

Ruby: The Core Language

Ruby Programming Certificate

UW PCE CPI 10

Winter 2013

Often people, especially computer engineers, focus on the machines. They think, "By doing this, the machine will run faster. By doing this, the machine will run more effectively. By doing this, the machine will do something something something." They are focusing on machines. But in fact we need to focus on humans, on how humans care about doing programming or operating the application of the machines. We are the masters. They are the slaves.

-Matz

ABOUT ME



ABOUT THIS CLASS

- Credit where credit is due:
 - Renée De Voursney, Nell Shamrell
 - Franklin Webber, Ivan Storck
 - Ryan Davis, Aaron Patterson

Ruby, Not Rails

- Plenty to learn in Rails
- Plenty to learn in Ruby
- Start with the Start

Tools, Tools, Tools

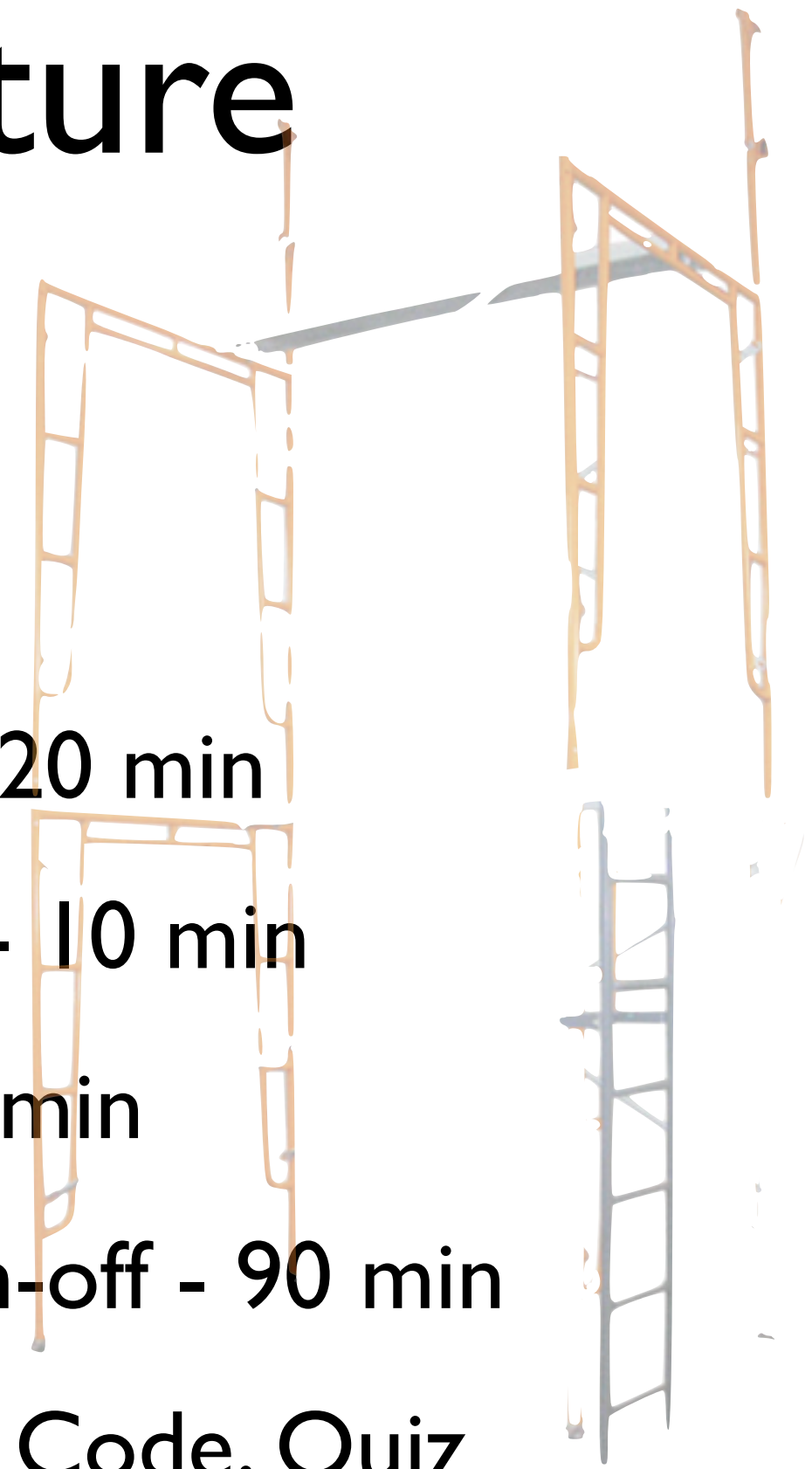
- git
- github
- RVM ?
- RubyGems
- RSpec
- Rake
- Guard

Pace and Complexity

- Too Hard
- Too Easy
- Too Fast
- Too Slow

Class Structure

- Discuss Final Project - 10 min
- Student Presentations - 10 min
- Homework (past and future) - 20 min
- Explore the Ruby Community - 10 min
- Lecture: Tools & Language - 40 min
- Lab Exercises / Homework sign-off - 90 min
- Homework: Reading/Watching, Code, Quiz



Complete/Incomplete

- Attendance (2 or fewer absences)
- 18 of 21 possible points

- **8 homework assignments** - 1 point each
 - due at the end of the following class
- **8 quizzes** - 1 point each
 - can be retaken
- **1 lightning talk presentation** - 1 point
 - present in-class on or before week 8
- **1 final project presentation** - 3 points
 - present to class on week 9 or 10
 - ruby gem or other open source submission
 - evaluated on requirements, difficulty, and presentation
- **1 extra credit point** is possible
 - extra assignment, or extra effort on final project

Office Hours

- Skype and HipChat
- Wednesdays
 - 8-9 am
 - 7-8 pm
- Post questions to Canvas Discussions

Canvas

- Assignments
- Quizzes
- Discussions
- Syllabus

HipChat

- Live help between students
 - Between classes
 - In Class ???
- Interesting platform
 - <https://github.com/justinweiss/robut>

ABOUT YOU

- Name Tag - DO IT
- Small Index Card
 - City you were born
 - Reason you are taking this class

ABOUT TODAY

ZOMG

ABOUT RUBY

- Created by Yukihiro "Matz" Matsumoto
- Ruby 1.0 released in 1996
- Ruby is for People
- Rails was its 'Killer App'



- Object Oriented
- Dynamic
- Open Classes
- Reflective
- Interpreted (and occasionally complied)
- Single Inheritance (but, with Mix-ins)
- Iterators
- Closures
- Garbage Collection
- Exception Handling

The Ruby World

- Tools, Tools
- Best Practices
- The Ruby Way



Ruby in 5 minutes

- TDD
- IRB
- RubyGems
- Bundler
- RSpec
- Let's look at some code!

- 2 spaces, appropriate comments
- capitalize classes, underscore everything else
- iterator
- block
- array
- string
- assignment
- return last value

Objects

- Everything is an object
- Objects are instances of classes
- Objects have methods, or respond to messages
- String, Numbers, Symbols are 'literals'
- Most objects are not literals but instantiated
 - `PizzaOven.new().fire!`

What is an object?

- “Hello”
- “”
- String
- 2

Really! Everything?

- TrueClass
- true
- FalseClass
- false
- NilClass
- nil

BasicObject

Object

YourObject

Numeric

String

Integer

Numbers

- Literals Objects
 - e.g. 7 or 7.0
- Class Hierarchy:
 - Numeric
 - Integer
 - Fixnum
 - Bignum

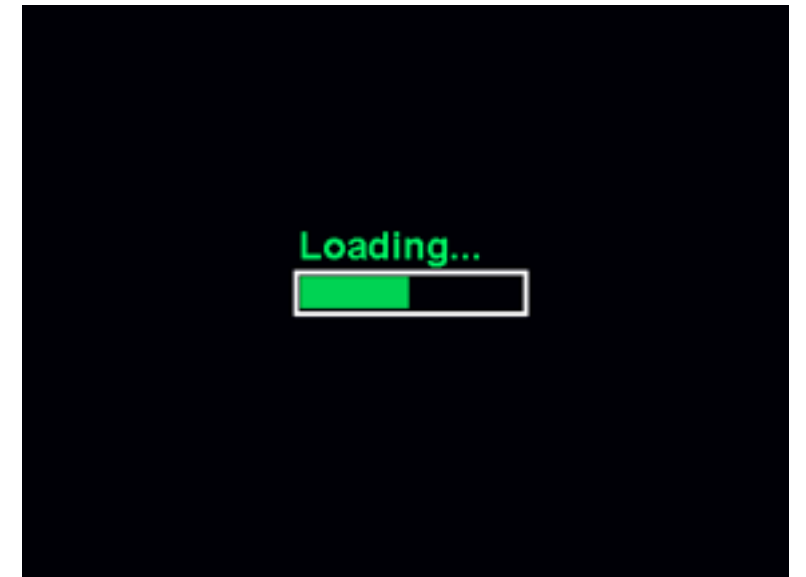
Strings

- Literal objects, Mutable
- Single quoted
 - limited escaping, e.g. 'How\'s it going?'
- Double quoted
 - Interpolation, escape sequences
 - e.g. "I am #{age} years old"
- Q% and q% sequences, e.g. q%<foo>
- Indexing substrings with []

BREAK? LAB?

Install Check

- Command Prompt
- `git --version`
- `ruby -v`
- `irb`
- `gem install rspec`
- Editor (Syntax Highlighting)



Install Check

- Command Prompt (CLI)
 - **Mac:** Terminal, iTerm, etc...
 - **Unix:** bash, zsh, csh, etc....
 - **Windows:** Command Prompt w/ Ruby on Rails

Editor

- Sublime
- Komodo
- RubyMine
- Vim, Emacs
- Redcar
- Mac:TextMate

Git

- Source Control System
- Timeline, Track Changes
- Branching and Merging
- Code Safety



Git Commands

- `git config` - set or view configuration
- `git clone` - copy a repository
- `git init` - make current dir a repository
- `git status` - git current state of repository
- `git add` - add items to index
- `git rm` - remove items from 'index'
- `git commit` - 'commit' 'index' to repository
- `git push` - move commits to remote server

Git Configuration

```
git config --global user.name "Your Name"
```

```
git config --global user.email "your@email.com"
```

<https://help.github.com/articles/set-up-git>

GitHub

github
SOCIAL CODING

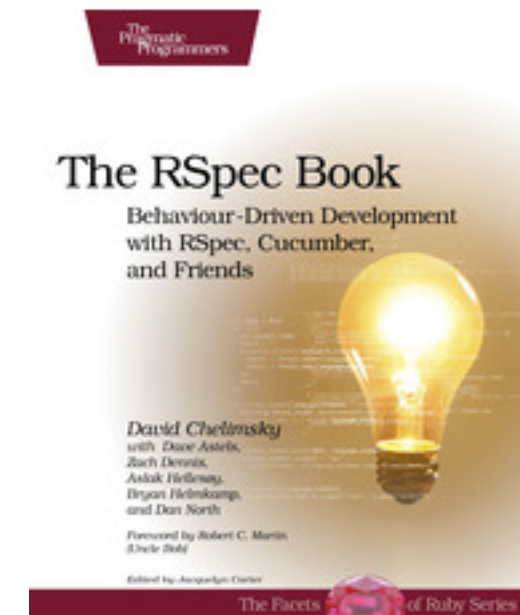


Setup a GitHub Account

- Sign-up: <https://github.com/signup/free>
- Set-up: <https://help.github.com/articles/set-up-git#platform-all>
- SSH Key: <https://help.github.com/articles/generating-ssh-keys#platform-all>

RSpec Intro

- Code that Tests code!
- Test Driven Development
 - Red-Green-Refactor
- Ruby Domain Specific Language (DSL) for testing



RSpec Specifics

- Describe (What) / Context (When)
- It (Does)
- Should
- Matchers
 - <http://rubydoc.info/gems/rspec-expectations/2.4.0/RSpec/Matchers>

Homework!

- Reading assignment

- Homework

Instructions online:

<https://github.com/UWE-Ruby/RubyCoreLanguage2013/tree/master/week1#instructions>

- Quiz