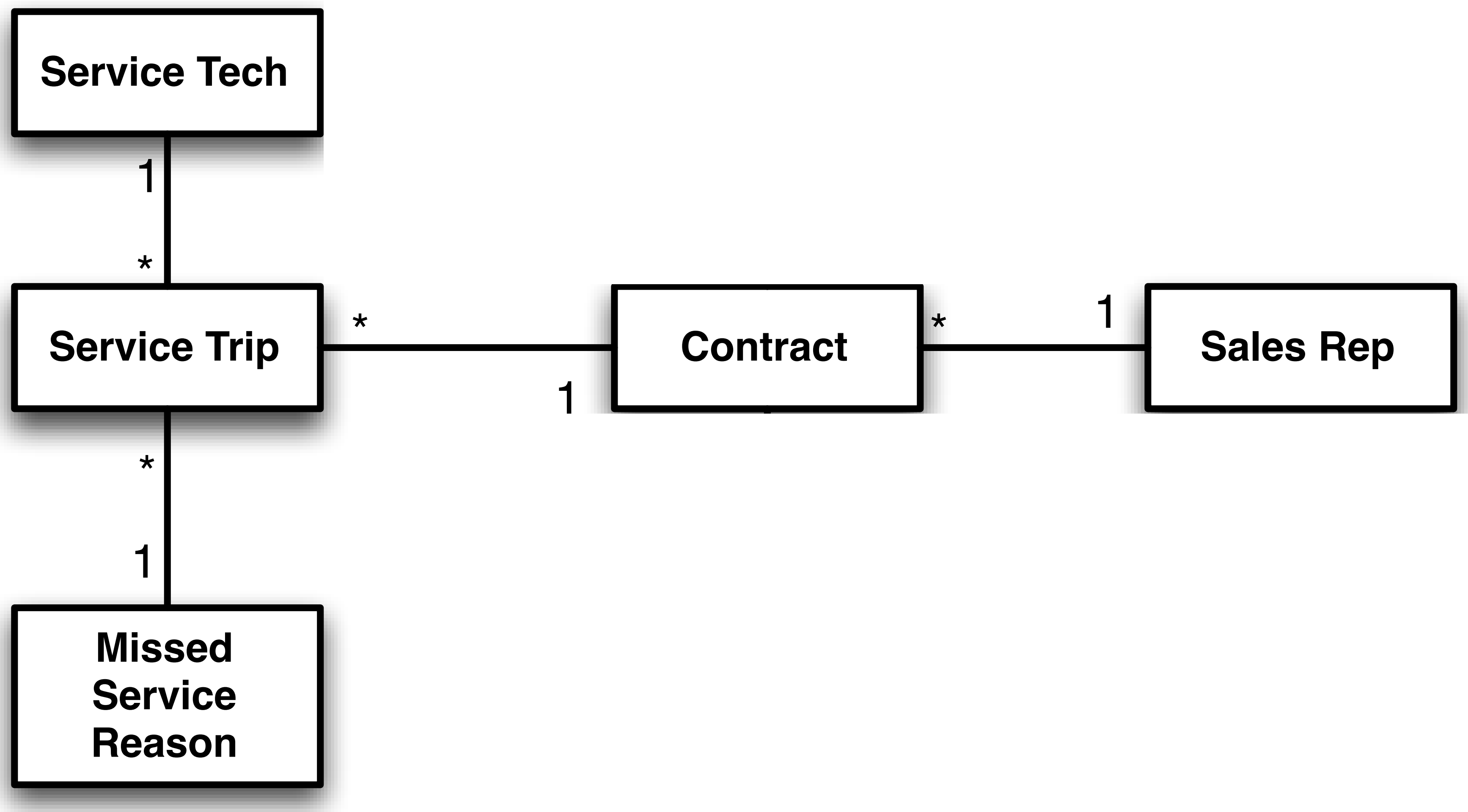
✗ Complex Object Builds

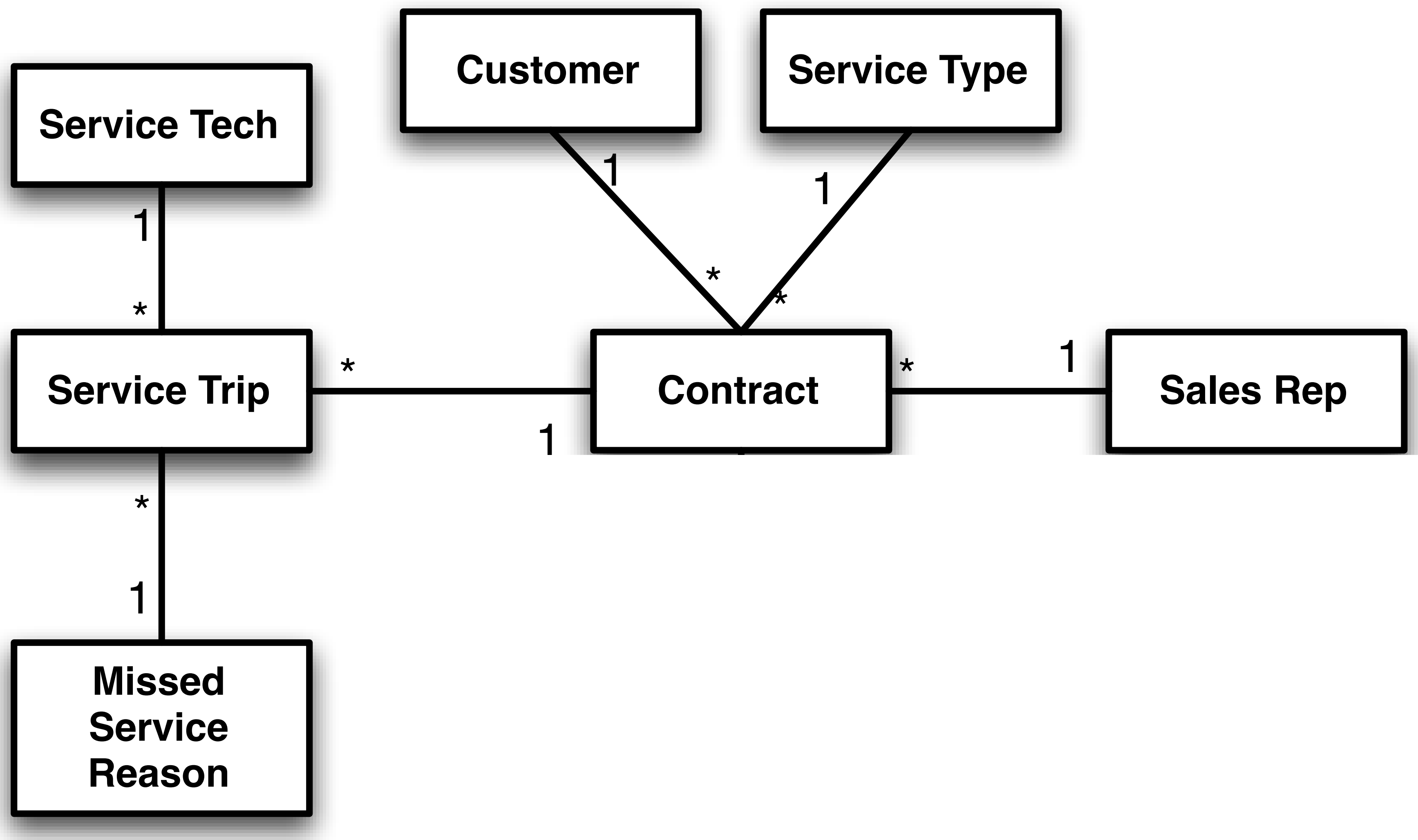


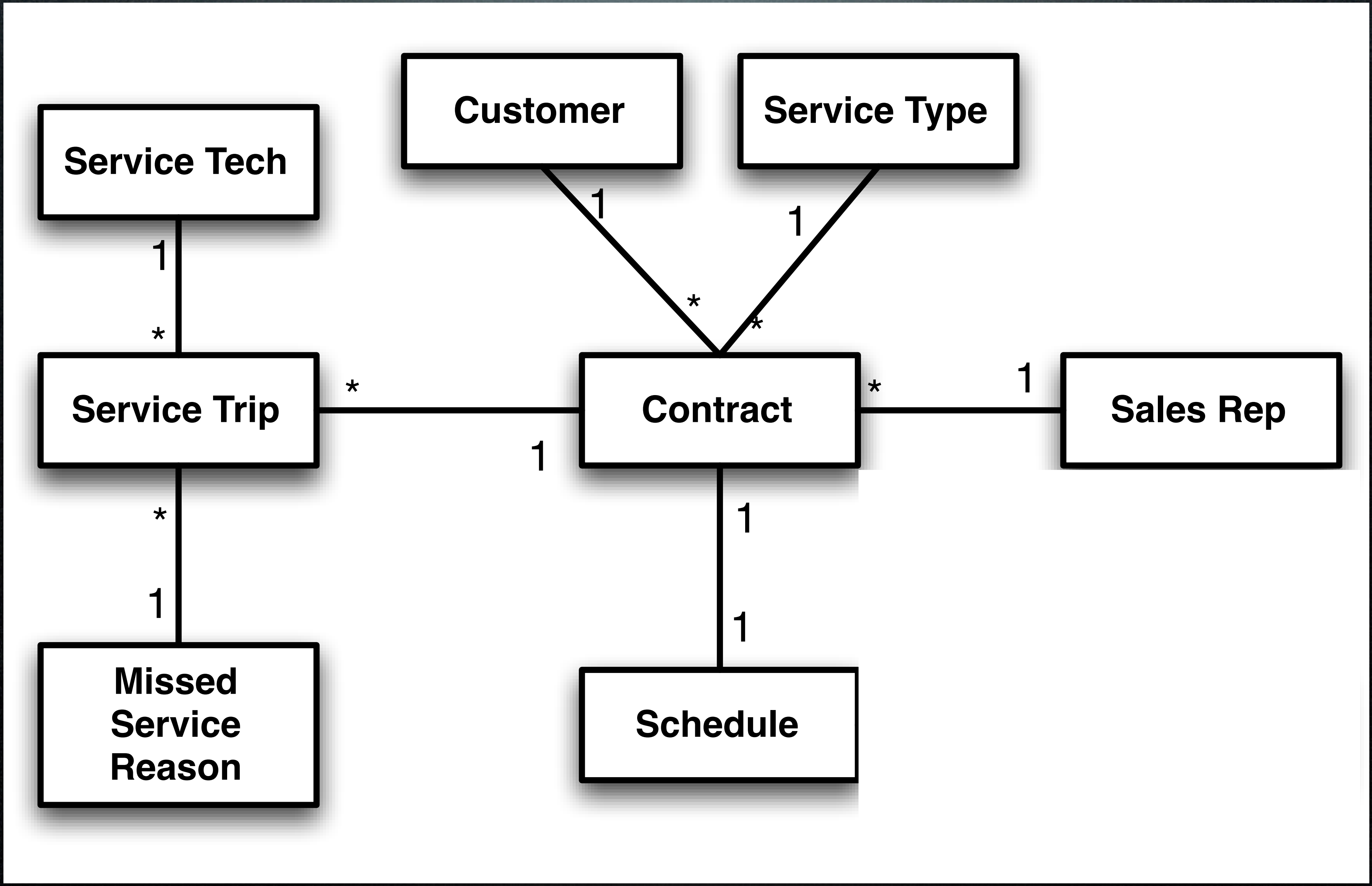

Service Trip
*
1
Contract

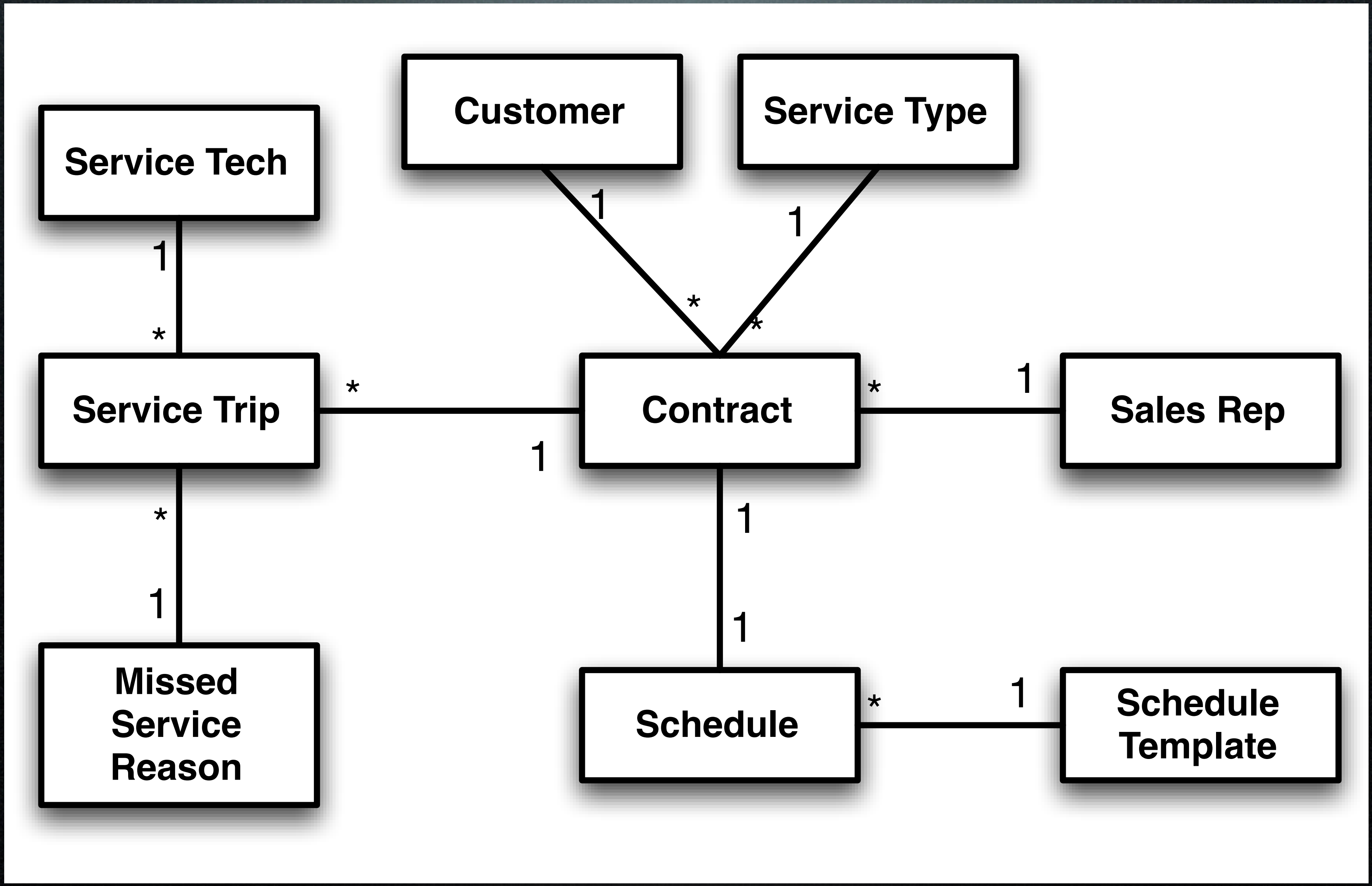

Service Tech
1
*
Service Trip
*
1
Contract


Service Tech
1
*
Service Trip
*
Contract
1
*
1
Missed Service Reason


Service Tech
1
*
Service Trip
*
1
Contract
*
1
Sales Rep
*
1
Missed Service Reason


Service Tech
Customer
Service Type
1
1
1
*
*
*
Service Trip
*
Contract
*
1
Sales Rep
1
*
1
Missed Service Reason


Service Tech
Customer
Service Type
Service Trip
Contract
Sales Rep
Missed Service Reason
Schedule
1
*
1
*
1
*
*
1
*
1
*
1
1
1


Customer
Service Type
Service Tech
1
1
1
*
*
*
Service Trip
*
1
Contract
*
1
Sales Rep
*
1
1
1
Missed Service Reason
Schedule
*
1
Schedule Template

```
Factory.define :service_trip do |trip|
  trip.association :service_tech
  trip.association :missed_service_reason
  trip.association :contract
  trip.discount 0.0
end
```

Create in Database

```
test "Time for Factory.create" do
  bench("Factory.create") {
    TIMES.times do
      trip = Factory.create(:service_trip)
    end
  }
end
```

Create in Database

```
test "Time for Factory.create" do
  bench("Factory.create") {
    TIMES.times do
      trip = Factory.create(:service_trip)
    end
  }
end
```

Time: 4.75 Seconds

Faster Database (sqlite3)

```
test "Time for Factory.create" do
  bench("Factory.create") {
    TIMES.times do
      trip = Factory.create(:service_trip)
    end
  }
end
```

Faster Database (sqlite3)

```
test "Time for Factory.create" do
  bench("Factory.create") {
    TIMES.times do
      trip = Factory.create(:service_trip)
    end
  }
end
```

Time: 4.37 Seconds

Factory In-Memory

```
test "Time for Factory.create" do
  bench("Factory.create") {
    TIMES.times do
      trip = Factory.build(:service_trip)
    end
  }
end
```

Factory In-Memory

```
test "Time for Factory.create" do
  bench("Factory.create") {
    TIMES.times do
      trip = Factory.build(:service_trip)
    end
  }
end
```

Build In Memory

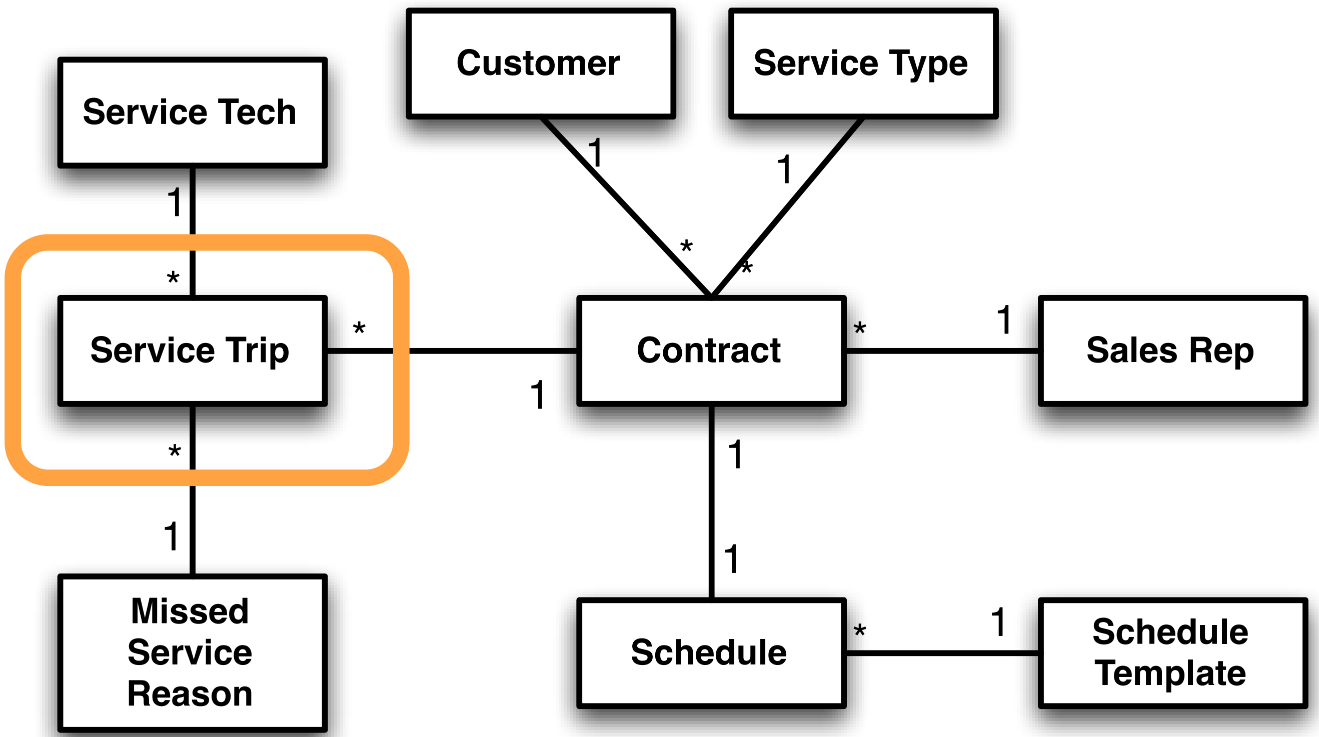
Factory In-Memory

```ruby
test "Time for Factory.create" do
  bench("Factory.create") {
    TIMES.times do
      trip = Factory.build(:service_trip)
    end
  }
end
```

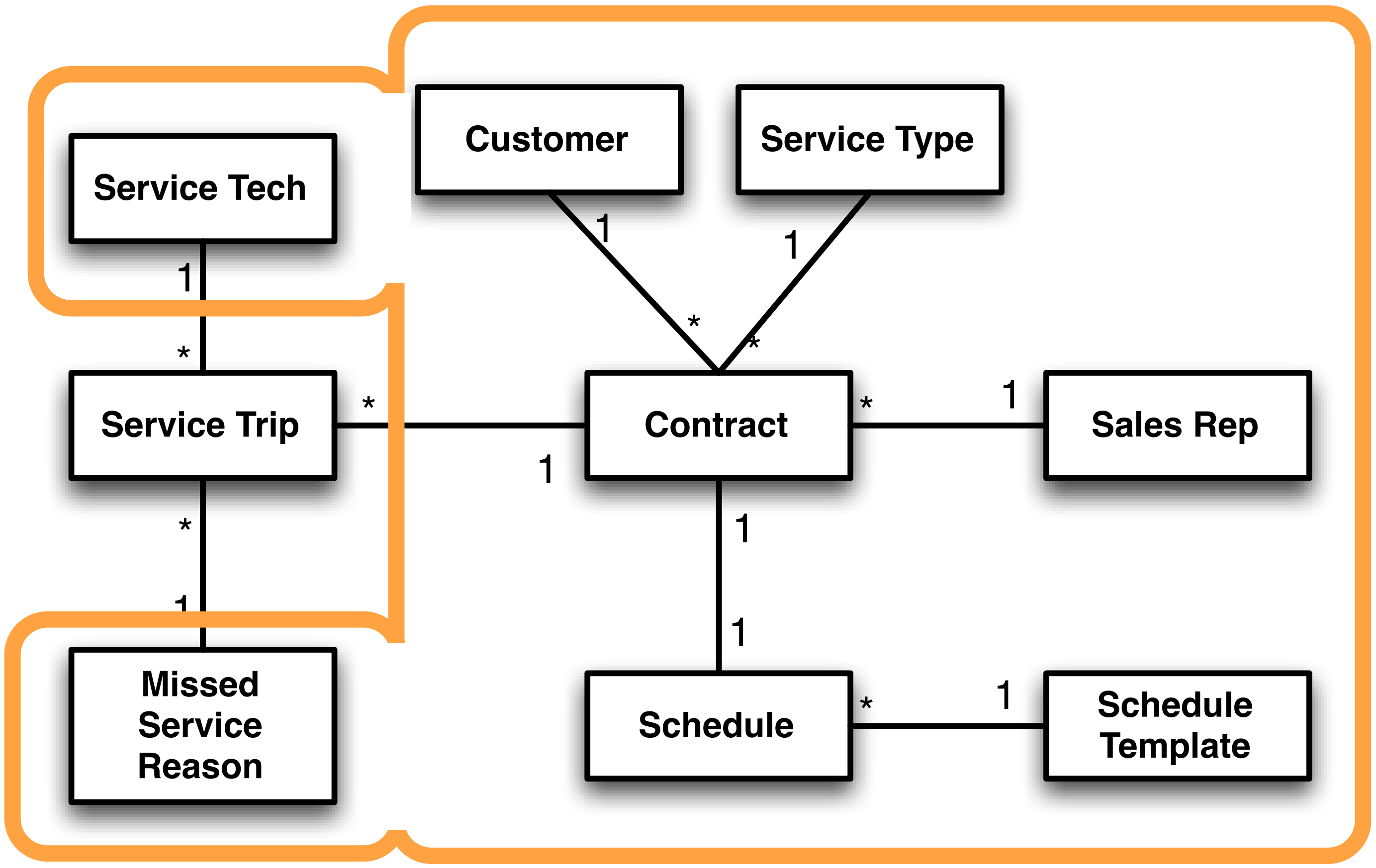
Build In Memory

Time: 3.98 Seconds

Built In Memory



Built In Database



Using Mocks

```
test "Time for Mocking" do
  bench("Flexmock") {
    TIMES.times do
      trip = Factory.build(:service_trip,
        :missed_service_reason =>
          flexmock(:model, MissedServiceReason),
        :service_tech =>
          flexmock(:model, ServiceTech),
        :contract => flexmock(:model, Contract))
    end
  }
end
```

Using Mocks

```
test "Time for Mocking" do
  bench("Flexmock") {
    TIMES.times do
      trip = Factory.build(:service_trip,
        :missed_service_reason =>
          flexmock(:model, MissedServiceReason),
        :service_tech =>
          flexmock(:model, ServiceTech),
        :contract => flexmock(:model, Contract))
    end
  }
end
```

Time: 0.59 seconds

Using Factory.attributes_for

```
test "Time for Custom Factory" do
  bench("Factory attributes") {
    TIMES.times do
      attrs = Factory.attributes_for(:service_trip)
      attrs.merge(
        :missed_service_reason => ...,
        :service_tech => ...,
        :contract => ...)
      trip = ServiceTrip.new(attrs)
    end
  }
end
```

Using Factory.attributes_for

```
test "Time for Custom Factory" do
  bench("Factory attributes") {
    TIMES.times do
      attrs = Factory.attributes_for(:service_trip)
      attrs.merge(
        :missed_service_reason => ...,
        :service_tech => ...,
        :contract => ...)
      trip = ServiceTrip.new(attrs)
    end
  }
end
```

Time: 0.30 seconds

Custom In-Memory

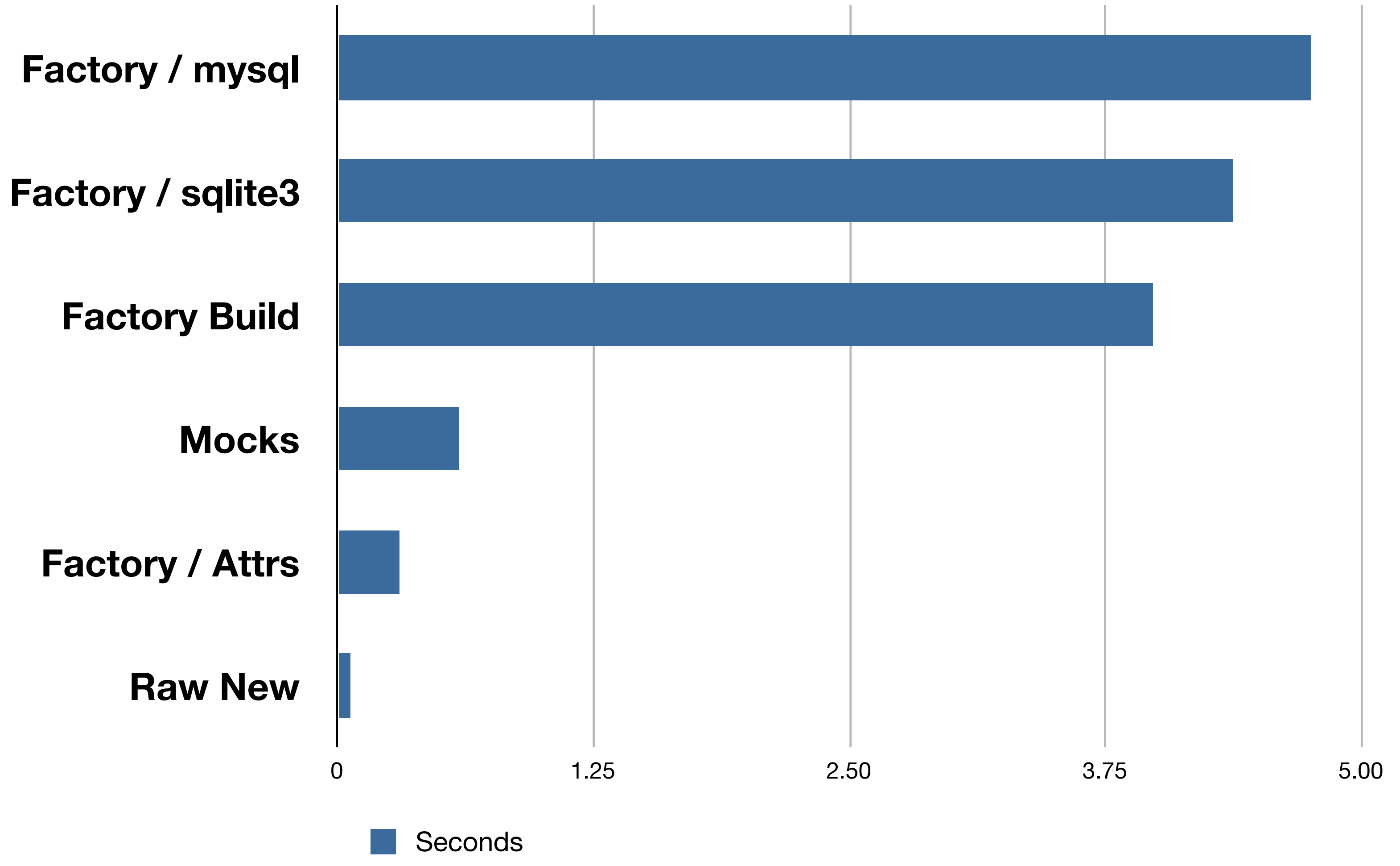
```
test "Time for Custom Build" do
  bench("Custom") {
    TIMES.times do
      trip = ServiceTrip.new(
        :missed_service_reason =>
         MissedServiceReason.new,
        :service_tech => ServiceTech.new,
        :contract => Contract.new)
    end
  }
end
```

Custom In-Memory

```
test "Time for Custom Build" do
  bench("Custom") {
    TIMES.times do
      trip = ServiceTrip.new(
        :missed_service_reason =>
          MissedServiceReason.new,
        :service_tech => ServiceTech.new,
        :contract => Contract.new)
    end
  }
end
```

Custom: 0.06 Seconds

Timing Summary



❌ Gratuitous Use of the Database

```ruby
def test_total_cost
  order = Order.create(
    :items => [Item.create(:cost => 10)])
  assert_equal 10, order.total_cost
end
```

In the Database?

```
def test_total_cost
  order = Order.create(
    :items => [Item.create(:cost => 10)])
  assert_equal 10, order.total_cost
end
```

```ruby
def test_total_cost
  order = Order.new(
    :items => [Item.new(:cost => 10)])
  assert_equal 10, order.total_cost
end
```

save VS valid?

```
def test_order_fails_with_bad_supplier
  order = Order.new(:supplier => :bad)
  assert ! order.save
end
```

save VS valid?

```
def test_order_fails_with_bad_supplier
  order = Order.new(:supplier => :bad)
  assert ! order.valid?
end
```

save VS valid?

```
def test_order_fails_with_bad_supplier
  order = Order.new(:supplier => :bad)

  assert ! order.valid?
  assert model.errors.on(:supplier)
  assert_match(/(invalid|bad).*supplier/i,
    model.errors.on(field).to_s,
end
```

✓ Custom Assertions

```ruby
def assert_tween(min, max, actual, name)
  assert actual >= min,
  "#{name} must be >= #{min} (was #{actual})"
  assert actual <= max,
  "#{name} must be <= #{max} (was #{actual})"
end
```

```
should 'be randomly distributed' do
  collect_face_counts.each do |face, count|
    assert_tween 1, 6, face, "face"
    assert_tween 800, 1200, count, "count"
  end
end
```

```
def assert_validation_error_on(model,
                                field=nil,
                                pattern=//)
  if field
    assert ! model.valid?
    assert model.errors.on(field)
    assert_match(re,
      model.errors.on(field).to_s)
  else
    assert ! model.valid?
    assert_match(re,
      model.errors.full_messages.join(", "))
  end
end
```

(note: real version has custom error messages)

✗ Over Meta in Tests

```ruby
%w(name address).each do |feature|
  it "clears the #{feature} field" do
    @item.send("clear_#{feature}")
    assert_equal "", @item.name
  end
end
```

Explicit Reference

```
%w(name address).each do |feature|
  it "clears the #{feature} field" do
    @item.send("clear_#{feature}")
    assert_equal "", @item.name
  end
end
```

```
it "clears the name field" do
  @item.clear_name
  assert_equal "", @item.name
end

it "clears the address field" do
  @item.clear_address
  assert_equal "", @item.address
end
```

❌ Testing Private Methods

```ruby
describe :load_personal_data do
  before do
    @entry = stubbed_entry
    @entry.stub!(:owner).and_return(:owner_id)
    controller.instance_variable_set('@entry', @entry)
  end

  it "loads the personal data from from the" do
    controller.stub!(:params).
      and_return(:person => 'John Doe')
    PersonalDataService.
      should_receive(:get_personal_data).
      with(:owner_id)

    controller.send(:load_personal_data)
  end
end
```

```
describe :load_personal_data do
  before do
    @entry = stubbed_entry
    @entry.stub!(:owner).and_return(:owner_id)
    controller.instance_variable_set('@entry', @entry)
  end

  it "loads the personal data from the" do
    controller.stub!(:params).
      and_return(:person => 'John Doe')
    PersonalDataService.
      should_receive(:get_personal_data).
      with(:owner_id)

    controller.send(:load_personal_data)
  end
end
```

Pathelogical Coupling

```
describe :load_personal_data do
  before do
    @entry = stubbed_entry
    @entry.stub!(:owner).and_return(:owner_id)
    controller.instance_variable_set('@entry', @entry)
  end

  it "loads the personal data from from the" do
    controller.stub!(:params).
      and_return(:person => 'John Doe')
    PersonalDataService.
      should_receive(:get_personal_data).
      with(:owner_id)

    controller.send(:load_personal_data)
  end
end
```

More Pathelogical Coupling

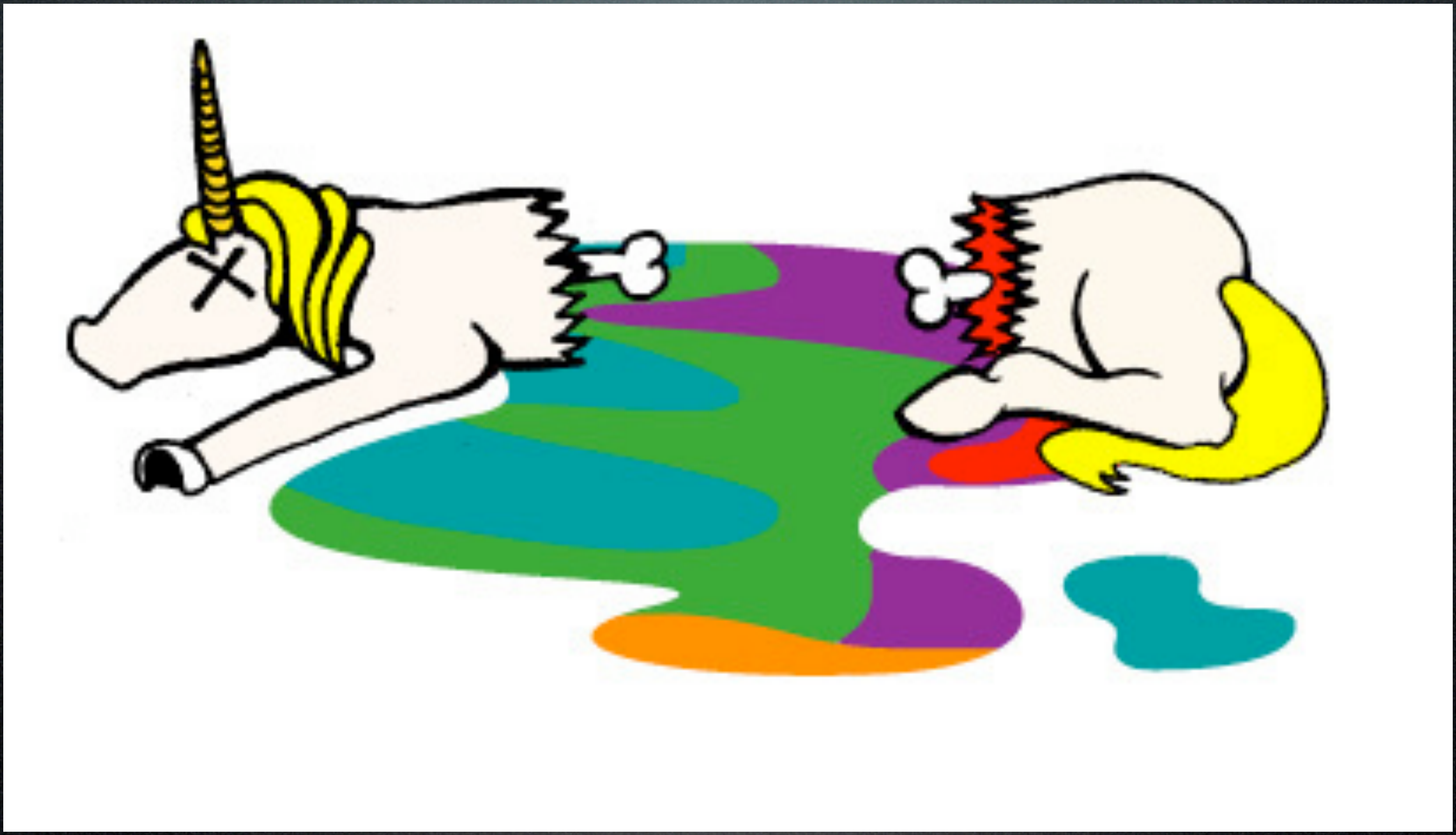
```
describe :load_personal_data do
  before do
    @entry = stubbed_entry
    @entry.stub!(:owner).and_return(:owner_id)
    controller.instance_variable_set('@entry', @entry)
  end

  it "loads the personal data from from the" do
    controller.stub!(:params).
      and_return(:person => 'John Doe')
    PersonalDataService.
      should_receive(:get_personal_data).
      with(:owner_id)

    controller.send(:load_personal_data)
  end
end
```

Bypass Normal Privacy Controls

In Campfire ...

Jim W: Move it to another class and test that class
Testing private controller methods via send
makes controller tests WAY too brittle.

Scott B: it also kills unicorns
so - congratulations. now they're extinct.



Every time you test a private method - a unicorn dies.

Every time you test a private method - a unicorn dies.
Radiant Farms
Excellent Source of Sparkles
UNICORN MEAT
Product of Ireland

✗ Incorrect use of Describe / Context

```ruby
it "clears the name field" do
  @item.clear_name
  assert_equal "", @item.name
end

it "clears the address field" do
  @item.clear_address
  assert_equal "", @item.address
end
```

```
describe Item do
  describe "#clear_name" do
    it "clears the name field" do
      ...
    end
  end
  describe "#clear_address" do
    it "clears the address field" do
      ...
    end
  end
end
```

```
describe "#score" do
  before { @bowling = BowlingScorer.new }
  context "with no throws" do
    before { @throws = [] }
    it "returns zero" do
      @bowling.score(@throws).should == 0
    end
  end
  context "with one throw" do
    before { @throws = [9] }
    it "returns the throw" do
      @bowling.score(@throws).should == 9
    end
  end
end
```

```
describe "#score" do
  before { @bowling = BowlingScorer.new }
  context "with no throws" do
    before { @throws = [] }
    it "returns zero" do
      @bowling.score(@throws).should == 0
    end
  end
  context "with one throw" do
    before { @throws = [9] }
    it "returns the throw" do
      @bowling.score(@throws).should == 9
    end
  end
end
```

```ruby
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  end
  context "with one throw" do
    before { @throws = [9] }
    it "returns the throw" do
      @bowling.score(@throws).should == 9
    end
  end
end
```

```
describe "#score" do
  before { @bowling = BowlingScorer.new }
  context "with no throws" do
    before { @throws = [] }
    it "returns zero" do
      @bowling.score(@throws).should == 0
    end
  end
  context "with one throw" do
    before { @throws = [9] }
    it "returns the throw" do
      @bowling.score(@throws).should == 9
    end
  end
end
```

Guidelines

- Use **`describe`** with ...
  - Things
  - (class names, method names)
- Use **`context`** with ...
  - Situations
  - (when ..., with ...)

✓ Refactoring Tests

```ruby
describe "#score" do
  before { @bowling = BowlingScorer.new }
  context "with no throws" do
    before { @throws = [] }
    it "returns zero" do
      @bowling.score(@throws).should == 0
    end
  end
  context "with one throw" do
    before { @throws = [9] }
    it "returns the throw" do
      @bowling.score(@throws).should == 9
    end
  end
end
```

```
describe "#score" do
  let(:bowling) { BowlingScorer.new }
  context "with no throws" do
    let(:throws) { [] }
    it "returns zero" do
      bowling.score(throws).should == 0
    end
  end
  context "with one throw" do
    let(:throws) { [9] }
    it "returns the throw" do
      bowling.score(throws).should == 9
    end
  end
end
```

```ruby
describe "#score" do
  let(:bowling) { BowlingScorer.new }
  context "with no throws" do
    let(:throws) { [] }
    it "returns zero" do
      bowling.score(throws).should == 0
    end
  end
  context "with one throw" do
    let(:throws) { [9] }
    it "returns the throw" do
      bowling.score(throws).should == 9
    end
  end
end
```

Lazy Initialization

```
describe "#score" do
  let(:bowling) { BowlingScorer.new }
  context "with no throws" do
    let(:throws) { [] }
    it "returns zero" do
      bowling.score(throws).should == 0
    end
  end
  context "with one throw" do
    let(:throws) { [9] }
    it "returns the throw" do
      bowling.score(throws).should == 9
    end
  end
end
```

Lazy Initialization

```ruby
describe "#score" do
  let(:bowling) { BowlingScorer.new }
  context "with no throws" do
    let(:throws) { [] }
    it "returns zero" do
      bowling.score(throws).should == 0
    end
  end
  context "with one throw" do
    let(:throws) { [9] }
    it "returns the throw" do
      bowling.score(throws).should == 9
    end
  end
end
```

Using Lazy Initializations

```ruby
it "should return the throw" do
  bowling.score(throws).should == 9
end
```

```ruby
it "should return the throw" do
  bowling.score(throws).should == 9
end
```

```ruby
it "returns the throw" do
  bowling.score(throws).should == 9
end
```

```ruby
describe Stack do
  context "stack with one item" do
    let(:stack) { a_stack_with_one_item }
    context "when popped" do
      before { stack.pop }
      it "is empty" do
        stack.should be_empty
      end
    end
  end
end
```

```
describe Stack do
  context "stack with one item" do
    let(:stack) { a_stack_with_one_item }
    context "when popped" do
      before { stack.pop }
      it "is empty" do
        stack.should be_empty
      end
    end
  end
end
```

```ruby
describe Stack do
  context "stack with one item" do
    let(:stack) { a_stack_with_one_item }
    context "when popped" do
      before { stack.pop }
      it "is empty" do
        stack.should be_empty
      end
    end
  end
end
```

```
describe Stack do
  context "stack with one item" do
    let(:stack) { a_stack_with_one_item }
    context "when popped" do
      before { stack.pop }
      it "is empty" do
        stack.should be_empty
      end
    end
  end
end
```

```
describe Stack do
  context "nearly empty" do
    subject { a_stack_with_one_item }
    context "when popped" do
      before { subject.pop }
      it { should be_empty }
    end
  end
end
```

Declare Subject

```ruby
describe Stack do
  context "nearly empty" do
    subject { a_stack_with_one_item }
    context "when popped" do
      before { subject.pop }
      it { should be_empty }
    end
  end
end
```

Explicit Use

```
describe Stack do
  context "nearly empty" do
    subject { a_stack_with_one_item }
    context "when popped" do
      before { subject.pop }
      it { should be_empty }
    end
  end
end
```

```
describe Stack do
  context "nearly empty" do
    subject { a_stack_with_one_item }
    context "when popped" do
      before { subject.pop }
      it { should be_empty }
    end
  end
end
```

Implicit Use

What Code is Under Test?

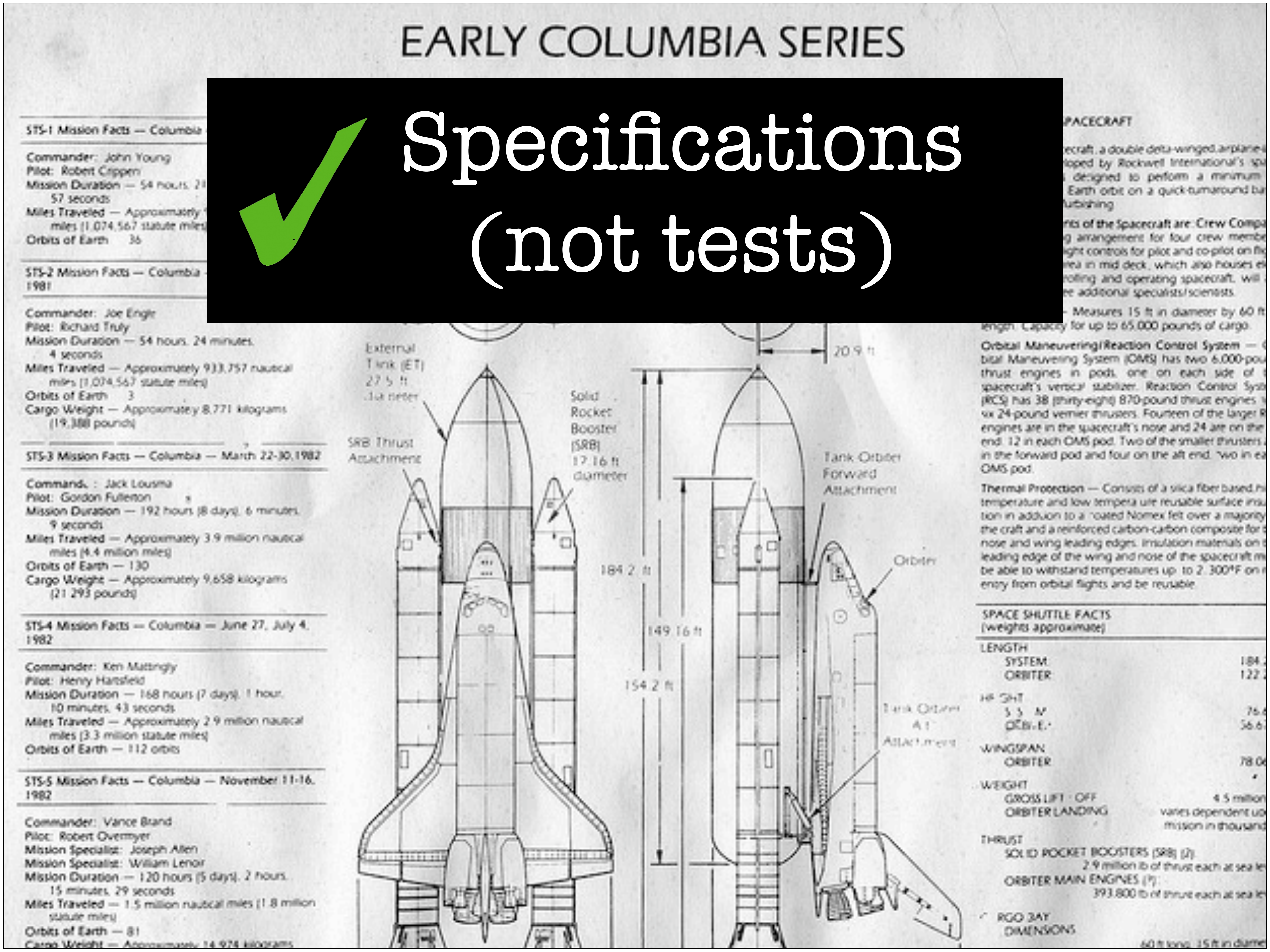
```
describe Stack do
  context "nearly empty" do
    subject { a_stack_with_one_item }
    context "when popped" do
      before { subject.pop }
      it { should be_empty }
    end
  end
end
```

What Code is Under Test?
What Code is Setup?

```
describe Stack do
  context "nearly empty" do
    subject { a_stack_with_one_item }
    context "when popped" do
      before { subject.pop }
      it { should be_empty }
    end
  end
end
```

gem rspec-given

```
describe Stack do
  context "nearly empty" do
    Given(:stack) { a_stack_with_one_item }
    When { stack.pop }
    Then { stack.should be_empty }
  end
end
```


External Tank (ET) 27.5 ft diameter
Solid Rocket Booster (SRB) 12.16 ft diameter
SRB Thrust Attachment
Tank Orbiter Forward Attachment
Orbiter
Tank Orbiter Aft Attachment
20.9 ft
184.2 ft
149.16 ft
154.2 ft

✓ Specifications (not tests)

EARLY COLUMBIA SERIES

STS-1 Mission Facts — Columbia

Commander: John Young
Pilot: Robert Crippen
Mission Duration — 54 hours, 2
57 seconds
Miles Traveled — Approximately
miles (1,074,567 statute miles
Orbits of Earth 36

STS-2 Mission Facts — Columbia
1981

Commander: Joe Engle
Pilot: Richard Truly
Mission Duration — 54 hours, 24 minutes,
4 seconds
Miles Traveled — Approximately 933,757 nautical
miles (1,074,567 statute miles)
Orbits of Earth 3
Cargo Weight — Approximately 8,771 kilograms
(19,388 pounds)

STS-3 Mission Facts — Columbia — March 22-30, 1982

Commander: Jack Lousma
Pilot: Gordon Fullerton
Mission Duration — 192 hours (8 days), 6 minutes,
9 seconds
Miles Traveled — Approximately 3.9 million nautical
miles (4.4 million miles)
Orbits of Earth — 130
Cargo Weight — Approximately 9,658 kilograms
(21,293 pounds)

STS-4 Mission Facts — Columbia — June 27, July 4, 1982

Commander: Ken Mattingly
Pilot: Henry Hartsfield
Mission Duration — 168 hours (7 days), 1 hour,
10 minutes, 43 seconds
Miles Traveled — Approximately 2.9 million nautical
miles (3.3 million statute miles)
Orbits of Earth — 112 orbits

STS-5 Mission Facts — Columbia — November 11-16, 1982

Commander: Vance Brand
Pilot: Robert Overmyer
Mission Specialist: Joseph Allen
Mission Specialist: William Lenoir
Mission Duration — 120 hours (5 days), 2 hours,
15 minutes, 29 seconds
Miles Traveled — 1.5 million nautical miles (1.8 million
statute miles)
Orbits of Earth — 81
Cargo Weight — Approximately 14,974 kilograms

PACECRAFT

ecraft, a double delta-winged airplane
loped by Rockwell International's sp
designed to perform a minimum
Earth orbit on a quick-turnaround ba
urbishing

nts of the Spacecraft are: Crew Compa
g arrangement for four crew membe
ght controls for pilot and co-pilot on fli
rea in mid deck, which also houses e
rolling and operating spacecraft, will
ee additional specialists/scientists.

— Measures 15 ft in diameter by 60 ft
length. Capacity for up to 65,000 pounds of cargo.

Orbital Maneuvering/Reaction Control System —
bital Maneuvering System (OMS) has two 6,000-pou
thrust engines in pods, one on each side of
spacecraft's vertical stabilizer. Reaction Control Syst
(RCS) has 38 (thirty-eight) 870-pound thrust engines
six 24-pound vernier thrusters. Fourteen of the larger R
engines are in the spacecraft's nose and 24 are on the
end, 12 in each OMS pod. Two of the smaller thrusters
in the forward pod and four on the aft end, two in ea
OMS pod.

Thermal Protection — Consists of a silica fiber based hi
temperature and low temperature reusable surface insu
tion in addition to a coated Nomex felt over a majority
the craft and a reinforced carbon-carbon composite for
nose and wing leading edges. Insulation materials on
leading edge of the wing and nose of the spacecraft m
be able to withstand temperatures up to 2,300°F on
entry from orbital flights and be reusable.

SPACE SHUTTLE FACTS
(weights approximate)

LENGTH	
SYSTEM	184.2
ORBITER	122.2
HEIGHT	
S.S. [illegible]	76.6
ORBITER	56.6
WINGSPAN	
ORBITER	78.06
WEIGHT	
GROSS LIFT-OFF	4.5 million
ORBITER LANDING	varies dependent up mission in thousand
THRUST	
SOLID ROCKET BOOSTERS (SRB) (2):	2.9 million lb of thrust each at sea le
ORBITER MAIN ENGINES (3):	393,800 lb of thrust each at sea le
CARGO BAY DIMENSIONS	60 ft long, 15 ft in diame

TDD $\rightarrow$ BDD

Testing Code $\rightarrow$ Specifying Behavior

RSpec != Specifying Behavior

Two Questions

(1)

If I wanted to use this software in my project, what behaviors are important to me?

(1)

Necessary

(2)

Could I write this software from scratch using only the tests/ specs as guidance?

(2)

Sufficient

Things that are Important ...

public methods
(names, args, contract)

public protocols

Things that are **NOT** Important ...

private methods

Ancillary Objects

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Summary

(1) Tests are Code

Treat them with the same respect
as the rest of your source code.

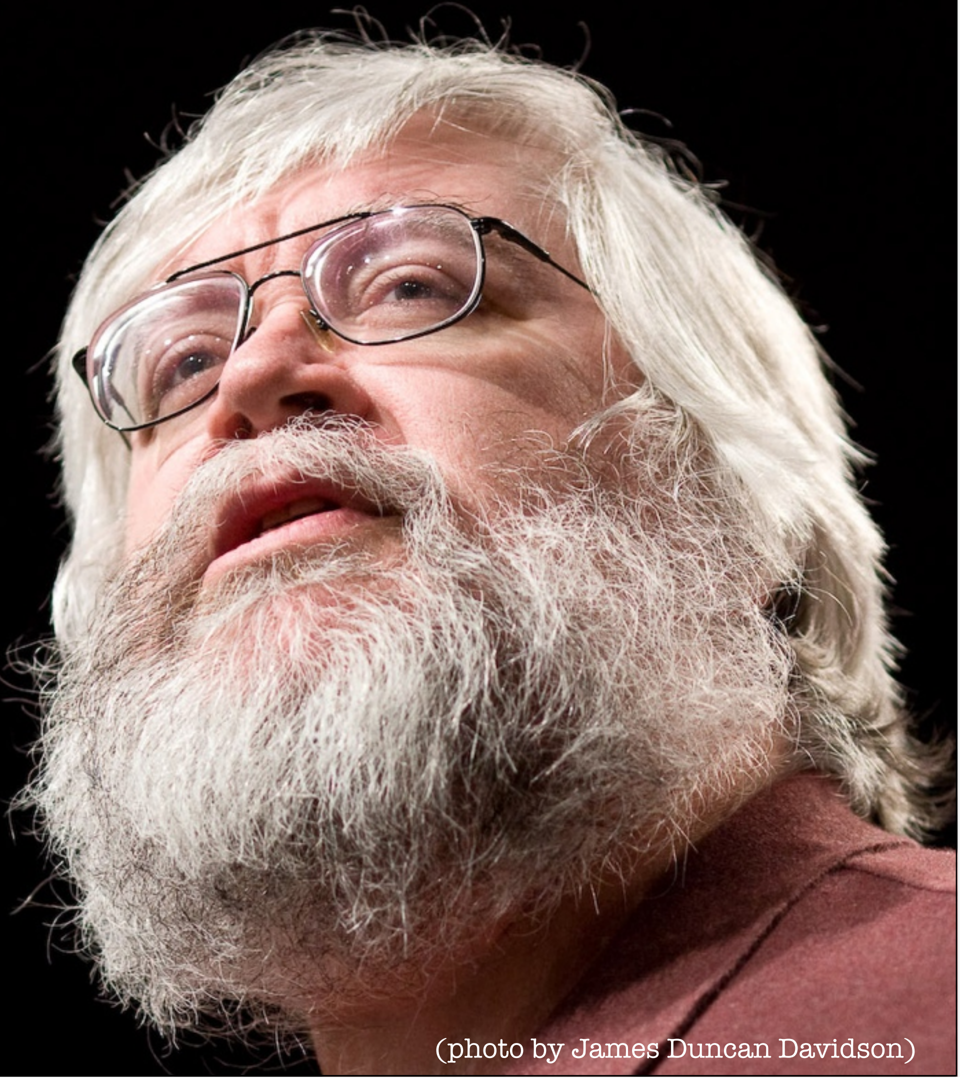
(2) Tests are Specifications

Focus on the **What**,
Not the **How**

Questions?

Jim Weirich
Chief Scientist / EdgeCase
jim@edgecase.com
@jimweirich

EdgeCase
software artisans


(photo by James Duncan Davidson)

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