

Introduction and first application

Luigi De Russis

Rails 101



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About Rails...

Ruby on Rails

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- Framework for making dynamic web applications
 - ▣ created in 2003
 - ▣ Open Source (MIT License)
 - ▣ for the Ruby programming language
 - ▣ based on the MVC (Model-View-Controller) pattern
 - ▣ with a built-in support for Ajax (jQuery)
- Website: <http://rubyonrails.org>

The Rails Way

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- Convention over Configuration (CoC) principle
 - ▣ use naming conventions to automatically perform the mapping
 - example: every model is automatically included in the controllers
 - ▣ less code, but can be confusing to beginners
 - can be hard to look under the hood
 - ▣ make assumptions about what you want to do and how you are going to do it
 - rather than requiring you to specify every little thing through endless configuration files

The Rails Way

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- Don't Repeat Yourself (DRY) principle
 - ▣ information is located in a single, unambiguous place
- Object-Relational Mapping (ORM)
 - ▣ map database tables to classes
 - ▣ model classes have a set of class-level methods that perform table-level operations
- REST (REpresentational State Transfer)
 - ▣ use resource identifiers such as URLs to represent “resources”

REST

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- Handle **resources**
 - a document or image
 - a service
 - a collection of other resources
 - ...
- A resource is the source of specific information
- Mapping between resources and URIs
- Operation on a resource is done by means of HTTP methods
 - GET, POST, PUT, DELETE

REST: main resources

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□ **Collection** resource

□ Represent a set of items

- <http://mysite.com/users>

- <http://mysite.com/students>

□ Use plural, concrete nouns

□ **Element (item)** resource

□ Represent a single item and its properties

- <http://mysite.com/users/1>

- <http://mysite.com/students/s123456>

□ Inside a collection, typically

□ Use numbers or singular, concrete nouns

REST: HTTP methods

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- GET
 - ▣ retrieve the representation of the resource
 - collection: the list of items
 - element: the item's properties
- POST
 - ▣ create a new resource
 - apply on a collection, typically
- PUT
 - ▣ update an existing resource
 - apply on a element
- DELETE
 - ▣ delete an existing resource
 - apply on a element

Structure of a Rails applications

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app/	Core application (app) code, including models, views, controllers, and helpers
app/assets/	Applications assets such as cascading style sheets (CSS), JavaScript files, and images
config/	Application configuration
db/	Database files
doc/	Documentation for the application
lib/	Library modules
log/	Application log files
public/	Data accessible to the public (e.g., web browsers), such as error pages
script/rails	A script for generating code, opening console sessions, or starting a local server
vendor/	Third-party code such as plugins and gems

Structure of a Rails applications

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README.rdoc	A brief description of the application
Rakefile	Utility tasks available via the rake command
Gemfile	Gem requirements for this app
Gemfile.lock	A list of gems used to ensure that all copies of the app use the same gem versions
config.ru	A configuration file for Rack middleware
.gitignore	Patterns for files that should be ignored by Git

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You first Rails app

Create the application

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- Open RubyMine
- Create a new project
 - Name: Lab1
 - Type: Rails application
- In the next window, select
 - Rails Version: 3.2.x
 - Preconfigure for selected database: sqlite3
 - Skip Test::Unit files
- Wait...

Be aware...

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- RubyMine may ask you for installing missing gems
 - ▣ accept!
- On Linux, the error “*Could not find a JavaScript runtime*” may arise
 - ▣ to fix it, open the “Gemfile” and uncomment the “therubyracer” gem
 - ▣ from the *Tools* menu in RubyMine, select *Bundler* and *Install*
- Due to some limitation to the Poli network, on desktop computers, you may encounter some errors
 - ▣ to fix them, open the “Gemfile” and replace “https://...” with “http://...” in the first line
 - ▣ from the *Tools* menu in RubyMine, select *Bundler* and *Install*

Bundler and the Gemfile

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- ❑ Manage the application's gems dependencies
- ❑ Automatically run during the Rails app creation
- ❑ Read the Gemfile to install the correct gems

```
source 'https://rubygems.org'

gem 'rails', '3.2.13' ← Install the declared version of the gem

# Bundle edge Rails instead:
# gem 'rails', :git => 'git://github.com/rails/rails.git'

gem 'sqlite3' ← Install the latest version of the gem

# Gems used only for assets and not required
# in production environments by default.
group :assets do
  gem 'sass-rails', '~> 3.2.3' ← Install a version of the gem lower than 3.3
  gem 'coffee-rails', '~> 3.2.1'

  # See https://github.com/sstephenson/execjs#readme for more supported runtimes
  # gem 'therubyracer', :platforms => :ruby

  gem 'uglifier', '>= 1.0.3' ← Install a version of the gem greater than 1.0.3
end
```

See the result

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- Start the web server (WEBrick)
 - ▣ press Run...
- Open a browser
 - ▣ <http://localhost:3000/>



Welcome aboard

You're riding Ruby on Rails!

[About your application's environment](#)

Getting started

Here's how to get rolling:

1. Use `rails generate` to create your models and controllers

To see all available options, run it without parameters.

2. Set up a default route and remove *public/index.html*

Routes are set up in *config/routes.rb*.

3. Create your database

Run `rake db:create` to create your database. If you're not using SQLite (the default), edit *config/database.yml* with your username and password.

Browse the documentation

[Rails Guides](#)

[Rails API](#)

[Ruby core](#)

[Ruby standard library](#)

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Exercises 2 and 3

Let's do them!

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Final thought...

ERb (Embedded Ruby)

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- View files in a Rails application looks like an HTML5 document but with a supplementary .erb extension
- ERb is a templating library that lets you embed Ruby into your HTML
- Two tag patterns to learn
 - ▣ for evaluating Ruby code
`<% ... some code ... %>`
 - ▣ output evaluated Ruby code
`<%= ... some code ... %>`

How the final app works...

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- The user navigates to our application
 - ▣ in our case, we do that using a local URL such as `http://localhost:3000/greeter/hello`
- Rails analyzes the URL and looks in the application routes (in `config/routes.rb`)
 - ▣ the `greeter` part is taken to be the name of a controller, so Rails creates a new instance of the class `GreeterController` (which it finds in `app/controllers/greeter_controller.rb`)
- The next part of the URL, `hello`, identifies an action
 - ▣ Rails invokes a method of that name in the controller

How the final app works...

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- Rails looks for a template to display the result
 - ▣ it searches the directory `app/views` for a subdirectory with the same name as the controller (`greeter`) and in that subdirectory for a file named after the action (`hello.html.erb`)
- Rails processes this template through ERb, executing any embedded Ruby and substituting in values set up by the controller
- The result is returned to the browser, and Rails finishes processing this request

Some useful resources...




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- Code School - Rails for Zombies
 - <http://railsforzombies.org>
- Ruby on Rails: documentation
 - <http://rubyonrails.org/documentation>
- Ruby on Rails Screencasts - RailsCasts
 - <http://railscasts.com>
- Learn Web Development with the Ruby on Rails Tutorial
 - <http://rails-3-2.railstutorial.org/book>

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