

Chapter 1: Introduction to the Ruby Programming Language

The screenshot shows the official Ruby website at <https://www.ruby-lang.org/en/>. The page features a red Ruby logo and the tagline "A PROGRAMMER'S BEST FRIEND". A navigation bar includes links for Downloads, Documentation, Libraries, Community, News, Security, and About Ruby. The main content area has a background pattern of tools like hammers and diamonds. It features a section titled "Ruby is..." with a brief description of the language's focus on simplicity and productivity. Below this are "Download Ruby" and "Read More..." buttons. To the right, a code block shows a Ruby script for a Greeter class. At the bottom left, there's a callout for ConFoo Montreal 2017 speakers, and at the bottom right, links for getting started with Ruby.

Ruby
A PROGRAMMER'S BEST FRIEND

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Ruby is...
A dynamic, open source programming language with a focus on simplicity and productivity. It has an elegant syntax that is natural to read and easy to write.

Download Ruby or Read More...

```
# The Greeter class
class Greeter
  def initialize(name)
    @name = name.capitalize
  end

  def salute
    puts "Hello #{@name}!"
  end

# Create a new object
g = Greeter.new("world")

# Output "Hello World!"
g.salute
```

ConFoo Montreal 2017 is looking for Ruby speakers
Want to get your web development ideas in front of a live audience? The [call for papers](#) for the ConFoo Montreal 2017 Conference is open! If you have a burning desire to hold forth about Ruby, databases, JavaScript, or any other web development topics, we want to see your proposals.
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Posted by afilina on 26 Aug 2016

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ConFoo CA DEVELOPER CONFERENCE Mar 8-10 2017 Montreal

Get Started, it's easy!
[Try Ruby!](#) (in your browser)
[Ruby in Twenty Minutes](#)
[Ruby from Other Languages](#)

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Download Ruby

Ruby
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Download Ruby

Here you can get the latest Ruby distributions in your favorite flavor. The current stable version is 2.3.1. Please be sure to read [Ruby's License](#).

Ways of Installing Ruby

We have several tools on each major platform to install Ruby:

- On Linux/UNIX, you can use the package management system of your distribution or third-party tools (rbenv and RVM).
- On OS X machines, you can use third-party tools (rbenv and RVM).
- On Windows machines, you can use RubyInstaller.

See the [Installation](#) page for details on using package management systems or third-party tools.

Of course, you can also install Ruby from source on all major platforms.

Compiling Ruby — Source Code

Installing from the source code is a great solution for when you are comfortable enough with your platform and perhaps need specific settings for your environment. It's also a good solution in the event that there are no other premade packages for your platform.

Get Started, it's easy!

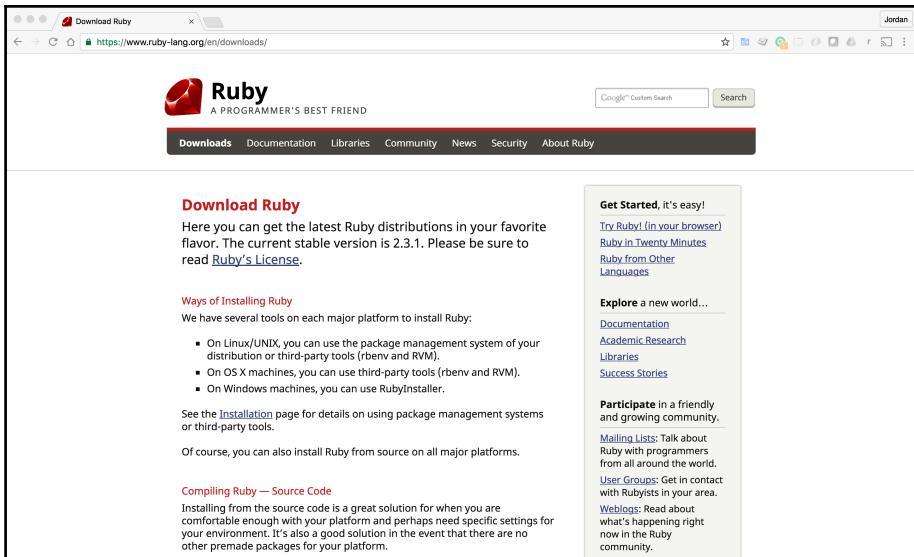
Try Ruby! (in your browser)
Ruby In Twenty Minutes
Ruby From Other Languages

Explore a new world...

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Participate in a friendly and growing community.

Mailing Lists: Talk about Ruby with programmers from all around the world.
User Groups: Get in contact with Rubyists in your area.
Weblogs: Read about what's happening right now in the Ruby community.



RubyInstaller for Windows

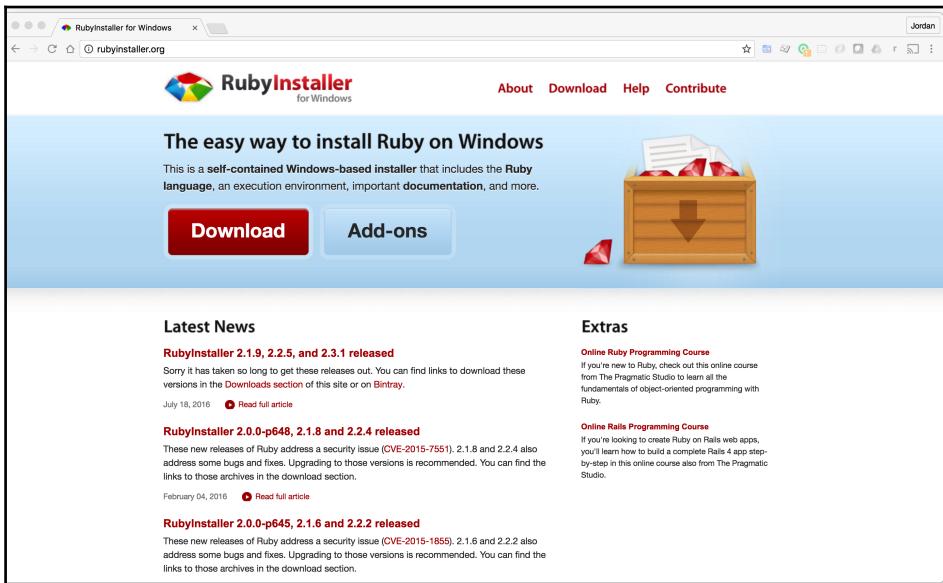
RubyInstaller
for Windows

About Download Help Contribute

The easy way to install Ruby on Windows

This is a self-contained Windows-based installer that includes the Ruby language, an execution environment, important documentation, and more.

Download **Add-ons**



Latest News

RubyInstaller 2.1.9, 2.2.5, and 2.3.1 released
Sorry it has taken so long to get these releases out. You can find links to download these versions in the [Downloads](#) section of this site or on [Bintray](#).
July 18, 2016 [Read full article](#)

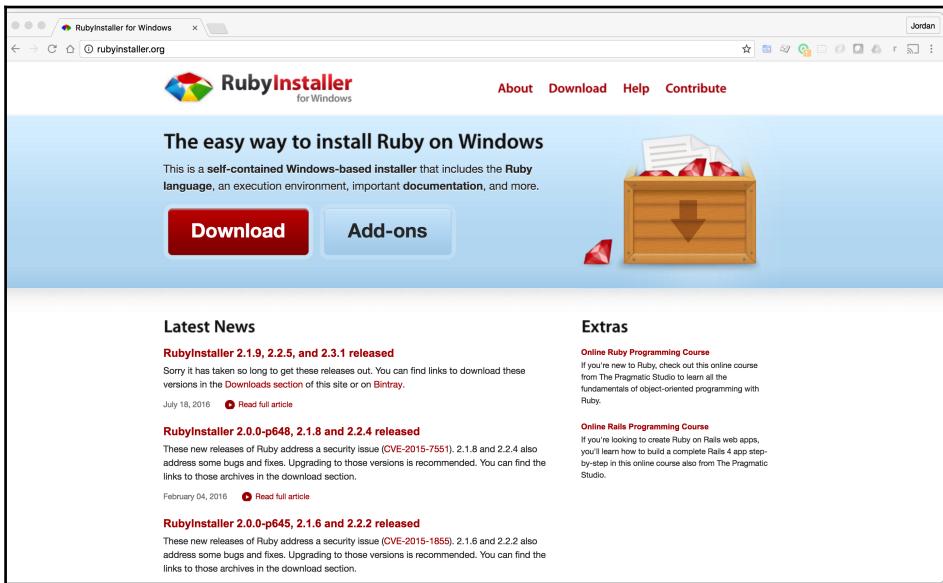
RubyInstaller 2.0.0-p648, 2.1.8 and 2.2.4 released
These new releases of Ruby address a security issue ([CVE-2015-7551](#)). 2.1.8 and 2.2.4 also address some bugs and fixes. Upgrading to those versions is recommended. You can find the links to those archives in the download section.
February 04, 2016 [Read full article](#)

RubyInstaller 2.0.0-p645, 2.1.6 and 2.2.2 released
These new releases of Ruby address a security issue ([CVE-2015-1855](#)). 2.1.6 and 2.2.2 also address some bugs and fixes. Upgrading to those versions is recommended. You can find the links to those archives in the download section.

Extras

Online Ruby Programming Course
If you're new to Ruby, check out this online course from The Pragmatic Studio to learn all the fundamentals of object-oriented programming with Ruby.

Online Rails Programming Course
If you're looking to create Ruby on Rails web apps, you'll learn how to build a complete Rails 4 app step-by-step in this online course also from The Pragmatic Studio.



```

Desktop — bash — 80x24
~/Desktop — bash

MacBook-Pro-3:Desktop admin$ ruby do_I_have_ruby.rb
Yes, you have Ruby!
MacBook-Pro-3:Desktop admin$ 

```

Ruby Version Manager (RVM)

RVM is a command-line tool which allows you to easily install, manage, and work with multiple ruby environments from interpreters to sets of gems.

Copy + Paste Into Your Terminal

```

$ gpg --keyserver hkp://keys.gnupg.net --recv-key 409B681796C275462A170311380
$ \curl -sSL https://get.rvm.io | bash -s stable

```

For all in one installation append `--rails` or `--ruby` or `--ruby=1.9.3`

Install RVM:

```

$ gpg --keyserver hkp://keys.gnupg.net --recv-key 409B681796C275462A170311380
$ \curl -sSL https://get.rvm.io | bash -s stable

```

RVM Documentation Index | RVM Blog

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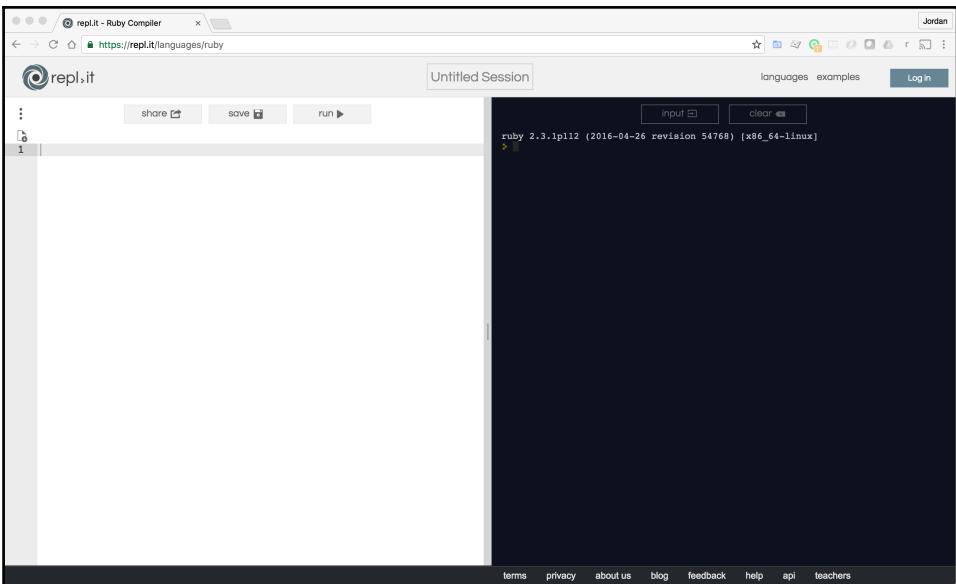
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A screenshot of a Mac OS X terminal window titled "Desktop -- bash -- 80x24" with the path "~/Desktop -- bash". The window title bar includes red, yellow, and green buttons. The terminal prompt is "MacBook-Pro-3:Desktop admin\$". The user runs the command "rvm list", which outputs a list of available Ruby versions. The output is as follows:

```
rvm rubies

  ruby-2.0.0-p247 [ x86_64 ]
  ruby-2.0.0-p643 [ x86_64 ]
  ruby-2.1.1 [ x86_64 ]
*= ruby-2.1.2 [ x86_64 ]
  ruby-2.1.4 [ x86_64 ]
  ruby-2.1.5 [ x86_64 ]
  ruby-2.1.7 [ x86_64 ]
  ruby-2.2.0 [ x86_64 ]
  ruby-2.2.1 [ x86_64 ]
  ruby-2.2.3 [ x86_64 ]
  ruby-2.2.4 [ x86_64 ]
  ruby-2.3.0 [ x86_64 ]

# => - current
# *= - current && default
# * - default

MacBook-Pro-3:Desktop admin$
```

```
MacBook-Pro-3:Desktop admin$ rvm list

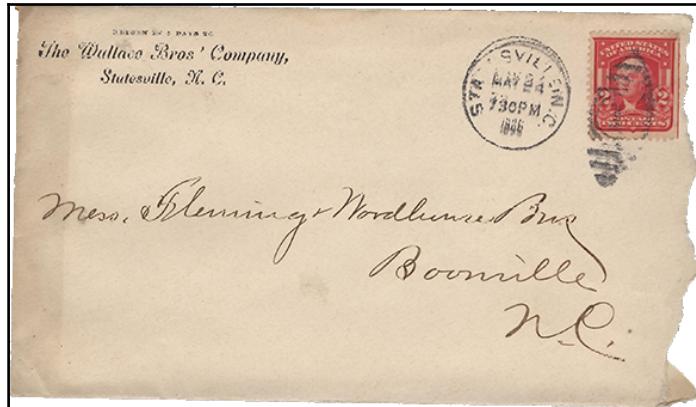
rvm rubies

    ruby-2.0.0-p247 [ x86_64 ]
    ruby-2.0.0-p643 [ x86_64 ]
    ruby-2.1.1 [ x86_64 ]
*= ruby-2.1.2 [ x86_64 ]
    ruby-2.1.4 [ x86_64 ]
    ruby-2.1.5 [ x86_64 ]
    ruby-2.1.7 [ x86_64 ]
    ruby-2.2.0 [ x86_64 ]
    ruby-2.2.1 [ x86_64 ]
    ruby-2.2.3 [ x86_64 ]
    ruby-2.2.4 [ x86_64 ]
    ruby-2.3.0 [ x86_64 ]

# => - current
# *= - current && default
# * - default

MacBook-Pro-3:Desktop admin$ rvm use ruby-2.3.0
Using /Users/admin/.rvm/gems/ruby-2.3.0
MacBook-Pro-3:Desktop admin$
```

Chapter 2: Ruby Variables



A screenshot of the repl.it web interface. The title bar says "repl.it - Ruby Compiler" and the URL is "https://repl.it/languages/ruby". The session is titled "Untitled Session". On the left, there's a code editor with the following line of code:

```
1 name = "Jordan"
```

On the right, the terminal window shows the output of running the code in Ruby 2.3.1p112:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
=> "Jordan"
>
```

The repl.it footer includes links for "terms", "privacy", "about us", "blog", "feedback", "help", "api", and "teachers". There is also a blue circular icon with a lightbulb symbol.

A screenshot of the repl.it Ruby Compiler interface. The left pane shows the code:

```
1 name = "Jordan"
2
3 address = ["123", "Anystreet", "Anytown", "TX"]
```

The right pane shows the output of the code execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
=> ["123", "Anystreet", "Anytown", "TX"]
>
```

A screenshot of the repl.it Ruby Compiler interface, specifically the Ruby Programming section. The left pane shows the code:

```
1 puts "A string"
2 p "B string"
```

The right pane shows the output of the code execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
A string
"B string"
=> "B string"
>
```

Red arrows and annotations point to specific parts of the output:

- An arrow points to "A string" with the annotation "Simply prints out".
- An arrow points to "B string" with the annotation "prints and returns a value".

A screenshot of the repl.it Ruby Compiler interface. The code editor on the left contains the line `puts "A string"`. The output window on the right shows the result of running the code: `ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]`, followed by `A string` and `=> nil`. Both the input line and the output line are highlighted with red boxes.

A screenshot of the repl.it Ruby Compiler interface. The code editor on the left contains the following code:
1 arr = [1, 2, 3, 4, 5]
2
3 p arr

The output window on the right shows the result of running the code: `ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]`, followed by `[1, 2, 3, 4, 5]` and `=> [1, 2, 3, 4, 5]`. The output line is highlighted with a red box.

A screenshot of the repl.it Ruby Compiler interface. The left panel shows the code editor with the following Ruby script:

```
arr = [1, 2, 3, 4, 5]
puts arr
```

The right panel shows the terminal output:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
1
2
3
4
5
=> nil
>
```

A screenshot of the repl.it Ruby Compiler interface. The left panel shows the code editor with the following Ruby script:

```
puts "What is your name?"
name = gets
```

The right panel shows the terminal output:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
What is your name?
Jordan
=> "Jordan\n"
```

A screenshot of the repl.it Ruby Compiler interface. The code editor on the left contains the following Ruby script:

```
1 puts "Please enter your password:"
2 password = gets
3
4 if password == "asdfasdf"
5   true
6 else
7   false
8 end
```

The output window on the right shows the execution of the script. It starts with the Ruby version and platform information, followed by the prompt "Please enter your password:". When the user types "asdfasdf", the response is "=> true".

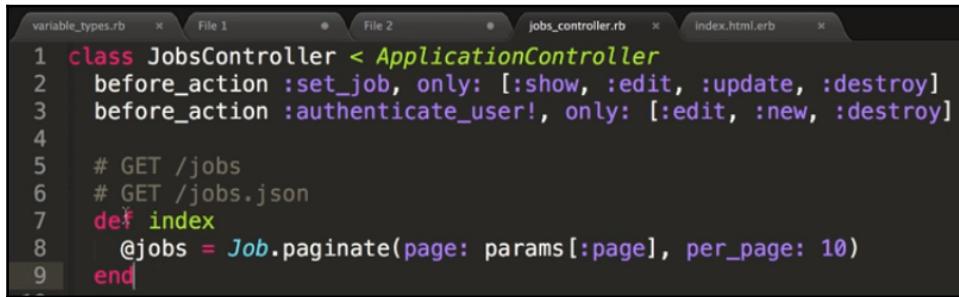
A second screenshot of the repl.it Ruby Compiler interface, showing the same code as the first but with a modification in line 2:

```
1 puts "Please enter your password:"
2 password = gets.chomp
3
4 if password == "asdfasdf"
5   true
6 else
7   false
8 end
```

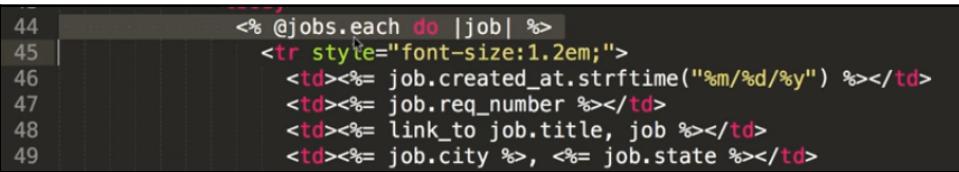
The output window shows the execution results. The user enters "asdfasdf" and the response is "=> false", indicating that the.chomp method was not used to remove trailing whitespace from the input.

```
MacBook-Pro:edutechional-ruby admin$ ruby variable_types.rb
variable_types.rb:6:in `<main>': undefined local variable or method `x' for main:Object (NameError)
MacBook-Pro:edutechional-ruby admin$
```

>

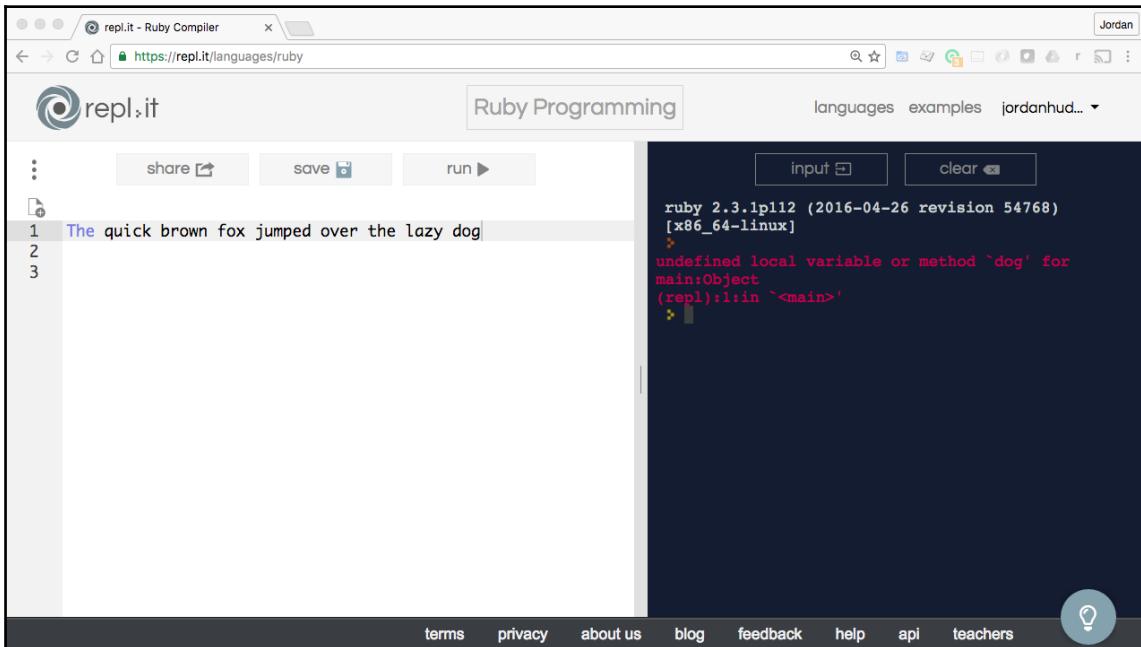


```
variable_types.rb  File 1  File 2  jobs_controller.rb  index.html.erb
1 class JobsController < ApplicationController
2   before_action :set_job, only: [:show, :edit, :update, :destroy]
3   before_action :authenticate_user!, only: [:edit, :new, :destroy]
4
5   # GET /jobs
6   # GET /jobs.json
7   def index
8     @jobs = Job.paginate(page: params[:page], per_page: 10)
9   end
--
```



```
44   ----
45   |      <% @jobs.each do |job| %>
46   |      <tr style="font-size:1.2em;">
47   |          <td><%= job.created_at.strftime("%m/%d/%y") %></td>
48   |          <td><%= job.req_number %></td>
49   |          <td><%= link_to job.title, job %></td>
        |          <td><%= job.city %>, <%= job.state %></td>
```

Chapter 3: Ruby Strings



The screenshot shows a browser window for the repl.it Ruby Compiler. The URL in the address bar is <https://repl.it/languages/ruby>. The page title is "Ruby Programming". On the left, there's a code editor with three lines of Ruby code:

```
1 The quick brown fox jumped over the lazy dog
2
3
```

On the right is a terminal window displaying the output of the Ruby interpreter:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
undefined local variable or method `dog' for
main:Object
(repl):1:in `<main>'
>
```

The terminal window has "input" and "clear" buttons at the top. At the bottom of the terminal window is a blue circular icon with a white lightbulb symbol.

A screenshot of the repl.it Ruby Compiler interface. The top navigation bar shows "repl.it - Ruby Compiler" and the URL "https://repl.it/languages/ruby". The user is logged in as "Jordan". The main area has tabs for "Ruby Programming", "languages", "examples", and "jordanhud...". On the left, there's a code editor with three lines of Ruby code: "1 p 'The quick brown fox jumped over the lazy dog'", "2", and "3". Below the code are buttons for "share", "save", and "run". On the right, the output window shows the Ruby interpreter's response: "ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]", followed by two lines of output: "> "The quick brown fox jumped over the lazy dog"" and "> => "The quick brown fox jumped over the lazy dog"". There are also "input" and "clear" buttons at the top of the output window.

A second screenshot of the repl.it Ruby Compiler interface, identical in layout to the first one. It shows the same Ruby code being run and the same output from the interpreter. The user is again "Jordan". The code editor contains the same three lines of Ruby code, and the output window shows the same results: "ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]" and two lines of output: "> "The quick brown fox jumped over the lazy dog"" and "> => "The quick brown fox jumped over the lazy dog"".

A screenshot of the repl.it Ruby Compiler interface. The left panel shows a code editor with the following Ruby script:

```
1 puts "Name an animal"
2 animal = gets.chomp
3
4 puts "Name a noun"
5 noun = gets.chomp
6
7 p "The quick brown #{animal} jumped over the lazy #{noun}"
```

The right panel shows the output of the script. The user has input "Monkey" for the animal and "Chair" for the noun. The output is:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
Name an animal
Monkey
Name a noun
Chair
"The quick brown Monkey jumped over the lazy
Chair"
=> "The quick brown Monkey jumped over the lazy
Chair"
```

A screenshot of the repl.it Ruby Compiler interface, identical to the one above but with different user input. The user has input "Dragon" for the animal and "Bike" for the noun. The output is:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
Name an animal
Dragon
Name a noun
Bike
"The quick brown \#{animal} jumped over the lazy
\#{noun}"
=> "The quick brown \#{animal} jumped over the
lazy \#{noun}"
>
```

A screenshot of the repl.it Ruby Compiler interface. The URL in the address bar is <https://repl.it/languages/ruby>. The code input field contains:

```
1 "My Favorite number is: #{ 40 + 2 }"
```

The output window shows the result of running the code:

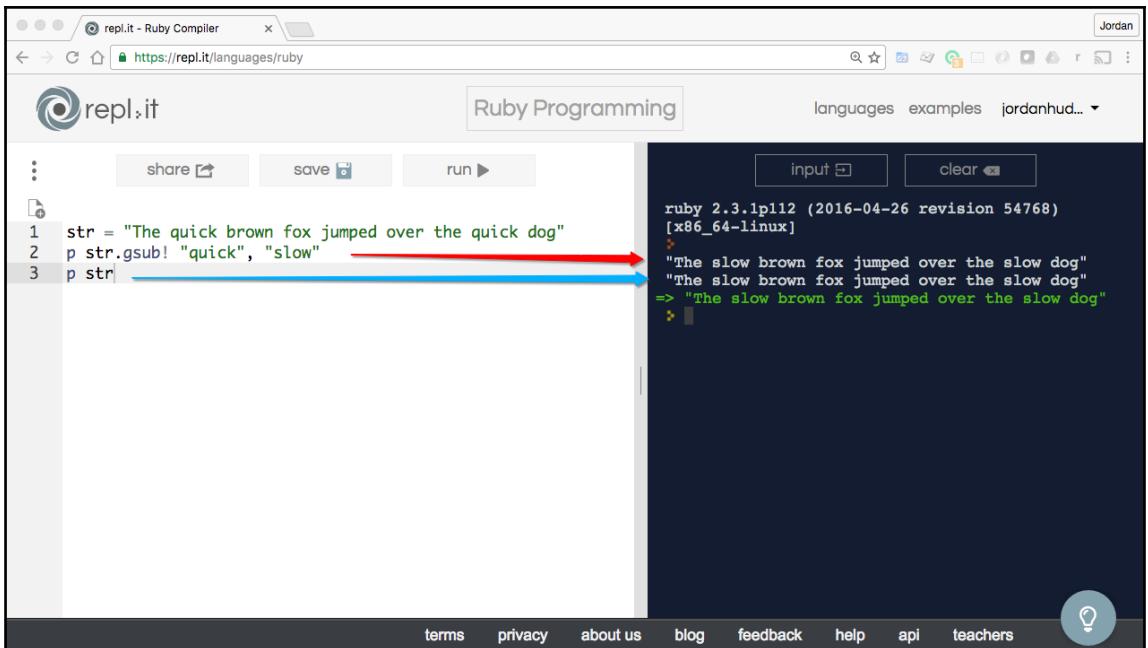
```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
=> "My Favorite number is: 42"
>
```

A screenshot of the repl.it Ruby Compiler interface. The URL in the address bar is <https://repl.it/languages/ruby>. The code input field contains:

```
1 str = "The quick brown fox jumped over the quick dog"
2 str.sub "quick", "slow"
```

The output window shows the result of running the code:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
=> "The slow brown fox jumped over the quick dog"
>
```

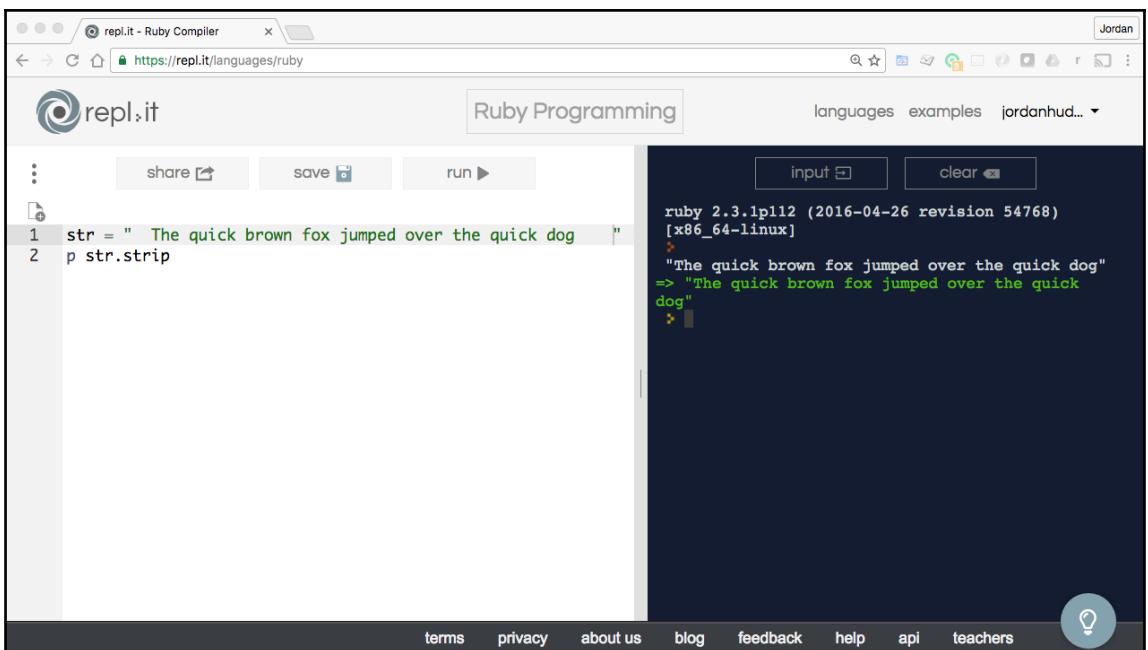


A screenshot of the repl.it Ruby Compiler interface. The code editor contains the following Ruby code:

```
1 str = "The quick brown fox jumped over the quick dog"
2 p str.gsub! "quick", "slow"
3 p str
```

The line `p str` is highlighted with a blue selection bar. A red arrow points from the end of the line to the output window. The output window shows the results of the code execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
"The slow brown fox jumped over the slow dog"
"The slow brown fox jumped over the slow dog"
=> "The slow brown fox jumped over the slow dog"
>
```



A screenshot of the repl.it Ruby Compiler interface. The code editor contains the following Ruby code:

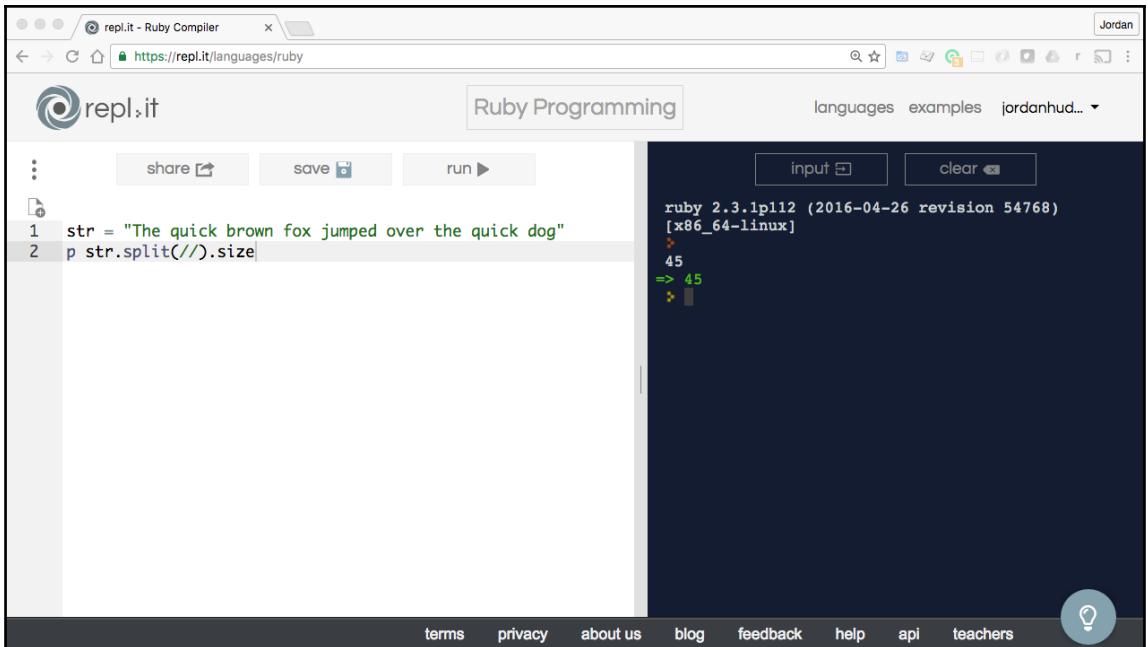
```
1 str = " The quick brown fox jumped over the quick dog "
2 p str.strip
```

The line `p str.strip` is highlighted with a blue selection bar. A red arrow points from the end of the line to the output window. The output window shows the results of the code execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
"The quick brown fox jumped over the quick dog"
=> "The quick brown fox jumped over the quick dog"
>
```

A screenshot of the repl.it Ruby Compiler interface. The top navigation bar shows "repl.it - Ruby Compiler" and the user "Jordan". The address bar contains the URL <https://repl.it/languages/ruby>. The main area has tabs for "Ruby Programming", "languages", "examples", and "jordanhud...". On the left, there are buttons for "share" and "run". The code editor on the left contains:1 str = "The quick brown fox jumped over the quick dog"
2 p str.splitThe output window on the right shows the results of the execution:ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
["The", "quick", "brown", "fox", "jumped",
"over", "the", "quick", "dog"]
=> ["The", "quick", "brown", "fox", "jumped",
"over", "the", "quick", "dog"]
>

A screenshot of the repl.it Ruby Compiler interface, identical to the one above but with different code execution results. The code editor on the left contains:1 str = "The quick brown fox jumped over the quick dog"
2 p str.split.sizeThe output window on the right shows the results of the execution:ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
9
=> 9
>

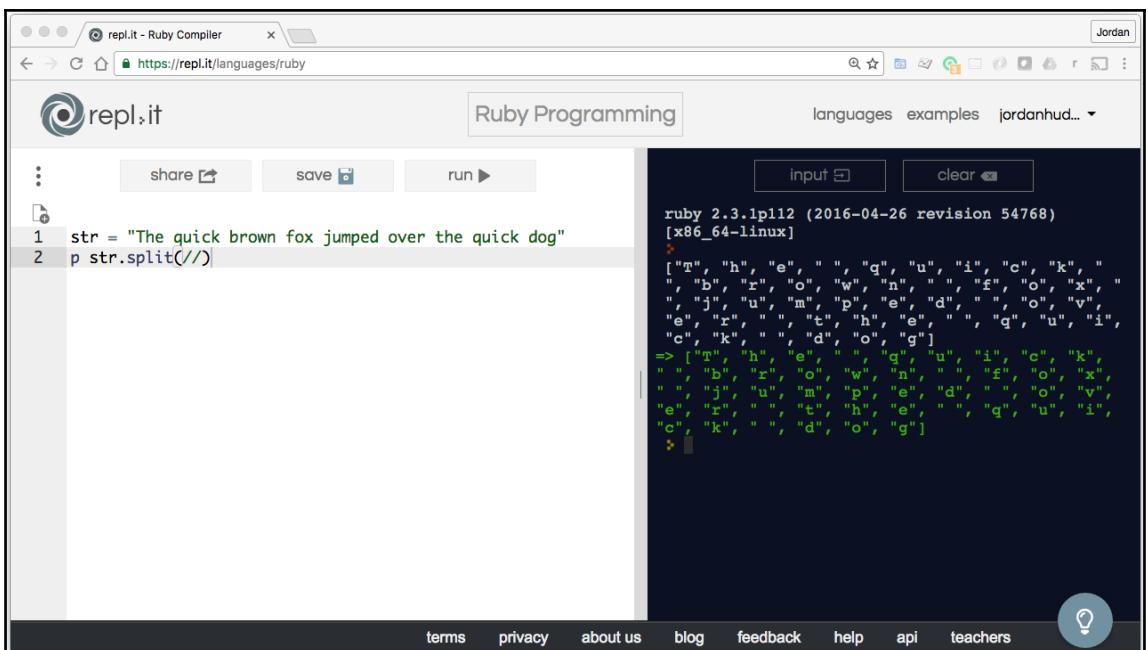


A screenshot of the repl.it Ruby Compiler interface. The URL in the address bar is <https://repl.it/languages/ruby>. The code input field contains:

```
1 str = "The quick brown fox jumped over the quick dog"
2 p str.split("//").size
```

The output window shows the results of the execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
45
=> 45
>
```



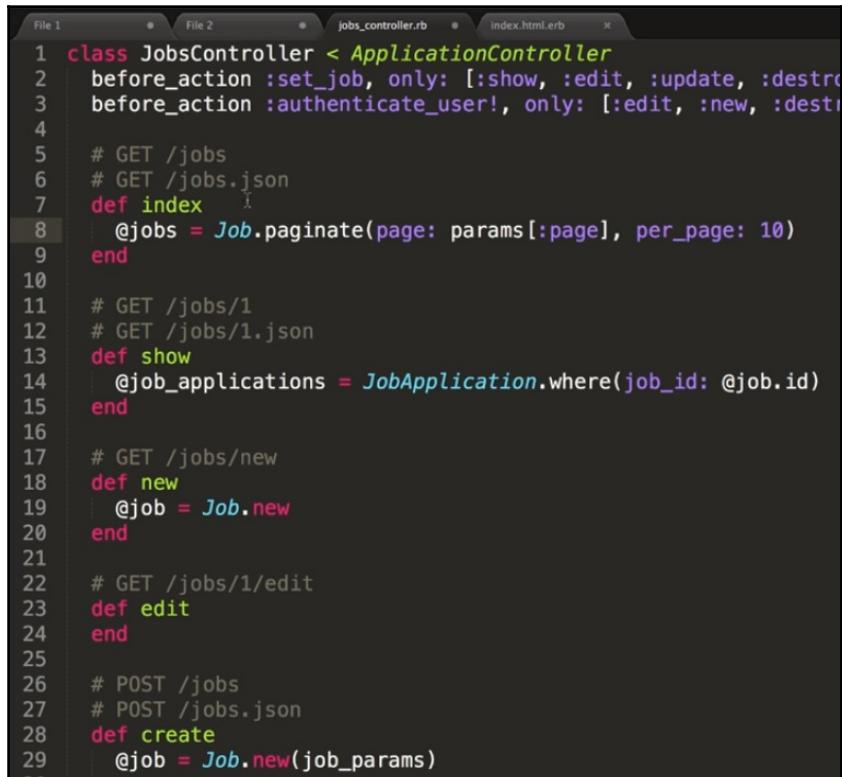
A screenshot of the repl.it Ruby Compiler interface. The URL in the address bar is <https://repl.it/languages/ruby>. The code input field contains:

```
1 str = "The quick brown fox jumped over the quick dog"
2 p str.split("//")
```

The output window shows the results of the execution, including the individual characters of the string:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
["T", "h", "e", " ", " ", "q", "u", "i", "c", "k", " ",
", "b", "r", "o", "w", "n", " ", "f", "o", "x", " ",
", "j", "u", "m", "p", "e", "d", " ", "o", "v",
"e", "r", " ", "t", "h", "e", " ", "q", "u", "i",
"c", "k", " ", "d", "o", "g"]
=> ["T", "h", "e", " ", " ", "q", "u", "i", "c", "k", " ",
", "b", "r", "o", "w", "n", " ", "f", "o", "x", " ",
", "j", "u", "m", "p", "e", "d", " ", "o", "v",
"e", "r", " ", "t", "h", "e", " ", "q", "u", "i",
"c", "k", " ", "d", "o", "g"]
```

Chapter 5: Ruby Methods



A screenshot of a code editor showing a Ruby file named `jobs_controller.rb`. The file contains code for a `JobsController` that inherits from `ApplicationController`. It includes methods for listing jobs, viewing a job's details, creating a new job, and editing an existing job. The code uses Active Record associations and pagination.

```
File 1 File 2 jobs_controller.rb index.html.erb
1 class JobsController < ApplicationController
2   before_action :set_job, only: [:show, :edit, :update, :destroy]
3   before_action :authenticate_user!, only: [:edit, :new, :destroy]
4
5   # GET /jobs
6   # GET /jobs.json
7   def index
8     @jobs = Job.paginate(page: params[:page], per_page: 10)
9   end
10
11  # GET /jobs/1
12  # GET /jobs/1.json
13  def show
14    @job_applications = JobApplication.where(job_id: @job.id)
15  end
16
17  # GET /jobs/new
18  def new
19    @job = Job.new
20  end
21
22  # GET /jobs/1/edit
23  def edit
24  end
25
26  # POST /jobs
27  # POST /jobs.json
28  def create
29    @job = Job.new(job_params)
```

A screenshot of the repl.it Ruby Compiler interface. The left pane shows a code editor with the following Ruby script:

```
1 def baseball_team_list
2   p ["A's", "Angels", "Astros"]
3 end
4
5 baseball_team_list
```

The right pane shows the output of the script execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
[ "A's", "Angels", "Astros" ]
=> [ "A's", "Angels", "Astros" ]
```

A screenshot of the repl.it Ruby Compiler interface. The left pane shows a code editor with the same Ruby script as the first screenshot, but the final line 'baseball_team_list' is incomplete ('end' is missing).

The right pane shows the output of the script execution, which fails with a syntax error:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
[ "A's", "Angels", "Astros" ]
=> :baseball_team_list
:>
```

A screenshot of the repl.it Ruby Compiler interface. The left pane shows the following Ruby code:

```
1 class Invoice
2   # Class method
3   def self.print_out
4     "Printed out invoice"
5   end
6
7   # Instance method
8   def convert_to_pdf
9     "Converted to PDF"
10  end
11 end
12
13 Invoice.print_out!
```

The right pane shows the output of running the code:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
=> "Printed out invoice"
>
```

A screenshot of the repl.it Ruby Compiler interface. The left pane shows the same Ruby code as the first screenshot:

```
1 class Invoice
2   # Class method
3   def self.print_out
4     "Printed out invoice"
5   end
6
7   # Instance method
8   def convert_to_pdf
9     "Converted to PDF"
10  end
11 end
12
13 Invoice.convert_to_pdf
```

The right pane shows the output of running the code, which includes an error message:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
undefined method `convert_to_pdf' for
Invoice:Class
(repl):13:in `<main>'
>
```

A screenshot of the repl.it Ruby Compiler interface. The code editor on the left contains the following Ruby script:

```
1 class Invoice
2   # Class method
3   def self.print_out
4     "Printed out invoice"
5   end
6
7   # Instance method
8   def convert_to_pdf
9     "Converted to PDF"
10  end
11 end
12
13 i = Invoice.new
14 i.convert_to_pdf
```

The output window on the right shows the results of running the script:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
=> "Converted to PDF"
>
```

A screenshot of the repl.it Ruby Compiler interface. The code editor on the left contains the same Ruby script as the first screenshot:

```
1 class Invoice
2   # Class method
3   def self.print_out
4     "Printed out invoice"
5   end
6
7   # Instance method
8   def convert_to_pdf
9     "Converted to PDF"
10  end
11 end
12
13 i = Invoice.new
14 i.print_out
```

The output window on the right shows an error message:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
undefined method `print_out' for #
<Invoice:0x00556ee5825b20>
(repl):14:in `<main>'
>
```

A screenshot of the repl.it Ruby Compiler interface. The left pane shows the following Ruby code:

```
1 full_name = Proc.new { |first, last| first + " " + last}
2
3 p full_name["Jordan", "Hudgens"]
4 p full_name.call("Jordan", "Hudgens")
```

The right pane displays the output of the code execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
"Jordan Hudgens"
"Jordan Hudgens"
=> "Jordan Hudgens"
>
```

A screenshot of the repl.it Ruby Compiler interface. The left pane shows the same Ruby code as the previous screenshot:

```
1 full_name = Proc.new { |first| first * 5}
2
3 p full_name["Jordan", "Hudgens"]
4 p full_name.call("Jordan", "Hudgens")
```

The right pane displays the output of the code execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
"JordanJordanJordanJordanJordan"
"JordanJordanJordanJordanJordan"
=> "JordanJordanJordanJordanJordan"
>
```

The screenshot shows a browser window for the repl.it Ruby Compiler. The URL is <https://repl.it/languages/ruby>. The title bar says "repl.it - Ruby Compiler". The main area has tabs for "Ruby Programming", "languages", "examples", and "jordanhud...". On the left, there's a code editor with the following Ruby code:

```
1 full_name = Proc.new { |first| first * 5 }
2 p full_name["Jordan", "Hudgens"]
3 end
4
5 p full_name["Jordan", "Hudgens"]
6 p full_name.call("Jordan", "Hudgens")
```

On the right, the terminal window shows the output of the code execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
"JordanJordanJordanJordanJordan"
"JordanJordanJordanJordanJordan"
=> "JordanJordanJordanJordanJordan"
>
```

The screenshot shows a browser window for the repl.it Ruby Compiler. The URL is <https://repl.it/languages/ruby>. The title bar says "repl.it - Ruby Compiler". The main area has tabs for "Ruby Programming", "languages", "examples", and "jordanhud...". On the left, there's a code editor with the following Ruby code:

```
1 full_name = lambda { |first, last| first + " " + last}
2 p full_name.call("Jordan", "David", "Hudgens")
```

On the right, the terminal window shows the error output:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
wrong number of arguments (given 3, expected 2)
(repl):1:in `block in <main>'
(repl):2:in `<main>'
>
```

A screenshot of the repl.it Ruby Compiler interface. The left pane shows the following Ruby code:

```
1 full_name = Proc.new{ |first, last| first + " " + last}
2 p full_name.call("Jordan", "David", "Hudgens")
```

The right pane shows the output of the code execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
"Jordan David"
=> "Jordan David"
>
```

A screenshot of the repl.it Ruby Compiler interface. The left pane shows the following Ruby code:

```
1- def my_method
2   x = lambda {return}
3   x.call
4   p "Text within the method"
5 end
6
7 my_method
```

The right pane shows the output of the code execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
"Text within the method"
=> "Text within the method"
>
```

repl.it - Ruby Compiler

https://repl.it/languages/ruby

repl.it Ruby Programming languages examples jordanhud... ▾

share save run

```
1 def my_method
2   x = Proc.new {return}
3   x.call
4   p "Text within the method"
5 end
6
7 my_method
```

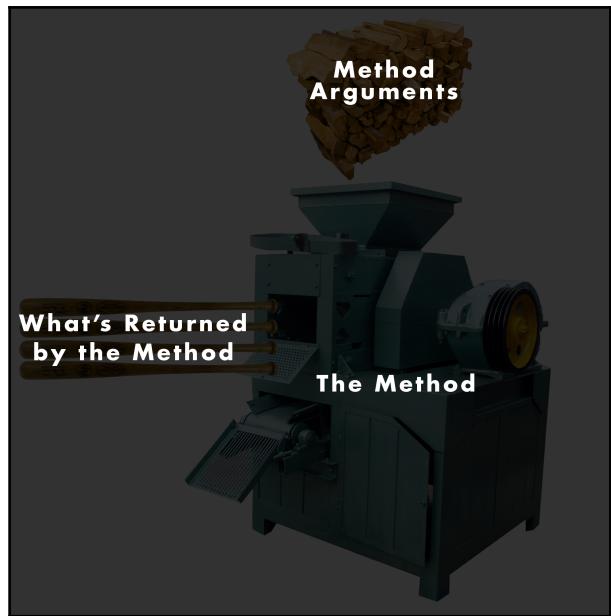
input clear

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
=> nil
>
```

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💡





repl.it - Ruby Compiler https://repl.it/languages/ruby

Ruby Programming languages examples jordanhud... ▾

share ↗ save ↘ run ▶

```
1 def full_name(first_name, last_name)
2   first_name + " " + last_name
3 end
4
5 puts full_name("Jordan", "Hudgens")
```

input ↗ clear ↘

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
> Jordan Hudgens
=> nil
>
```

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The screenshot shows a Ruby script in the editor:

```
1 def print_address city:, state:, zip:
2   puts city
3   puts state
4   puts zip
5 end
6
7 print_address city: "Scottsdale", state: "AZ", zip: "85251"
```

The output window shows the execution of the code:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
Scottsdale
AZ
85251
=> nil
>
```

This demonstrates a bug where the local variables `city`, `state`, and `zip` are being printed from the global context of the `print_address` method, instead of from within its own scope.

The screenshot shows the same Ruby script with a correction:

```
1 def print_address city, state, zip
2   puts city
3   puts state
4   puts zip
5 end
6
7 print_address "Scottsdale", "AZ", "85251"
```

The output window shows the corrected execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
Scottsdale
AZ
85251
=> nil
>
```

This shows that the bug has been fixed by changing the parameter declarations to use commas instead of colons.

A screenshot of the repl.it Ruby Compiler interface. The left pane shows a code editor with the following Ruby script:

```
1- def stream_movie title:, lang: lang = 'English'
2   puts title
3   puts lang
4 end
5
6 stream_movie title: 'The Fountainhead'
```

The right pane shows the output of running the script:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
The Fountainhead
English
=> nil
>
```

A screenshot of the repl.it Ruby Compiler interface. The left pane shows a code editor with the following Ruby script:

```
1- def roster *players
2   puts players
3 end
4
5 roster 'Altuve', 'Gattis', 'Springer'
```

The right pane shows the output of running the script:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
Altuve
Gattis
Springer
=> nil
>
```

The screenshot shows a browser window for the repl.it Ruby Compiler. The URL is <https://repl.it/languages/ruby>. The code in the editor is:

```
1 def roster **players_with_positions
2   players_with_positions.each do |player, position|
3     puts "Player: #{player}"
4     puts "Position: #{position}"
5     puts "\n"
6   end
7 end
8
9 data = {
10   "Altuve": "2nd Base",
11   "Alex Bregman": "3rd Base",
12   "Evan Gattis": "Catcher",
13   "George Springer": "OF"
14 }
15
16 roster data|
```

The output window shows the results of running the code:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
Player: Altuve
Position: 2nd Base

Player: Alex Bregman
Position: 3rd Base

Player: Evan Gattis
Position: Catcher

Player: George Springer
Position: OF

=> {"Altuve"=>"2nd Base", :Alex
Bregman=>"3rd Base", :"Evan
Gattis"=>"Catcher", :"George Springer"=>"OF"}|>
```

The screenshot shows a browser window for the repl.it Ruby Compiler. The URL is <https://repl.it/DKJ6>. The code in the editor is:

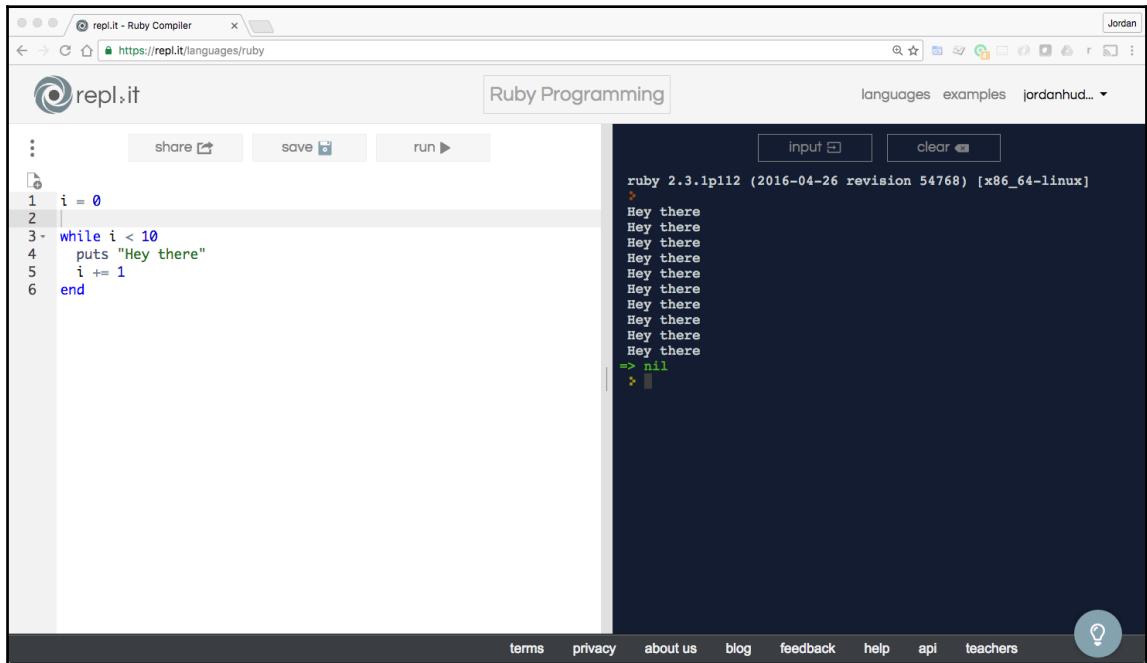
```
1 def invoice options={}
2   puts options[:company]
3   puts options[:total]
4   puts options[:something_else]
5 end
6
7 invoice company: "Google", total: 123, state: "AZ"|
```

The output window shows the results of running the code:

```
ruby 2.3.1p112 (2016-04-26 revision 54768)
[x86_64-linux]
>
Google
123

=> nil|>
```

Chapter 6: Ruby Iterators and Loops



A screenshot of the repl.it Ruby Compiler interface. The code editor on the left contains the following Ruby script:

```
i = 0
while i < 10
  puts "Hey there"
  i += 1
end
```

The output window on the right shows the execution results:

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
>
Hey there
=> nil
>
```

The interface includes standard browser controls at the top, a navigation bar with 'Ruby Programming' selected, and footer links for terms, privacy, about us, blog, feedback, help, api, and teachers.

A screenshot of the repl.it Ruby Compiler interface. The code editor on the left contains the following Ruby script:

```
i = 0
while i <= 10
  puts "Hey there"
  i += 1
end
```

The output window on the right shows the execution results:

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
:>
Hey there
=> nil
:|
```

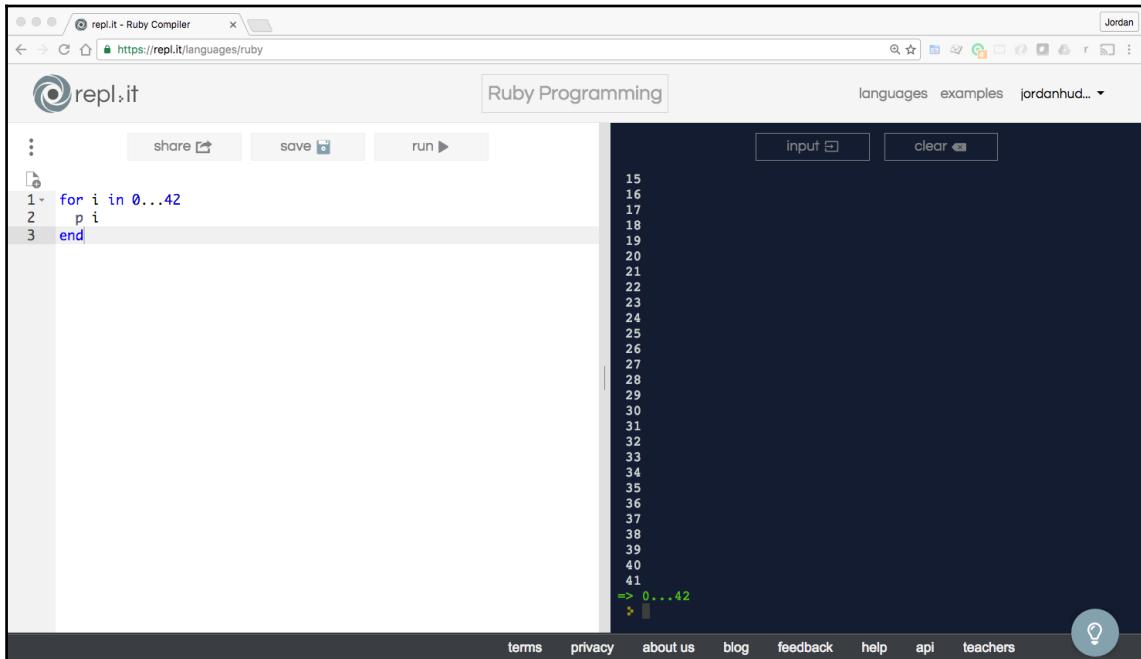
A screenshot of the repl.it Ruby Compiler interface. The code editor on the left contains the following Ruby script:

```
arr = [23, 2343, 454, 123, 345345, 1232]
arr.each do |i|
  p i
end
```

The output window on the right shows the execution results:

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
:>
23
2343
454
123
345345
1232
=> [23, 2343, 454, 123, 345345, 1232]
:|
```

```
44      <% @jobs.each do |job| %>
45        <tr style="font-size:1.2em;">
46          <td><%= job.created_at.strftime("%m/%d/%y") %></td>
47          <td><%= job.req_number %></td>
48          <td><%= link_to job.title, job %></td>
49          <td><%= job.city %>, <%= job.state %></td>
50
51        <% if current_user && current_user.role == "Admin" %>
52          <td><%= job.job_applications.count if job.job_applications %>
53            ></td>
54            <td><%= link_to '<i class="fa fa-pencil-square"></i>'.
55              html_safe, edit_job_path(job) %></td>
56            <td><%= link_to '<i class="fa fa-minus-square"></i>'.
57              html_safe, job, method: :delete, data: { confirm: 'Are
you sure?' } %></td>
58        <% end %>
59      </tr>
60    <% end %>
```



The screenshot shows a web-based Ruby compiler interface on repl.it. The top navigation bar includes tabs for 'Ruby Programming', 'languages', 'examples', and a user profile. Below the header, there are buttons for 'share', 'save', and 'run'. The main workspace displays a code editor with the following Ruby script:

```
1 for i in 0...42
2   p i
3 end
```

On the right side of the editor, line numbers 15 through 41 are visible. The output window below the editor shows the results of the execution:

```
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
=> 0...42
```

At the bottom of the interface, there are links for 'terms', 'privacy', 'about us', 'blog', 'feedback', 'help', 'api', and 'teachers'.

A screenshot of the repl.it Ruby Compiler interface. The left pane shows a code editor with the following Ruby script:

```
teams = {
  "Houston Astros" => {
    "first base" => "AJ Reed",
    "second base" => "Jose Altuve",
    "shortstop" => "Carlos Correa"
  },
  "Texas Rangers" => {
    "first base" => "Prince Fielder",
    "second base" => "R. Odor",
    "shortstop" => "Elvis Andrus"
  }
}
teams.each do |team|
  p team
end
```

The right pane shows the output of the Ruby interpreter:

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
>
["Houston Astros", {"first base"=>"AJ Reed", "second
base"=>"Jose Altuve", "shortstop"=>"Carlos Correa"}]
["Texas Rangers", {"first base"=>"Prince Fielder", "second
base"=>"R. Odor", "shortstop"=>"Elvis Andrus"}]
=> {"Houston Astros"=>{"first base"=>"AJ Reed", "second
base"=>"Jose Altuve", "shortstop"=>"Carlos Correa"}, "Texas
Rangers"=>{"first base"=>"Prince Fielder", "second base"=>"R.
Odor", "shortstop"=>"Elvis Andrus"})
>
```

A screenshot of the repl.it Ruby Compiler interface. The left pane shows a code editor with the same Ruby script as the first screenshot, but with additional `puts` statements:

```
teams = {
  "Houston Astros" => {
    "first base" => "AJ Reed",
    "second base" => "Jose Altuve",
    "shortstop" => "Carlos Correa"
  },
  "Texas Rangers" => {
    "first base" => "Prince Fielder",
    "second base" => "R. Odor",
    "shortstop" => "Elvis Andrus"
  }
}
teams.each do |team, players|
  puts team
  players.each do |position, player|
    p "#{player} starts at #{position}"
  end
end
```

The right pane shows the output of the Ruby interpreter, which includes the printed team names and the output of the nested loop:

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
>
Houston Astros
"AJ Reed starts at first base"
"Jose Altuve starts at second base"
"Carlos Correa starts at shortstop"
Texas Rangers
"Prince Fielder starts at first base"
"R. Odor starts at second base"
"Elvis Andrus starts at shortstop"
=> {"Houston Astros"=>{"first base"=>"AJ Reed", "second
base"=>"Jose Altuve", "shortstop"=>"Carlos Correa"}, "Texas
Rangers"=>{"first base"=>"Prince Fielder", "second base"=>"R.
Odor", "shortstop"=>"Elvis Andrus"})
>
```

A screenshot of the repl.it Ruby Compiler interface. The code editor on the left contains the following Ruby code:

```
1- (1...10).to_a.select do |x|
2-   x.even?
3- end
```

The output window on the right shows the results of running the code:

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
=> [2, 4, 6, 8]
```

A screenshot of the repl.it Ruby Compiler interface. The code editor on the left contains the following Ruby code:

```
1- arr = %w(The quick brown fox jumped over the lazy dog)
2- arr.select { |x| x.length > 5}
```

The output window on the right shows the results of running the code:

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
=> []
=> ["jumped"]
=>
```

A screenshot of the repl.it Ruby Compiler interface. The top bar shows the title "repl.it - Ruby Compiler" and the URL "https://repl.it/languages/ruby". The main area has tabs for "Ruby Programming" and "Ruby". Below the tabs are buttons for "share", "save", and "run". The code editor contains the following Ruby code:

```
1 %w(a b c d e f g).select { |v| v =~ /[aeiou]/ }
```

The output window shows the results of the execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
*+
=> ["a", "e"]
```

At the bottom of the interface are links for "terms", "privacy", "about us", "blog", "feedback", "help", "api", and "teachers". A blue circular icon with a lightbulb is located on the right side.

A screenshot of a terminal window titled "code — irb rvm_bin_path=/Users/admin/.rvm/bin — 80x24". The window shows the command "MacBook-Pro-3:code admin\$ irb" followed by the prompt "2.1.2 :001 >". Two arrows point to this prompt: a red arrow from the left with the text "Type irb" above it, and a blue arrow from the bottom-left with the text "Starts irb session" below it.

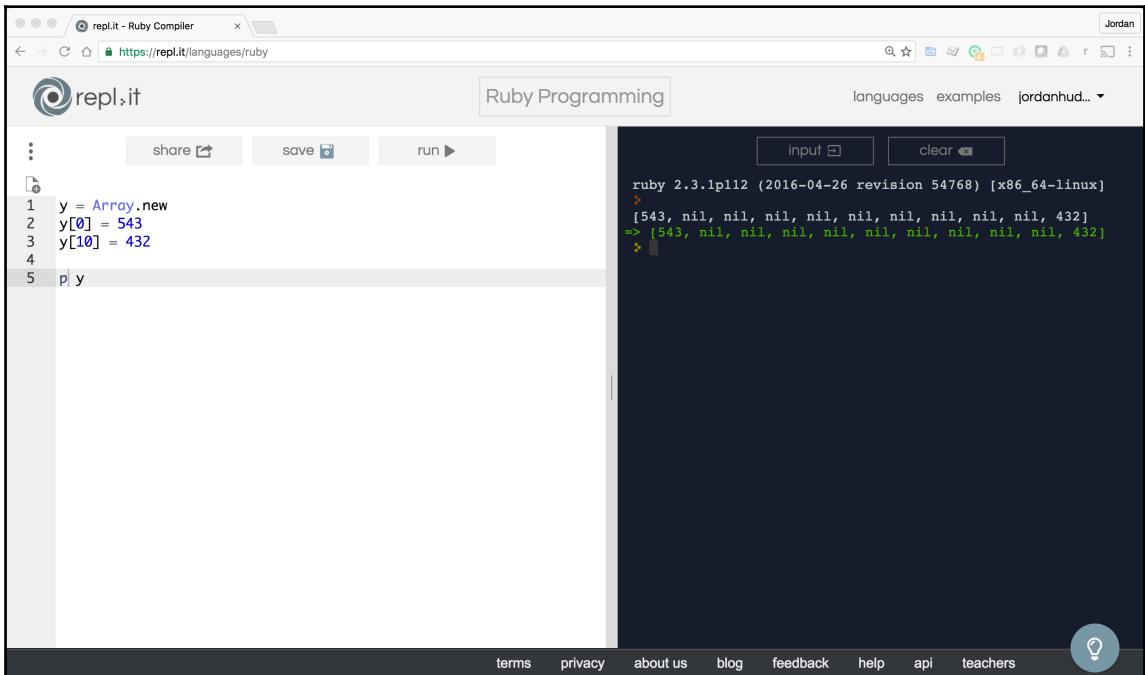
```
code — irb rvm_bin_path=/Users/admin/.rvm/bin — 80x24
~/code — irb rvm_bin_path=/Users/admin/.rvm/bin +]

MacBook-Pro-3:code admin$ irb
2.1.2 :001 > ["1", "23.0'", "0", "4"].map { |x| x.to_i}
=> [1, 23, 0, 4]
2.1.2 :002 > █
```

```
code — irb rvm_bin_path=/Users/admin/.rvm/bin — 80x24
~/code — irb rvm_bin_path=/Users/admin/.rvm/bin +]

MacBook-Pro-3:code admin$ irb
2.1.2 :001 > ["1", "23.0'", "0", "4"].map { |x| x.to_i}
=> [1, 23, 0, 4]
2.1.2 :002 > ["1", "23.0", "0", "4"].map(&:to_i)
=> [1, 23, 0, 4]
2.1.2 :003 > █
```

Chapter 7: Ruby Collections



A screenshot of the repl.it Ruby Compiler interface. The left pane shows the code being written:

```
1 y = Array.new
2 y[0] = 543
3 y[10] = 432
4
5 p y
```

The right pane shows the output of the code execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
> [543, nil, nil, nil, nil, nil, nil, nil, nil, nil, 432]
=> [543, nil, nil, nil, nil, nil, nil, nil, nil, nil, 432]
>
```

The interface includes standard browser controls at the top, a navigation bar with "Ruby Programming", and links for "languages", "examples", and "jordanhud...". At the bottom, there are links for "terms", "privacy", "about us", "blog", "feedback", "help", "api", and "teachers". A blue circular icon with a lightbulb symbol is located in the bottom right corner.

repl.it - Ruby Compiler https://repl.it/languages/ruby Jordan

Ruby Programming languages examples jordanhud...

share save run

```
1 y = Array.new
2 y[0] = 543
3 y[10] = 432
4
5 y.each do |i|
6   puts i
7 end
```

input clear

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
>
543

432
=> [543, nil, nil, nil, nil, nil, nil, nil, nil, nil, 432]
>
```

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?

repl.it - Ruby Compiler https://repl.it/languages/ruby Jordan

Ruby Programming languages examples jordanhud.. ▾

share ↗ save ↘ run ➤

```
teams = ["astros", "yankees", "rangers", "mets", "cardinals"]
teams.push("marlins")
teams.push("red sox", "blue jays")
```

input ↗ clear ↙

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
> => ["astros", "yankees", "rangers", "mets", "cardinals",
"marlins", "red sox", "blue jays"]
>
```

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?

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repl.it Ruby Programming languages examples jordanhud...

share save run

```
teams = ["astros", "yankees", "rangers", "mets", "cardinals"]
teams.push("marlins")
teams.push("red sox", "blue jays")
teams.pop
z = teams.pop
```

input clear

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
>
=> "red sox"
>
```

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?

A screenshot of the repl.it Ruby Compiler interface. On the left, there's a code editor with the following Ruby code: `teams = ["astros", "yankees", "rangers", "mets", "cardinals"]`, `teams.push("marlins")`, `teams.push("red sox", "blue jays")`, `teams.pop`, and `z = teams.pop`. Below the code editor is a large white area. On the right, there's a terminal window with a dark background. It shows the output of running the code: `ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]` followed by three lines starting with '>'. The first line is empty, the second line is `=> "red sox"`, and the third line is also empty. At the bottom of the terminal window, there are buttons for 'input' and 'clear'. The top of the page has a navigation bar with links for 'languages', 'examples', and a user profile 'jordanhud...'. The bottom of the page has links for 'terms', 'privacy', 'about us', 'blog', 'feedback', 'help', 'api', and 'teachers'. A blue circular icon with a question mark is located at the bottom right.

repl.it - Ruby Compiler https://repl.it/languages/ruby

Ruby Programming languages examples jordanhud...

share save run

```
positions = [
  first_base: "Chris Carter",
  second_base: "Jose Altuve",
  short_stop: "Carlos Correa"
]
```

input clear

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
> => {first_base=>"Chris Carter", :second_base=>"Jose
Altuve", :short_stop=>"Carlos Correa"}
>
```

terms privacy about us blog feedback help api teachers

?

The screenshot shows the repl.it Ruby Compiler interface. The top navigation bar includes tabs for 'Ruby Programming', 'languages', 'examples', and a user profile 'Jordan'. Below the navigation is a toolbar with 'share', 'save', and 'run' buttons. The main area is divided into two panes: a code editor on the left and a terminal on the right. The code editor contains the following Ruby code:

```
positions = {  
    first_base: "Chris Carter",  
    second_base: "Jose Altuve",  
    short_stop: "Carlos Correa"  
}  
positions[:second_base]
```

The terminal pane shows the output of the code execution:

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]  
=> "Jose Altuve"
```

```
1 class JobsController < ApplicationController  
2   before_action :set_job, only: [:show, :edit, :update, :destroy]  
3   before_action :authenticate_user!, only: [:edit, :new, :destroy]  
4  
5   # GET /jobs  
6   # GET /jobs.json  
7   def index  
8     @jobs = Job.paginate(page: params[:page], per_page: 10)  
9   end  
10
```

The screenshot shows the repl.it Ruby Compiler interface. At the top, there's a navigation bar with tabs for "Ruby Programming", "languages", "examples", and a user profile "jordanhud...". Below the navigation is a toolbar with "share", "save", and "run" buttons. The main area is divided into two panes: a code editor on the left and a terminal window on the right.

Code Editor:

```
1 people = { jordan: 32, tiffany: 27, kristine: 10, heather: 29 }
2 people[:tiffany]
3 people.delete(:kristine)
4 people
```

Terminal Window:

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
> => {;jordan=>32, ;tiffany=>27, ;heather=>29}
> 
```

At the bottom of the interface, there are links for "terms", "privacy", "about us", "blog", "feedback", "help", "api", and "teachers". A blue circular icon with a white question mark is located in the bottom right corner.

repl.it - Ruby Compiler <https://repl.it/languages/ruby> Jordan

Ruby Programming languages examples jordanhud.. ▾

share save run

```
1 people = { jordan: 32, tiffany: 27, kristine: 10, heather: 29 }
2
3 people.each_key do |key|
4   puts key
5 end
```

input clear

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
>
jordan
tiffany
kristine
heather
=> {:jordan=>32, :tiffany=>27, :kristine=>10, :heather=>29}
>
```

terms privacy about us blog feedback help api teachers

repl.it - Ruby Compiler https://repl.it/languages/ruby Jordan

Ruby Programming languages examples jordanhud...

share save run

```
1 people = { jordan: 32, tiffany: 27, kristine: 10, heather: 29 }
2
3 people.each_key do |key|
4   puts key
5 end
6
7 people.each_value do |value|
8   puts value
9 end
```

input clear

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
>
jordan
tiffany
kristine
heather
32
27
10
29
=> {:jordan=>32, :tiffany=>27, :kristine=>10, :heather=>29}
:>
```

terms privacy about us blog feedback help api teachers

?

repl.it - Ruby Compiler https://repl.it/languages/ruby

Ruby Programming languages examples jordanhud...

share save run

```
1 people = {jordan: 32, tiffany: 27, kristine: 10, heather: 29}
2 people[:leann] = 42
3 people
```

input clear

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
>
=> {;jordan=>32, ;tiffany=>27, ;kristine=>10, ;heather=>29,
;leann=>42}
>
```

terms privacy about us blog feedback help api teachers

?

repl.it - Ruby Compiler https://repl.it/languages/ruby

Ruby Programming languages examples jordanhud...

share save run

```
1 people = {jordan: 32, tiffany: 27, kristine: 10, heather: 29}
2 people[:leann] = 42
3
4 people_2 = people.invert
5
6 people.merge(people_2)
```

input clear

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
> => {jordan=>32, :tiffany=>27, :kristine=>10, :heather=>29,
:leann=>42, 32=>:jordan, 27=>:tiffany, 10=>:kristine,
29=>:heather, 42=>:leann}
>
```

terms privacy about us blog feedback help api teachers

?

repl.it - Ruby Compiler <https://repl.it/languages/ruby> Jordan

Ruby Programming languages examples jordanhud.. ▾

share save run

```
1 people = {jordan: 32, tiffany: 27, kristine: 10, heather: 29}
2 people[:leann] = 42
3
4 people_2 = people.invert
5
6 people.merge(people_2)
7
8 Array(people)
```

input clear

```
ruby 2.3.1p112 (2016-04-26 revision 54768) [x86_64-linux]
-> [:jordan, 32], [:tiffany, 27], [:kristine, 10],
[:heather, 29], [:leann, 42]]
```

?

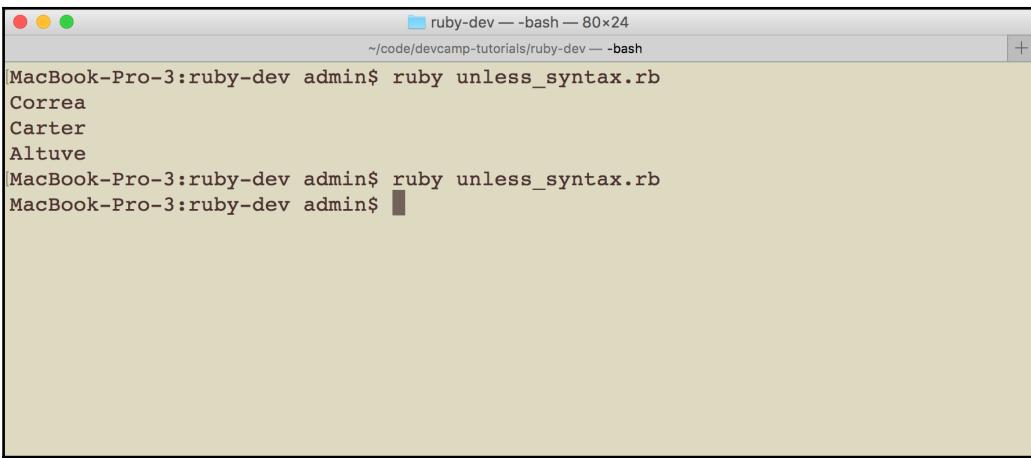
terms privacy about us blog feedback help api teachers

Chapter 8: Ruby Conditionals



A screenshot of a Mac OS X terminal window titled "ruby-dev — bash — 80x24". The window shows the command "ruby unless_syntax.rb" being run, followed by three names: Correa, Carter, and Altuve. The terminal has a light beige background and a dark gray header bar.

```
MacBook-Pro-3:ruby-dev admin$ ruby unless_syntax.rb
Correa
Carter
Altuve
MacBook-Pro-3:ruby-dev admin$
```



A screenshot of a Mac OS X terminal window titled "ruby-dev — bash — 80x24". The window shows the command "ruby unless_syntax.rb" being run twice. The first run outputs the names Correa, Carter, and Altuve. The second run also outputs the same names. The terminal has a light beige background and a dark gray header bar.

```
MacBook-Pro-3:ruby-dev admin$ ruby unless_syntax.rb
Correa
Carter
Altuve
MacBook-Pro-3:ruby-dev admin$ ruby unless_syntax.rb
Correa
Carter
Altuve
MacBook-Pro-3:ruby-dev admin$
```

The screenshot shows a terminal window with the following details:

- Title Bar:** ruby-dev — bash — 80x24
- Path:** ~/code/devcamp-tutorials/ruby-dev — bash
- Text:**

```
MacBook-Pro-3:ruby-dev admin$ ruby if_elsif.rb
from the if statement
MacBook-Pro-3:ruby-dev admin$
```

Chapter 9: Object-Oriented Programming in Ruby

```
1 class ApplicationController < ActionController::Base
2
3   protect_from_forgery unless: -> { request.format.json? }
4
5   # include DixieUtils::Authentication
6
7
8
9   rescue_from CanCan::AccessDenied do |exception|
10     redirect_to :controller =>:pages, :action =>'unauthorised', :alert => exception.message
11   end
12
13   # Prevent CSRF attacks by raising an exception.
14   # For APIs, you may want to use :null_session instead.
15   #protect_from_forgery with: :exception
16
17   skip_before_action :verify_authenticity_token
18
19
20
21 end
22
```

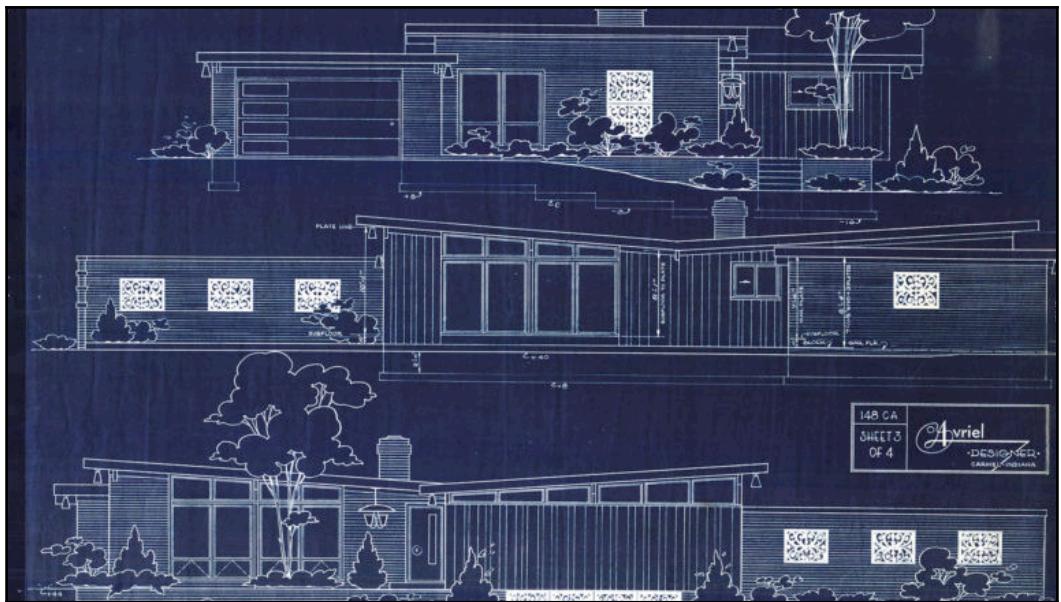
```
1 class BranchesController < ApplicationController
2
3   before_action :set_branch, only: [:show, :edit, :update, :destroy]
4
5   #load_and_authorize_resource
6
7   def index
8     @branches = Branch.all
9     @branch_categories = BranchCategory.all
10    respond_to do |format|
11      format.html
12      format.json { render json: @branches }
13    end
14  end
15
16  def new
17    @branch = Branch.new
18    @branch_categories = BranchCategory.all
19    @managers = Manager.all
20
21    respond_to do |format|
22      format.html{ render 'branches/html/new' }
23    end
24  end
```

```
26  def create
27    @branch = Branch.new(branch_params)
28    @managers = Manager.all
29    @branch_categories = BranchCategory.all
30
31    respond_to do |format|
32      if @branch.save
33
34        format.html { redirect_to @branch, notice: 'Branch was successfully created.' }
35        format.json { render :show, status: :created}
36      else
37        format.html { render 'branches/html/new' }
38        format.json { render json: @branch.errors, status: :unprocessable_entity }
39      end
40    end
41  end
42
```

```
1 class Branch < ActiveRecord::Base
2   belongs_to :branch_categories, dependent: :destroy
3   belongs_to :manager, foreign_key: :manager_id
4   has_many :business_cards
5   has_many :vender_requests
6   mount_uploader :logo, CorpFileUploader
7   mount_uploader :bg_template, CorpFileUploader
8   mount_uploader :footer_img, CorpFileUploader
9   validates_presence_of :name, :address_one, :city, :state, :zip_code, :logo, :f
10  [
11
12
13
14  def self.first_approver(branch)
15    branch.manager
16  end
17
18  def self.secnd_approver(branch)
19    branch.manager.name
20  end
21
22 end
```

The screenshot shows a Mac OS X terminal window with the title bar "ruby-dev — bash — 80x24" and the path "/code/devcamp-tutorials/ruby-dev — bash". The terminal content is as follows:

```
MacBook-Pro-3:ruby-dev admin$ ruby api_connector.rb
http://google.com/
MacBook-Pro-3:ruby-dev admin$
```



A screenshot of a macOS terminal window titled "ruby-dev — bash — 80x24". The window shows the command "ruby api_connector.rb" being run, followed by the output "My title", "My cool description", and "google.com". The terminal has a light beige background and a dark gray header bar.

```
[MacBook-Pro-3:ruby-dev admin$ ruby api_connector.rb
My title
My cool description
google.com
MacBook-Pro-3:ruby-dev admin$ ]
```

Single Responsibility Principle

Each class and module in a program
should focus on a single task

Open/Closed Principle

Liskov Substitution Principle

Interface Segregation Principle

Development Inversion Principle



Single Responsibility Principle

Open/Closed Principle

Software elements (classes, modules, functions, etc.) should be open for extension, but closed for modification

Liskov Substitution Principle

Interface Segregation Principle

Dependency Inversion Principle

Single Responsibility Principle

Open/Closed Principle

Liskov Substitution Principle

Ability to replace any instance of a parent class with an instance of one of its child classes without negative side effects

Interface Segregation Principle

Dependency Inversion Principle

Single Responsibility Principle

Open/Closed Principle

Liskov Substitution Principle

Interface Segregation Principle

code should not be forced to depend on methods that it doesn't use

Dependency Inversion Principle

Single Responsibility Principle

Open/Closed Principle

Liskov Substitution Principle

Interface Segregation Principle

Development Inversion Principle

└ High level objects should not depend
on low level implementations

Chapter 12: Regular Expressions in Ruby

```
1 class Job < ActiveRecord::Base
2   validates_presence_of :req_number, :title, :city, :state, :description, :requirement
3   has_many :job_applications
4
5   validate :has_valid_email?
6
7   VALID_EMAIL_REGEX = /\A([\w+\-].?)+@[a-z\d\-]+(\.[a-z]+)*\.[a-z]+\z/i
8
9   def has_valid_email?
10    self.email =~ VALID_EMAIL_REGEX
11  end
12 end
```

The screenshot shows the Rubular regular expression editor interface. The regular expression input field contains the pattern `/^((?:^(?:(\d{1-9})\d{1}\d{2})|2[0-4]\d|25[0-5]))\{4\})$/`. The test string input field contains the value `172.16.0.0`. The match result is `172.16.0.0`, and the match group is `1. 172.16.0.0`. The interface includes options for "Wrap words" (checked), "Show invisibles" (unchecked), and "Ruby version" (set to 2.1.5). Buttons for "make permalink" and "clear fields" are at the bottom.

Rubular

a Ruby regular expression editor

Your regular expression:

```
/ ^((?:^(?:(\d|[1-9]\d|1\d{2}|2[0-4]\d|25[0-5])){4})$ / 
```

Your test string:

```
999.16.0.0 
```

No matches.

Wrap words Show invisibles Ruby version 2.1.5

Your regular expression:

```
/ ^((?:^(?:(\d|[1-9]\d|1\d{2}|2[0-4]\d|25[0-5])){4})$ / 
```

Your test string:

```
172.16.0.0 
```

Match result:

```
172.16.0.0 
```

Match groups:

```
1. 172.16.0.0 
```

Wrap words Show invisibles Ruby version 2.1.5

Regex quick reference

[abc]	A single character of: a, b, or c	.	Any single character	(...)	Capture everything enclosed
[^abc]	Any single character except: a, b, or c	\s	Any whitespace character	(a b)	a or b
[a-z]	Any single character in the range a-z	\S	Any non-whitespace character	a?	Zero or one of a
[a-zA-Z]	Any single character in the range a-z or A-Z	\d	Any digit	a*	Zero or more of a
^	Start of line	\D	Any non-digit	a+	One or more of a
\$	End of line	\w	Any word character (letter, number, underscore)	a{3}	Exactly 3 of a
\A	Start of string	\W	Any non-word character	a{3,}	3 or more of a
\z	End of string	\b	Any word boundary	a{3,6}	Between 3 and 6 of a

options: i case insensitive m make dot match newlines x ignore whitespace in regex o perform # [...] substitutions only once

Chapter 13: Searching with grep in Ruby

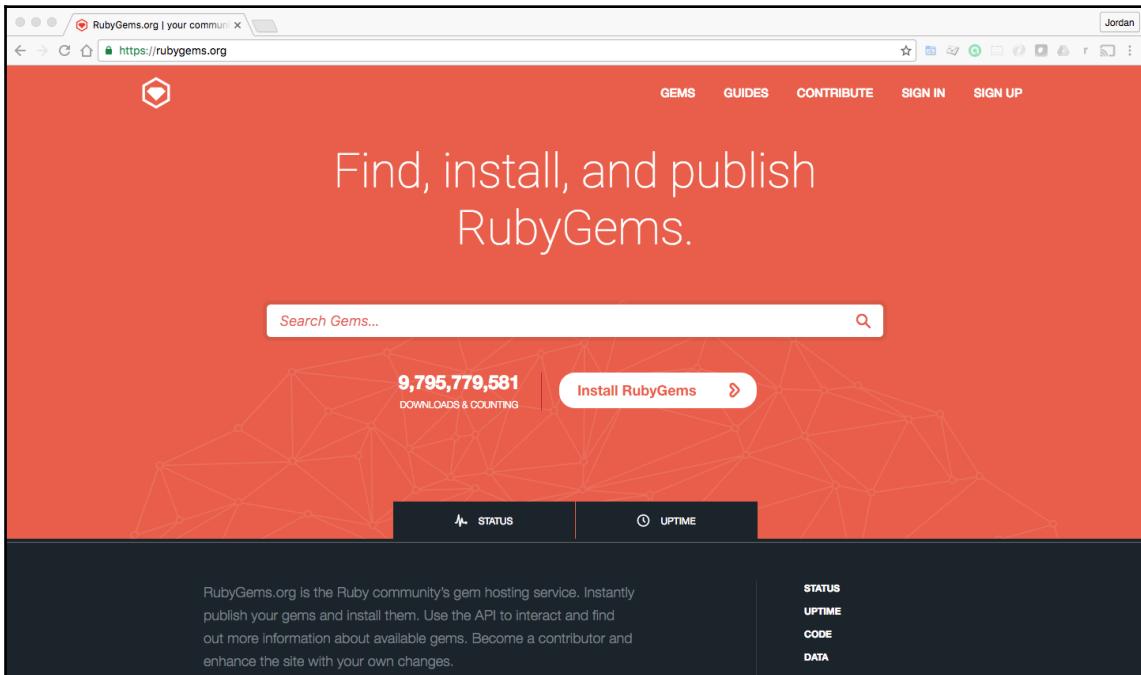
```
MacBook-Pro-3:Overtime admin$ grep -r "def index" .
Overtime — bash — 128x37
~/code/devcamp-tutorials/Overtime — bash
+



      DELETE /admin/posts/:id(.:format)           admin/posts#destroy
  admin_admin_users GET  /admin/admin_users(.:format)    admin/admin_users#index
                     POST /admin/admin_users(.:format)    admin/admin_users#create
new_admin_admin_user GET  /admin/admin_users/new(.:format) admin/admin_users#new
edit_admin_admin_user GET  /admin/admin_users/:id/edit(.:format) admin/admin_users#edit
  admin_admin_user GET  /admin/admin_users/:id(.:format)
                     PATCH /admin/admin_users/:id(.:format)   admin/admin_users#show
                     PUT  /admin/admin_users/:id(.:format)   admin/admin_users#update
                     DELETE /admin/admin_users/:id(.:format) admin/admin_users#destroy
admin_employees GET  /admin/employees(.:format)        admin/employees#index
                 POST /admin/employees(.:format)        admin/employees#create
new_admin_employee GET  /admin/employees/new(.:format)  admin/employees#new
edit_admin_employee GET  /admin/employees/:id/edit(.:format) admin/employees#edit
  admin_employee GET  /admin/employees/:id(.:format)
                     PATCH /admin/employees/:id(.:format)  admin/employees#show
                     PUT  /admin/employees/:id(.:format)  admin/employees#update
                     DELETE /admin/employees/:id(.:format) admin/employees#destroy
  admin_root GET  /admin(.:format)                admin/users#index
approve_post GET  /posts/:id/approve(.:format)       posts#approve
  posts GET  /posts(.:format)                   posts#index
                     POST /posts(.:format)          posts#create
  new_post GET  /posts/new(.:format)            posts#new
edit_post GET  /posts/:id/edit(.:format)         posts#edit
  post GET  /posts/:id(.:format)               posts#show
                     PATCH /posts/:id(.:format)  posts#update
                     PUT  /posts/:id(.:format)  posts#update
                     DELETE /posts/:id(.:format) posts#destroy
new_user_session GET  /users/sign_in(.:format)       devise/sessions#new
  user_session POST /users/sign_in(.:format)       devise/sessions#create
destroy_user_session DELETE /users/sign_out(.:format) devise/sessions#destroy
  user_password POST /users/password(.:format)     devise/passwords#create
new_user_password GET  /users/password/new(.:format) devise/passwords#new
edit_user_password GET  /users/password/edit(.:format) devise/passwords#edit
                     PATCH /users/password(.:format)  devise/passwords#update
                     PUT  /users/password(.:format)  devise/passwords#update
  root GET  /                                     static#homepage
MacBook-Pro-3:Overtime admin$
```

```
MacBook-Pro-3:Overtime admin$ rake routes | grep posts
DEPRECATION WARNING: Sprockets method `register_engine` is deprecated.
Please register a mime type using `register_mime_type` then
use `register_compressor` or `register_transformer`.
https://github.com/rails/sprockets/blob/master/guides/extending_sprockets.md#supporting-all-versions-of-sprockets-in-processors
(called from block (2 levels) in <class:Railtie> at /Users/admin/.rvm/gems/ruby-2.3.0/gems/sass-rails-5.0.5/lib/sass/rails/railtie.rb:57)
DEPRECATION WARNING: Sprockets method `register_engine` is deprecated.
Please register a mime type using `register_mime_type` then
use `register_compressor` or `register_transformer`.
https://github.com/rails/sprockets/blob/master/guides/extending_sprockets.md#supporting-all-versions-of-sprockets-in-processors
(called from block (2 levels) in <class:Railtie> at /Users/admin/.rvm/gems/ruby-2.3.0/gems/sass-rails-5.0.5/lib/sass/rails/railtie.rb:58)
admin_posts GET    /admin/posts(.:format)           admin/posts#index
              POST   /admin/posts(.:format)           admin/posts#create
new_admin_post GET    /admin/posts/new(.:format)      admin/posts#new
edit_admin_post GET    /admin/posts/:id/edit(.:format) admin/posts#edit
admin_post   GET    /admin/posts/:id(.:format)        admin/posts#show
              PATCH  /admin/posts/:id(.:format)        admin/posts#update
              PUT    /admin/posts/:id(.:format)        admin/posts#update
              DELETE /admin/posts/:id(.:format)        admin/posts#destroy
approve_post GET    /posts/:id/approve(.:format)     posts#approve
posts GET    /posts(.:format)                      posts#index
              POST   /posts(.:format)                      posts#create
new_post    GET    /posts/new(.:format)                 posts#new
edit_post   GET    /posts/:id/edit(.:format)       posts#edit
post        GET    /posts/:id(.:format)                 posts#show
              PATCH  /posts/:id(.:format)                 posts#update
              PUT    /posts/:id(.:format)                 posts#update
              DELETE /posts/:id(.:format)                 posts#destroy
MacBook-Pro-3:Overtime admin$
```

Chapter 14: Ruby Gems



search | RubyGems.org | your ...

https://rubygems.org/search?utf8=%E2%9C%93&query=pundit

Jordan

pundit

GEMS GUIDES CONTRIBUTE SIGN IN SIGN UP

search for pundit

EXACT MATCH

pundit 1.1.0

Object oriented authorization for Rails applications

1,470,351
DOWNLOADS

DISPLAYING ALL 11 GEMS

pundit 1.1.0

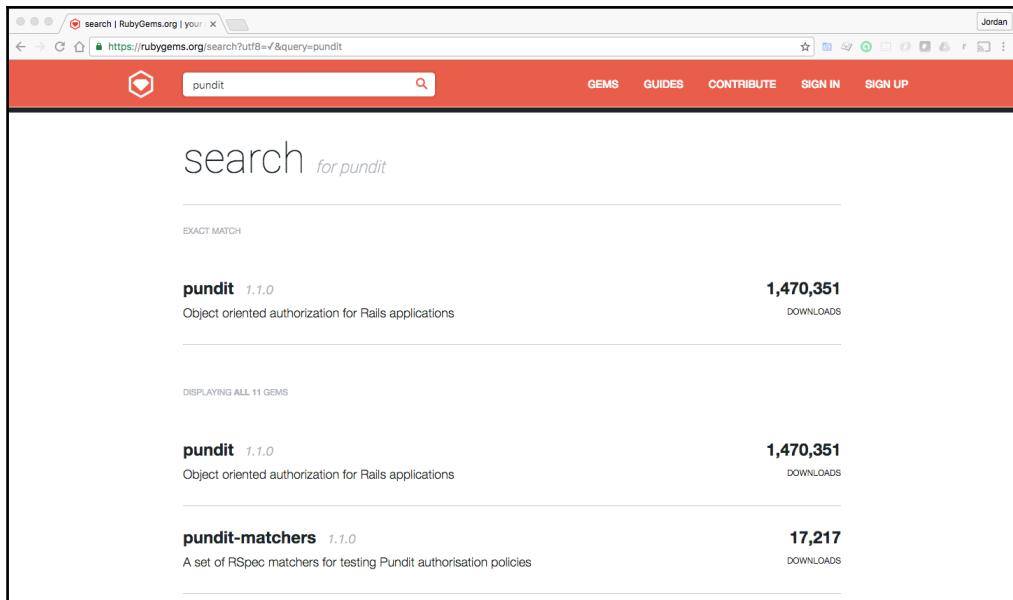
Object oriented authorization for Rails applications

1,470,351
DOWNLOADS

pundit-matchers 1.1.0

A set of RSpec matchers for testing Pundit authorisation policies

17,217
DOWNLOADS



search | RubyGems.org | your ...

https://rubygems.org/gems/pundit

Jordan

pundit 1.1.0

GEMS GUIDES CONTRIBUTE SIGN IN SIGN UP

pundit 1.1.0

Previous version Next version

Object oriented authorization for Rails applications

VERSIONS:

1.1.0 - January 14, 2016 (21.5 KB)
1.0.1 - May 27, 2015 (18.5 KB)
1.0.0 - April 19, 2015 (18.5 KB)
0.3.0 - August 22, 2014 (15.5 KB)
0.2.3 - April 6, 2014 (14 KB)

Show all versions (9 total) →

RUNTIME DEPENDENCIES:

activesupport >= 3.0.0

DEVELOPMENT DEPENDENCIES:

actionpack >= 3.0.0
activemodel >= 3.0.0
bundler >= 1.3
pry >= 0
rake >= 0
rspec >= 2.0.0
rubocop >= 0
yard >= 0

AUTHORS:

TOTAL DOWNLOADS
1,470,351

FOR THIS VERSION
397,661

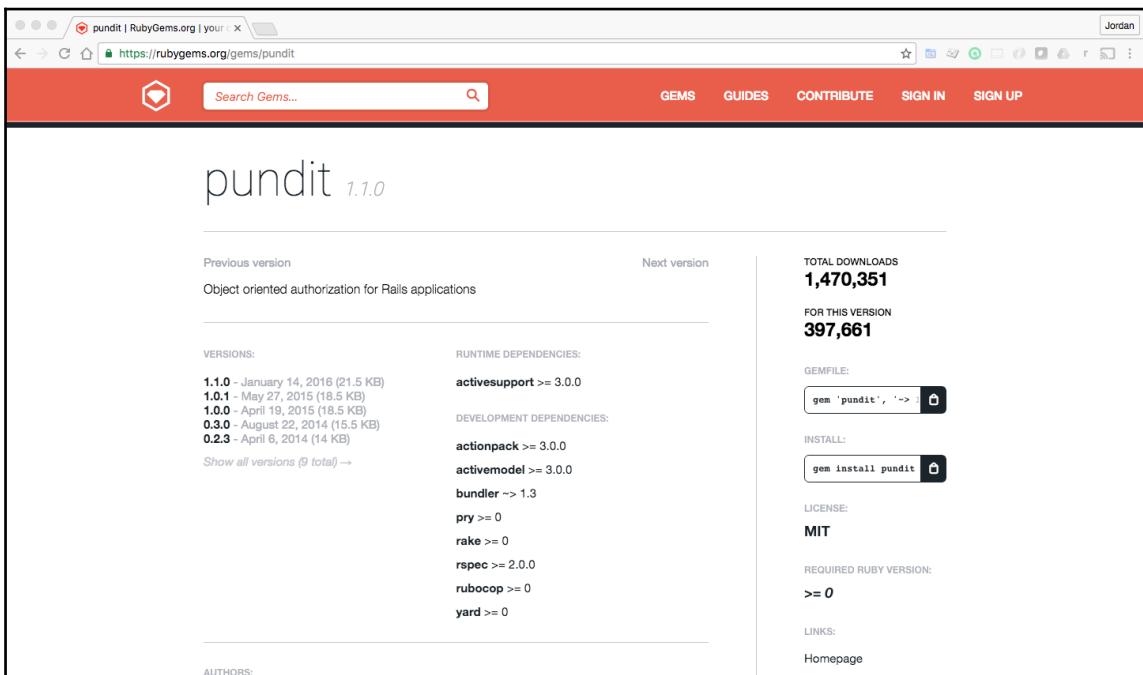
GEMFILE:
`gem 'pundit', '>= 1.1.0'`

INSTALL:
`gem install pundit`

LICENSE:
MIT

REQUIRED RUBY VERSION:
>= 0

LINKS:
[Homepage](#)



Chapter 15: Ruby Metaprogramming

A screenshot of a web browser showing the 'RailsCamp' profile dashboard for 'Jordan Hudgens'. The URL is https://rails.devcamp.com/profile. The dashboard includes a sidebar with navigation links like Syllabus, Trails (marked as 'NEW'), Org Dashboard, Revenue Dashboard, Latest Lesson, Subscription, and Schedule. It also has a newsletter sign-up form. The main content area shows a summary with 'Total Campers' (96) and 'Total Revenue' (143). Below that is a 'List of Trails' section with a table comparing the progress of various trails. The 'Ruby Gem Walkthroughs' trail is at 96%, 'Professional Rails Development' is at 75%, 'Learn Ruby on Rails from Scratch' is at 95%, 'Rails Project Course: Build a Photo Blog' is at 100%, 'Ruby Programming' is at 75%, and 'Advanced ROR: REST and Microservices' is at 25%. The 'Certificates' section is currently empty.

A screenshot of a terminal window titled 'crudelist — node • heroku run rails c — 80x24'. The command 'heroku run rails c' was run. The output shows:

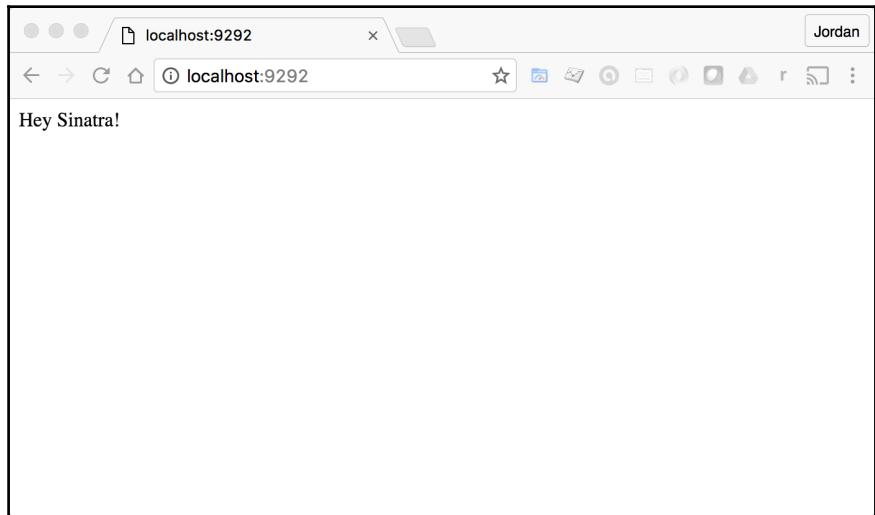
```
MacBook-Pro-3:crudelist admin$ heroku run rails c
Running rails c on crudelist... up, run.9368
Loading production environment (Rails 4.0.2)
irb(main):001:0> Customer.last
=> #<Customer id: 7, name: "Warren Cat", created_at: "2015-04-10 20:05:29", updated_at: "2015-04-10 20:05:29", email: "yadeco2@yahoo.com">
irb(main):002:0>
```

The last line of output, which displays the details of the last customer record, is highlighted with a red box.

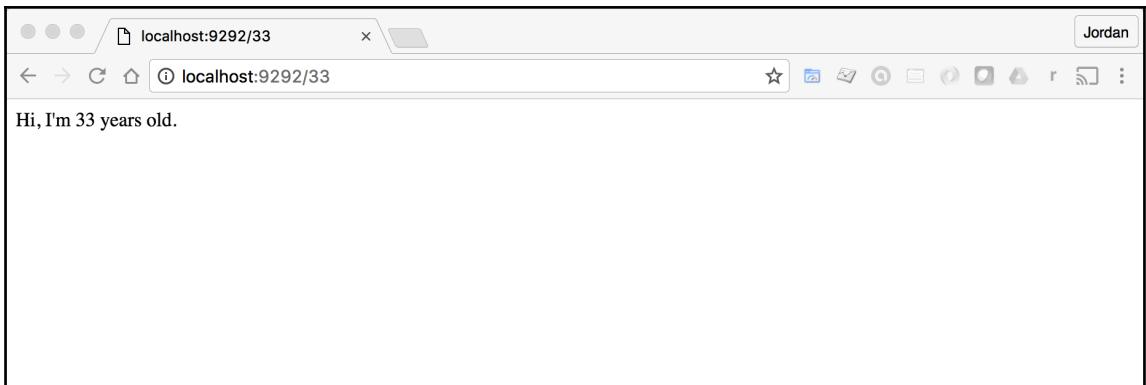
```
crudelist — node • heroku run rails c — 80x24
~/code/crudelist — node • heroku run rails c

Loading production environment (Rails 4.0.2)
irb(main):001:0> Customer.last
=> #<Customer id: 7, name: "Warren Cat", created_at: "2015-04-10 20:05:29", updated_at: "2015-04-10 20:05:29", email: "yadeco2@yahoo.com">
irb(main):002:0> Customer.find_by_name("Warren Cat")
=> #<Customer id: 7, name: "Warren Cat", created_at: "2015-04-10 20:05:29", updated_at: "2015-04-10 20:05:29", email: "yadeco2@yahoo.com">
irb(main):003:0> Customer.find_by_email("yadeco2@yahoo.com")
=> #<Customer id: 7, name: "Warren Cat", created_at: "2015-04-10 20:05:29", updated_at: "2015-04-10 20:05:29", email: "yadeco2@yahoo.com">
irb(main):004:0> Location.find_by_name("Midland")
NoMethodError: undefined method `find_by_name' for #<Class:0x007fcc65555968>
    from /app/vendor/bundle/ruby/2.0.0/gems/activerecord-4.0.2/lib/active_record/dynamic_matchers.rb:22:in `method_missing'
    from (irb):4
    from /app/vendor/bundle/ruby/2.0.0/gems/railties-4.0.2/lib/rails/commands/console.rb:90:in `start'
    from /app/vendor/bundle/ruby/2.0.0/gems/railties-4.0.2/lib/rails/commands/console.rb:9:in `start'
    from /app/vendor/bundle/ruby/2.0.0/gems/railties-4.0.2/lib/rails/commands.rb:62:in `<top (required)>'
    from /app/bin/rails:4:in `require'
    from /app/bin/rails:4:in `<main>'
```

Chapter 16: Ruby Web Frameworks

A screenshot of a web browser window titled "localhost:9292/about". The address bar shows "localhost:9292/about". The main content area displays the text "Sinatra doesn't know this ditty." above a stylized illustration of a microphone on a stand with radiating lines. Below the illustration, the text "Try this:" is followed by a code snippet.

```
# in app.rb
class HiSinatra
  get '/about' do
    "Hello World"
  end
end
```



```
create  public/favicon.ico
create  public/robots.txt
create  test/fixtures
create  test/fixtures/.keep
create  test/controllers
create  test/controllers/.keep
create  test/mailers
create  test/mailers/.keep
create  test/models
create  test/models/.keep
create  test/helpers
create  test/helpers/.keep
create  test/integration
create  test/integration/.keep
create  test/test_helper.rb
create  tmp/cache
create  tmp/cache/assets
create  vendor/assets/javascripts
create  vendor/assets/javascripts/.keep
create  vendor/assets/stylesheets
create  vendor/assets/stylesheets/.keep
run    bundle install
Fetching gem metadata from https://rubygems.org/.....
Fetching additional metadata from https://rubygems.org/..
Resolving dependencies...
Using rake 10.5.0
Using i18n 0.7.0
Using json 1.8.3
Using minitest 5.8.3
Using thread_safe 0.3.5
Using tzinfo 1.2.2
Using activesupport 4.2.5
Using builder 3.2.2
Using erubis 2.7.0
Using mini_portile2 2.0.0
```

Ruby on Rails: Welcome aboard X Jordan

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 `bin/rails generate` to create your models and controllers

To see all available options, run it without parameters.

2. Set up a root route to replace this page

You're seeing this page because you're running in development mode and you haven't set a root route yet.

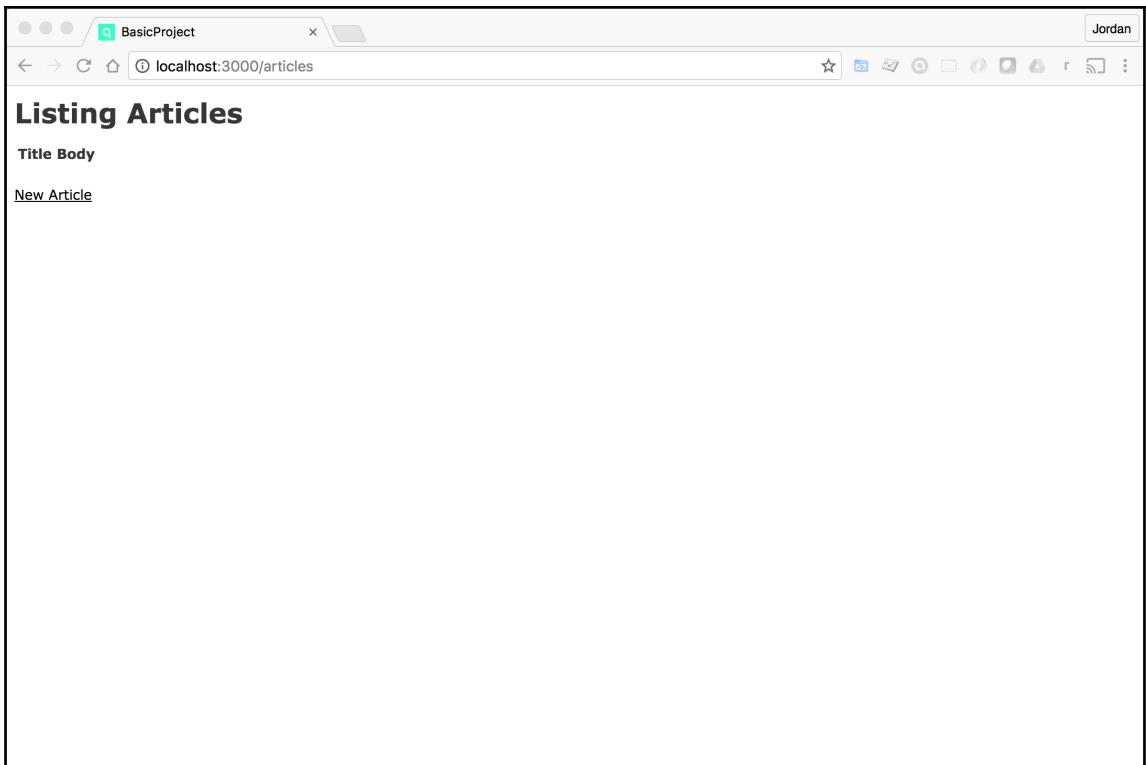
Routes are set up in `config/routes.rb`.

3. Configure 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](#)



BasicProject x

localhost:3000/articles/new

Jordan

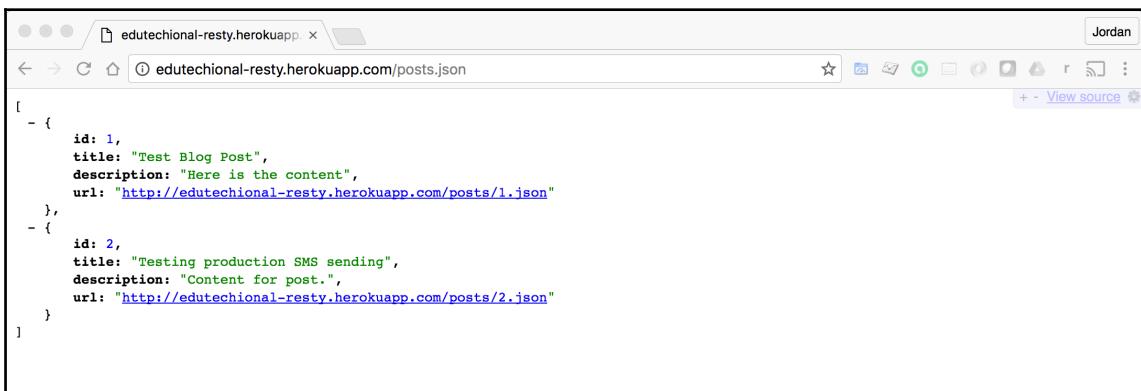
New Article

Title

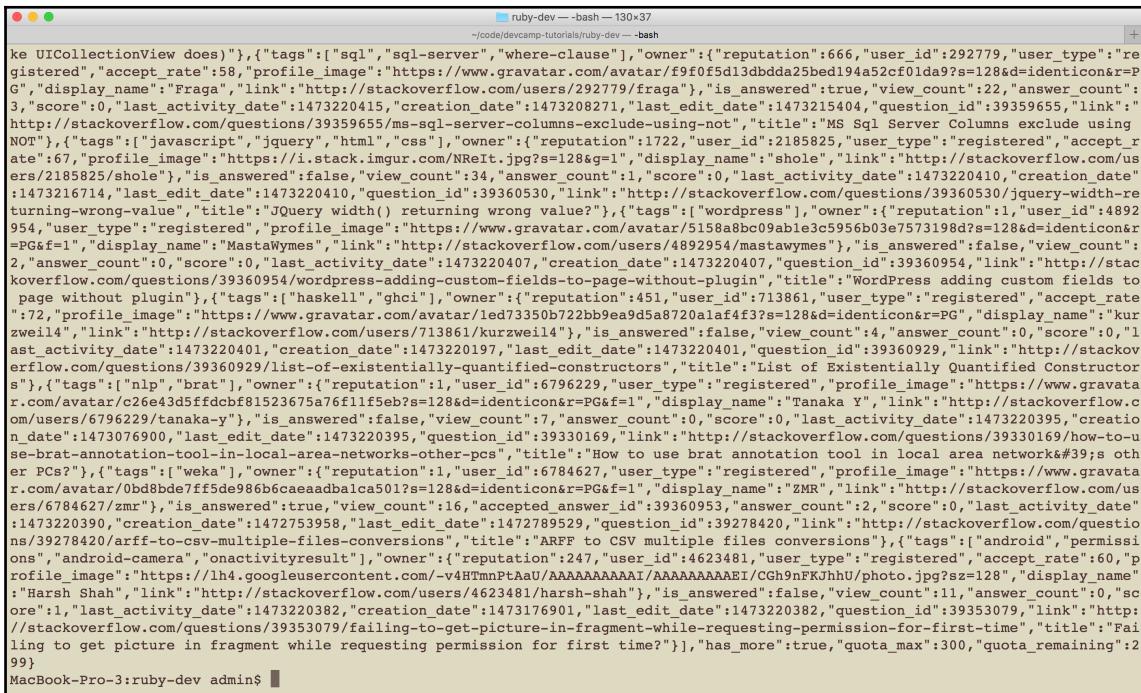
Body

[Back](#)

Chapter 17: Working with APIs in Ruby



```
[  
  - {  
      id: 1,  
      title: "Test Blog Post",  
      description: "Here is the content",  
      url: "http://edutechional-resty.herokuapp.com/posts/1.json"  
    },  
  - {  
      id: 2,  
      title: "Testing production SMS sending",  
      description: "Content for post.",  
      url: "http://edutechional-resty.herokuapp.com/posts/2.json"  
    }  
]
```



```
ke UICollectionView does"), {"tags": ["sql", "sql-server", "where-clause"], "owner": {"reputation": 666, "user_id": 292779, "user_type": "registered", "accept_rate": 58, "profile_image": "https://www.gravatar.com/avatar/f9ff0f5d13bdda25bed194a52cf01da9?s=128&d=identicon&r=PG", "display_name": "Fraga", "link": "http://stackoverflow.com/users/292779/frag"}, "is_answered": true, "view_count": 22, "answer_count": 3, "score": 0, "last_activity_date": 147320415, "creation_date": 1473208271, "last_edit_date": 1473215404, "question_id": 39359655, "link": "http://stackoverflow.com/questions/39359655/ms-sql-server-columns-exclude-using-not", "title": "MS Sql Server Columns exclude using NOT"}, {"tags": ["javascript", "jquery", "html", "css"], "owner": {"reputation": 1722, "user_id": 2185825, "user_type": "registered", "accept_rate": 67, "profile_image": "https://i.stack.imgur.com/NREit.jpg?s=128&g=1", "display_name": "shole", "link": "http://stackoverflow.com/users/2185825/shole"}, "is_answered": false, "view_count": 34, "answer_count": 1, "score": 0, "last_activity_date": 1473220410, "creation_date": 1473216714, "last_edit_date": 1473220410, "question_id": 39360530, "link": "http://stackoverflow.com/questions/39360530/jquery-width-returning-wrong-value", "title": "jQuery width() returning wrong value?"}, {"tags": ["wordpress"], "owner": {"reputation": 1, "user_id": 4892954, "user_type": "registered", "profile_image": "https://www.gravatar.com/avatar/5158a8bc09able3c5956b03e7573198d?s=128&d=identicon&r=PG&f=1", "display_name": "MastaWymes", "link": "http://stackoverflow.com/users/4892954/mastawymes"}, "is_answered": false, "view_count": 2, "answer_count": 0, "score": 0, "last_activity_date": 1473220407, "creation_date": 1473220407, "question_id": 39360954, "link": "http://stackoverflow.com/questions/39360954/wordpress-adding-custom-fields-to-page-without-plugin", "title": "WordPress adding custom fields to page without plugin"}, {"tags": ["haskell", "ghci"], "owner": {"reputation": 451, "user_id": 713861, "user_type": "registered", "accept_rate": 72, "profile_image": "https://www.gravatar.com/avatar/763350b72bb9ea9d5a8720a1af4f3?s=128&d=identicon&r=PG", "display_name": "kurtweil4", "link": "http://stackoverflow.com/users/713861/kurtweil4"}, "is_answered": false, "view_count": 14, "answer_count": 0, "score": 0, "last_activity_date": 1473220401, "creation_date": 1473220197, "last_edit_date": 1473220401, "question_id": 39360929, "link": "http://stackoverflow.com/questions/39360929/list-of-existentially-quantified-constructors", "title": "List of Existentially Quantified Constructors"}, {"tags": ["nil", "brat"], "owner": {"reputation": 1, "user_id": 6796229, "user_type": "registered", "profile_image": "https://www.gravatar.com/avatar/c26e43d5ffdcf81523675a76f11f5eb?s=128&d=identicon&r=PG&f=1", "display_name": "Tanaka Y", "link": "http://stackoverflow.com/users/6796229/tanaka-y"}, "is_answered": false, "view_count": 7, "answer_count": 0, "score": 0, "last_activity_date": 147320395, "creation_date": 1473076900, "last_edit_date": 147320395, "question_id": 39330169, "link": "http://stackoverflow.com/questions/39330169/how-to-use-brat-annotation-tool-in-local-area-networks-other-pcs", "title": "How to use brat annotation tool in local area network&#39;s other PCs?"}, {"tags": ["weka"], "owner": {"reputation": 1, "user_id": 6784627, "user_type": "registered", "profile_image": "https://www.gravatar.com/avatar/0bd8bde7ff5de986b6caeabdalca501?s=128&d=identicon&r=PG&f=1", "display_name": "ZMR", "link": "http://stackoverflow.com/users/6784627/zmr"}, "is_answered": true, "view_count": 16, "accepted_answer_id": 39360953, "answer_count": 2, "score": 0, "last_activity_date": 1473220390, "creation_date": 1472753958, "last_edit_date": 1472789529, "question_id": 39278420, "link": "http://stackoverflow.com/questions/39278420/arff-to-csv-multiple-files-conversions", "title": "ARFF to CSV multiple files conversions"}, {"tags": ["android", "permissions", "android-camera", "onactivityresult"], "owner": {"reputation": 247, "user_id": 4623481, "user_type": "registered", "accept_rate": 60, "profile_image": "https://lh4.googleusercontent.com/-v4HTmnPtAAU/AAAAAAAEEI/CGr9FKjhHu/photo.jpg?sz=128", "display_name": "Harsh Shah", "link": "http://stackoverflow.com/users/4623481/harsh-shah"}, "is_answered": false, "view_count": 11, "answer_count": 0, "score": 1, "last_activity_date": 1473220382, "creation_date": 1473176901, "last_edit_date": 1473220382, "question_id": 39353079, "link": "http://stackoverflow.com/questions/39353079/failing-to-get-picture-in-fragment-while-requesting-permission-for-first-time", "title": "Failing to get picture in fragment while requesting permission for first time?"}, {"has_more": true, "quota_max": 300, "quota_remaining": 299}  
MacBook-Pro-3:ruby-dev admin$
```

```
ruby-dev — bash — 130×37
~/code/devcamp-tutorials/ruby-dev — bash
+-----+
/rystackoverflow.com/questions/39365315/error-end-of-script-output-before-headers-while-submitting-html-form-in-python", "title"=>"Error : End of script output before headers while submitting html form in python-cgi", {"tags"=>["angularjs", "layout", "printing", "display"], "owner"=>{"reputation"=>39, "user_id"=>4575981, "user_type"=>"registered", "accept_rate"=>100, "profile_image"=>"https://graph.facebook.com/1117039348310854/picture?type=large", "display_name"=>"Markus Harthum", "link"=>"http://stackOverflow.com/users/4575981/markus-harthum"}, "is_answered"=>false, "view_count"=>12, "answer_count"=>1, "score"=>0, "last_activity_date"=>1473272505, "creation_date"=>1473154910, "last_edit_date"=>1473170631, "question_id"=>39345719, "link"=>"http://stackOverflow.com/questions/39345719/create-intelligent-pages-and-columns-layout-in-angular", "title"=>"Create intelligent Pages and Columns Layout in Angular", {"tags"=>["mobx", "mobx-react"], "owner"=>{"reputation"=>2622, "user_id"=>1201159, "user_type"=>"registered", "accept_rate"=>50, "profile_image"=>"https://www.gravatar.com/avatar/e677a583236141e5096e7d3f2dfc01?size=128&id=identicon&r=PG", "display_name"=>"Cilphex", "link"=>"http://stackOverflow.com/users/1201159/cilphex"}, "is_answered"=>false, "view_count"=>2, "answer_count"=>0, "score"=>0, "last_activity_date"=>1473272505, "creation_date"=>1473272505, "question_id"=>39376765, "link"=>"http://stackOverflow.com/questions/39376765/cascading-actions-not-rendering", "title"=>"Cascading actions not rendering", {"tags"=>["javascript", "angular"], "owner"=>{"reputation"=>6, "user_id"=>3298156, "user_type"=>"registered", "profile_image"=>"https://www.gravatar.com/avatar/b3dd548e10330b002617fb262590af?size=128&id=identicon&r=PG", "display_name"=>"Spencer Sullivan", "link"=>"http://stackOverflow.com/users/3298156/spencer-sullivan"}, "is_answered"=>false, "view_count"=>21, "closed_date"=>1473230858, "answer_count"=>0, "score"=>-3, "last_activity_date"=>1473272503, "creation_date"=>1473194269, "last_edit_date"=>1473272503, "question_id"=>39357460, "link"=>"http://stackOverflow.com/questions/39357460/can-i-return-an-entire-angular-application-as-a-script?", {"tags"=>["c", "arrays"], "owner"=>{"reputation"=>25, "user_id"=>6719021, "user_type"=>"registered", "profile_image"=>"https://www.gravatar.com/avatar/3269348293683533ab2138f87ad7d4e?size=128&id=identicon&r=PG&f=1", "display_name"=>"roncook", "link"=>"http://stackOverflow.com/users/6719021/roncook"}, "is_answered"=>false, "view_count"=>27, "closed_date"=>1473272112, "answer_count"=>0, "score"=>-4, "last_activity_date"=>1473272503, "creation_date"=>1473271724, "last_edit_date"=>1473272503, "question_id"=>39376601, "link"=>"http://stackOverflow.com/questions/39376601/how-can-i-check-if-an-element-in-an-array-equals-some-value?", {"tags"=>["python", "copy", "argparse"], "owner"=>{"reputation"=>798, "user_id"=>980818, "user_type"=>"registered", "accept_rate"=>94, "profile_image"=>"https://www.gravatar.com/avatar/4de5157eb76a9869b72c4de85ff77098?size=128&id=identicon&r=PG", "display_name"=>"Hao Shen", "link"=>"http://stackOverflow.com/users/980818/hao-shen"}, "is_answered"=>false, "view_count"=>3, "answer_count"=>0, "score"=>0, "last_activity_date"=>1473272500, "creation_date"=>1473272500, "question_id"=>39376763, "link"=>"http://stackOverflow.com/questions/39376763/in-python-how-to-deep-copy-the-namespace-obj-args-from-argparse", {"title"=>"In Python, how to deep copy the Namespace obj &quot;args&quot; from argparse", {"tags"=>["node.js", "redis", "xmpp", "mqtt"], "owner"=>{"reputation"=>251, "user_id"=>1404040, "user_type"=>"registered", "accept_rate"=>80, "profile_image"=>"https://www.gravatar.com/avatar/80abb8a8cbc2798c7178ea314f785cd?size=128&id=identicon&r=PG&f=1", "display_name"=>"vishwas", "link"=>"http://stackOverflow.com/users/1404040/vishwas"}, "is_answered"=>false, "view_count"=>481, "bounty_amount"=>50, "bounty_closes_date"=>147385092, "answer_count"=>0, "score"=>5, "last_activity_date"=>1473272499, "creation_date"=>1440826383, "last_edit_date"=>1473272499, "question_id"=>32283035, "link"=>"http://stackOverflow.com/questions/32283035/how-do-i-integrate-chat-with-nodejs-and-xmpp-into-my-existing-web-application", "title"=>"How do I integrate chat with nodejs and xmpp into my existing web application?"}, {"has_more"=>true, "quota_max"=>300, "quota_remaining"=>298}
MacBook-Pro-3:ruby-dev admin$
```

node.js - How do I integrate chat with nodejs and xmpp into my existing web application? Jordan

[redislabs](https://redislabs.com/) home of redis Download your Free Trial of Redis Today! [Download NOW](#)

How do I integrate chat with nodejs and xmpp into my existing web application?

asked 1 year ago viewed 481 times

5 Existing App

A minimalist social network implemented using `Expressjs` as an API. Using `MySQL` as DB. `socket.io` for notifications and `ember.js` as a frontend framework.

1 What I want to integrate

I want to implements only a few features of XMPP such as

- Peer 2 Peer Messaging
- Presence and Last Seen
- Group Chat
- Read Receipts

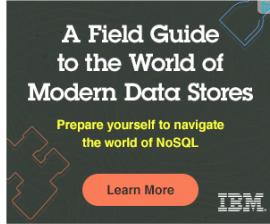
A basic idea I got from reading similar questions.

1. Need a client library (`Strophe.js`, `Converse.js`)
2. Need a XMPP server (`ejabberd`, `Openfire`, `Prosody`)

Questions

1. How do I integrate chat here ?
2. How do I authenticate XMPP users (FYI, I have JWT Authentication implemented currently) ?
3. Suggestions on using redis(pub/sub) with socket.io or mqtt pub/sub for implementing the chat. Is it scalable ? / What about performance ?

What I asked might be too broad. But still don't have any idea on using which set technologies to use.



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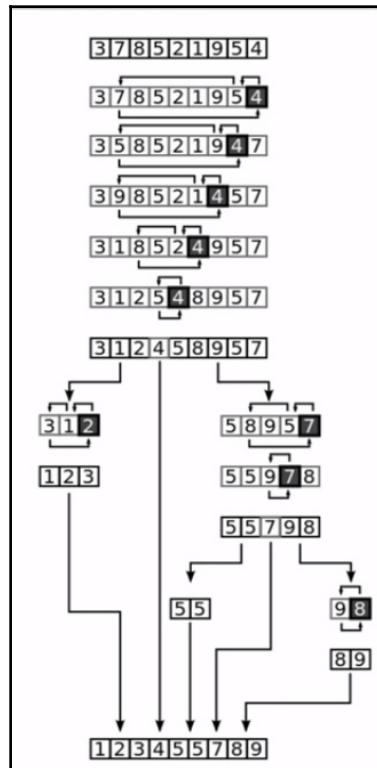
Senior Rails Developer
Spreemo ♀ New York, NY
🔍 REMOTE
[ruby-on-rails](#) [ruby](#)

Related

- 14 How to fully integrate XMPP on a web site with registered users
- 2 Integrating a XMPP server into existing rails web application

```
ruby-dev ~ bash - 130x37
~/code/devcamp-tutorials/ruby-dev ~ bash
erator", "user_id"=>13249, "accept_rate"=>100, "location"=>"Winston-Salem, NC", "website_url"=>"http://nickcraver.com/blog/", "link"=>"http://stackoverflow.com/users/13249/nick-craver", "profile_image"=>"https://i.stack.imgur.com/NGCYr.jpg?s=128&g=1", "display_name"=>"Nick Craver", {"badge_counts"=>{"bronze"=>933, "silver"=>572, "gold"=>26}, "account_id"=>237126, "is_employee"=>false, "last_modified_date"=>1473194380, "last_access_date"=>1473271191, "age"=>45, "reputation_change_year"=>35609, "reputation_change_quarter"=>9267, "reputation_change_month"=>1165, "reputation_change_week"=>620, "reputation_change_day"=>121, "reputation"=>425084, "creation_date"=>1251226343, "user_type"=>"registered", "user_id"=>505088, "accept_rate"=>92, "location"=>"Ulverston, United Kingdom", "website_url"=>"", "link"=>"http://stackoverflow.com/users/505088/david-heffernan", "profile_image"=>"https://www.gravatar.com/avatar/3c0aac2191718ef0309dbc034d9b961?&s=128&d=identicon&r=PG", "display_name"=>"David Heffernan", {"badge_counts"=>{"bronze"=>1709, "silver"=>849, "gold"=>113}, "account_id"=>32093, "is_employee"=>false, "last_modified_date"=>1472241231, "last_access_date"=>1473272658, "age"=>43, "reputation_change_year"=>38441, "reputation_change_quarter"=>9284, "reputation_change_month"=>828, "reputation_change_week"=>389, "reputation_change_day"=>139, "reputation"=>411661, "creation_date"=>1239204526, "user_type"=>"registered", "user_id"=>88656, "location"=>"Seattle, WA", "website_url"=>"http://ericlipper.com", "link"=>"http://ericlipper.com", "profile_image"=>"https://www.gravatar.com/avatar/6fbddff3ffbf11d172759bf05bea0e?&s=128&d=identicon&r=PG", "display_name"=>"Eric Lipper", {"badge_counts"=>{"bronze"=>867, "silver"=>766, "gold"=>118}, "account_id"=>9867, "is_employee"=>false, "last_modified_date"=>1468410457, "last_access_date"=>1473201945, "age"=>43, "reputation_change_year"=>35010, "reputation_change_quarter"=>9231, "reputation_change_month"=>838, "reputation_change_week"=>430, "reputation_change_day"=>120, "reputation"=>40766, "creation_date"=>1221783887, "user_type"=>"registered", "user_id"=>18393, "accept_rate"=>82, "location"=>"New York, NY", "website_url"=>"http://www.cforcoding.com", "link"=>"http://stackoverflow.com/users/18393/cletus", "profile_image"=>"https://www.gravatar.com/avatar/2f364c2e36b52bc80296cbf23da8b231?&s=128&d=identicon&r=PG", "display_name"=>"cletus", {"badge_counts"=>{"bronze"=>684, "silver"=>51, "gold"=>30}, "account_id"=>277416, "is_employee"=>false, "last_modified_date"=>1472738535, "last_access_date"=>1473270680, "age"=>41, "reputation_change_year"=>45708, "reputation_change_quarter"=>11412, "reputation_change_month"=>906, "reputation_change_week"=>505, "reputation_change_day"=>175, "reputation"=>395124, "creation_date"=>1294757277, "user_type"=>"registered", "user_id"=>571407, "accept_rate"=>100, "location"=>"Saint-Etienne, France", "website_url"=>"http://jnizet.free.fr", "link"=>"http://stackoverflow.com/users/571407/jb-nizet", "profile_image"=>"https://www.gravatar.com/avatar/2f0d9dec16bae1e06552af55defc11f?&s=128&d=identicon&r=PG", "display_name"=>"JB Nizet", {"badge_counts"=>{"bronze"=>984, "silver"=>81, "gold"=>75}, "account_id"=>26957, "is_employee"=>false, "last_modified_date"=>1467748282, "last_access_date"=>1449877865, "age"=>40, "reputation_change_year"=>33319, "reputation_change_quarter"=>8759, "reputation_change_month"=>878, "reputation_change_week"=>490, "reputation_change_day"=>200, "reputation"=>393819, "creation_date"=>1235517707, "user_type"=>"registered", "user_id"=>70604, "website_url"=>"http://pascal.thivent.name/", "link"=>"http://stackoverflow.com/users/70604/pascal-thivent", "profile_image"=>"https://www.gravatar.com/avatar/dcl1a5b5fdb3a6ae9dcdf6e267f1a86c?&s=128&d=identicon&r=PG", "display_name"=>"Pascal Thivent", {"badge_counts"=>{"bronze"=>1101, "silver"=>779, "gold"=>36}, "account_id"=>25430, "is_employee"=>false, "last_modified_date"=>1473025456, "last_access_date"=>1473206345, "age"=>40, "reputation_change_year"=>25247, "reputation_change_quarter"=>6717, "reputation_change_month"=>736, "reputation_change_week"=>361, "reputation_change_day"=>120, "reputation"=>391323, "creation_date"=>1234398071, "user_type"=>"registered", "user_id"=>65358, "accept_rate"=>78, "location"=>"Bellingham, WA", "website_url"=>"http://www.reedcopsey.com", "link"=>"http://stackoverflow.com/users/65358/reed-copsey", "profile_image"=>"https://www.gravatar.com/avatar/87b3a4c585e6fd2ad5308e15e12bdc36?&s=128&d=identicon&r=PG", "display_name"=>"Reed Copsey"}], "has_more"=>true, "quota_max"=>300, "quota_remaining"=>297}
MacBook-Pro-3:ruby-dev admin$
```

Chapter 18: Ruby Algorithms



Chapter 19: Machine Learning

The screenshot shows a web browser window titled "lgrigorik/decisiontree - Run" with the URL "ttubaker-cs5331-project-2.herokuapp.com". The page is titled "Truck Watcher" and features a "BACKGROUND & OBJECTIVES" button. Below the title is a table of vehicle data with columns: Unit ID, Year, Make, Model, Plate, Status, and Prediction. The table includes 15 rows of data and buttons for Show, Edit, and Destroy actions.

Unit ID	Year	Make	Model	Plate	Status	Prediction	Show	Edit	Destroy
51	2011	GMC	3500 HD	BC84467	Active	Accurate	Show	Edit	Destroy
156	2012	GMC	3500 HD	MDZ296	Active	Accurate	Show	Edit	Destroy
330	2007	Ford	2500 HD	56SCK5	Retired	Accurate	Show	Edit	Destroy
65	2011	GMC	3500 HD	LSD621	Active	Accurate	Show	Edit	Destroy
160	2007	Chevrolet	3500 HD	JNL586	Active	Accurate	Show	Edit	Destroy
421	2013	GMC	3500 HD	BX88613	Active	Accurate	Show	Edit	Destroy
162	2007	Chevrolet	3500 HD	MTH921	Active	Accurate	Show	Edit	Destroy
516/140	2007	Chevrolet	2500 HD	CBD-8622	Active	Accurate	Show	Edit	Destroy
122	2009	Chevrolet	2500 HD	175NNR	Retired	Accurate	Show	Edit	Destroy
515/139	2013	Chevrolet	2500 HD	BYG-3572	Active	Accurate	Show	Edit	Destroy
806	2008	Ford	F550		Active	Accurate	Show	Edit	Destroy
253	2012	Ford	F350	BZ92509	Active	Accurate	Show	Edit	Destroy
250	2012	Ford	2500 HD	BV36554	Active	Accurate	Show	Edit	Destroy
141	2008	Chevrolet	2500 HD	KI-S017	Retired	Accurate	Show	Edit	Destroy

ID	Year	GMC	Model	Vehicle ID	Status	Audit Status	Show	Edit	Destroy
86	2008	Chevrolet	2500 HD	30GPP7	Active	Accurate	Show	Edit	Destroy
308	2010	Chevrolet	1500	76D6301	Active	Accurate	Show	Edit	Destroy
235	2012	GMC	3500 HD	BX48969	Active	Accurate	Show	Edit	Destroy
317	2008	Chevrolet	2500 HD	07YHZ6	Active	Accurate	Show	Edit	Destroy
76	2006	Chevrolet	1500	29CBR4	Active	Accurate	Show	Edit	Destroy
61	2009	Chevrolet	3500 HD	5786AP	Active	Accurate	Show	Edit	Destroy
80	2009	Chevrolet	2500 HD	AJ47557	Retired	Accurate	Show	Edit	Destroy
151	2007	Chevrolet	1500	JJJ929	Retired	Accurate	Show	Edit	Destroy
23	2008	Chevrolet	3500 HD	28PDS8	Retired	Accurate	Show	Edit	Destroy
101	2011	Chevrolet	2500 HD	BB80856	Active	Accurate	Show	Edit	Destroy
278	2010	Ford	2500 HD	AK71548	Active	Accurate	Show	Edit	Destroy
21	2007	Chevrolet	1500	09LBP7	Active	Accurate	Show	Edit	Destroy
228	2012	Chevrolet	2500 HD	MDZ298	Active	Accurate	Show	Edit	Destroy
342	2008	Ford	F-250 Super Duty	88ZHD8	Active	Accurate	Show	Edit	Destroy
138	2008	Chevrolet	2500 HD	KJB451	Retired	Accurate	Show	Edit	Destroy
20	2010	Chevrolet	2500 HD	AJ62783	Active	Needs Attention	Show	Edit	Destroy
345	2008	Chevrolet	1500	MSA944	Retired	Accurate	Show	Edit	Destroy
334	2008	Ford	2500 HD	947RLR	Active	Accurate	Show	Edit	Destroy
198	2008	Chevrolet	1500	KJK061	Active	Accurate	Show	Edit	Destroy
359	2008	Ford	2500 HD	11LDK7	Retired	Accurate	Show	Edit	Destroy

Unit: 20
Year: 2010
Make: Chevrolet
Model: 2500 HD
Plate: AJ62783
Mileage: 121056
Vin: 1GC5KVBG6AZ247592
Category: Service
Color: White
Status: Active
Equipment: 20 - 2010 Chevrolet 2500
Fuel: Gasoline
Weight:
Transmission: Automatic
Custom: 14ST20
Purchase code:
Purchase price: 30899.0
Start cost: 30899.0
Virtual meter: 121056
Repairs: 3
Services: 13