RAILS FOR NOOBS

A 3 part, 6 hour tutorial on ruby on rails,
in Portuguese

by João Girão

NOTES

Portuguese	English	German
Parem lá com o barulho que estou a tentar dizer coisas importantes	Attention, please	Guten Tag
Sim, o meu primo que é polícia casou com a Maria lá da terra	The answer is correct	Danke
Vocês não são enginheiros não são nada!	The answer is wrong	Bitte schön
Infelizmente esqueci-me do gás ligado em casa. Volto já.	Lesson is over	Auf Wiedersehen

TODAY'S STUFF

- A short, yet comprehensive, introduction to the Ruby programming language
- Introducing Rails
- Models
- Some References
- Q&A and Feedback

https://github.com/jgirao/rails-tutorial

FORMAT

- Chapter Start
  - Goals
  - Content
  - Recap
  - Clap, because you deserve it!
- Next Chapter *(Lather, Rinse, Repeat)*

Taking her out for a night on the town

INTRODUCING

Part 1

GOALS

- Install ruby & rvm
- Launch IRB
- Methods and Classes
- Looping
- Hashes, hashes, ha.. you get the point
- Symbols

INSTALL RVM & RUBY

Install RVM:

```
$ bash < <(curl -s https://rvm.beginrescueend.com/install/rvm)
```

```
$ echo '[[ -s "$HOME/.rvm/scripts/rvm" ]] && . "$HOME/.rvm/scripts/rvm" # Load RVM function' >>
~/.bash_profile
```

Install Ruby 1.9.2:

```
$ rvm install 1.9.2 # Dont forget to reload .bash_profile first
```

Make 1.9.2 your default:

```
$ rvm list
$ rvm use 1.9.2 --default
$ ruby -v
```

Reference: http://beginrescueend.com/rvm/install/

LAUNCH IRB

Lauch IRB:

```
$ irb
```

Simple math:

```
> puts “Hello World”
Hello World
 => nil
> (3+2)**5
 => 3125
> Math.sqrt(25)
 => 5.0

> a=3
 => 3
> a+2
 => 5
> 3.times do
>     a+=1
?>  end
 => 3
> a
 => 6
```

METHODS & CLASSES

Creating a method:

```
> def say_name(name = "John Doe")
?>  puts "His name is #{name}"
?>  end
 => nil
> say_name
His name is John Doe
 => nil
> say_name "Peter Jenkins"
His name is Peter Jenkins
 => nil
```

Running a .rb:

fib.rb

```
$ ruby fib.rb
0
1
15
```

or

```
$ ./fib.rb #!/usr/bin/env ruby
```

METHODS & CLASSES

Creating our first class:  person.rb

```ruby
class Person
  attr_accessor :name
  attr_accessor :age
  # ...
end
```

```
> require "./person"
 => true
> p1 = Person.new
```

```ruby
  def initialize(name = "John Doe", age = 18)
    @name = name
    @age = age
  end

  def print
    puts "My name is #{@name} and I'm #{@age} years old"
  end
```

```
> p1.print
My name is John Doe and I'm 18 years old
 => nil
```

```
> p2 = Person.new("Peter Jackson", 21)
> p2.print
My name is Peter Jackson and I'm 21 years old
 => nil
```

METHODS & CLASSES

Playing with accessors:

```ruby
class Person
  attr_accessor :name
  attr_accessor :age
  # ...
end
```

```
> p2.name
 => "Peter Jackson"
> p2.name = "Mary Poppins"
 => "Mary Poppins"
> p2.print
My name is Mary Poppins and I'm 21 years old
 => nil
```

So... accessors

```
Create the @var and the corresponding accessor functions

attr_reader :var
attr_writer :var
attr_accessor :var
```

A lot is not covered here about classes, e.g. private, protected, inheritance, extending, etc... Some things we will see in rails

LOOPING

for blocks

```
> for i in 1..3 do puts i end
1
2
3
 => 1..3
```

iterating an array with each

```
> [1, 2, 3, 4].each do |x| puts x end
1
2
3
4
 => [1, 2, 3, 4]
```

Others

```
expr while condition
expr until condition
begin
  exprs...
end while condition
```

next, in for loops is the *continue* in other languages
redo, resets this iteration of the loop without checking conditions

HASHES

the traditional way

```
> h = Hash.new
 => {}
> h["name"] = "Peter Jackson"
 => "Peter Jackson"
> h["age"] = 22
 => 22
> h
 => {"name"=>"Peter Jackson", "age"=>22}
```

using literals

```
> h = {"name" => "Mary Poppins", "age" => 33}
 => {"name"=>"Mary Poppins", "age"=>33}
> h["name"]
 => "Mary Poppins"
```

from hash to array to string

```
> a = h.map do |k,v| [k, v] end
 => [["name", "Mary Poppins"], ["age", 33]]
> a.join ", "
 => "name, Mary Poppins, age, 33"
```

SYMBOLS

> *"Simply, a symbol is something that you use to represent names and strings. What this boils down to is a way to efficiently have descriptive names while saving the space one would use to generate a string for each naming instance."* -- Gluttonous on Ruby Symbols

applied to hashes

```
> h1 = {:name => "Peter Jackson", :age => 22}
 => {:name=>"Peter Jackson", :age=>22}
> h1[:name]
 => "Peter Jackson"
> h2 = {:name => "Mary Poppins", :age => 33}
 => {:name=>"Mary Poppins", :age=>33}
> h1.keys[0].object_id
 => 20488
> h2.keys[0].object_id
 => 20488
> puts h2.keys[0]
name
 => nil
```

RECAP

```
$ rvm install 1.9.2
$ rvm use 1.9.2 --default
$ irb
```

```
> puts “Hello World”
```

```
> say_name "Peter Jenkins"
His name is Peter Jenkins
```

```
$ ./fib.rb
```

```
class Person
  attr_accessor :name
```

```
> require "./person"
> p1 = Person.new
```

```
> for i in 1..3 do puts i end
```

```
> [1, 2, 3, 4].each do |x| puts x end
```

```
> h = {"name" => "Mary Poppins", "age" => 33}
> (h.map do |k,v| [k, v] end).join “, ”
```

```
> h1 = {:sym => 1}
> h2 = {:sym => 2}
> h1.keys[0].object_id == h2.keys[0].object_id
 => true
```

CLAP, YOU MADE IT

Chuck Norris

INTRODUCING RAILS

Part 2

GOALS

- Install Rails 3.0
- Files & Folders
- Model View Controller
- Routing
- Interactions between Rails components (Rack & Metal)

INSTALL RAILS3.0

Create a gemset in rvm:

```
$ rvm use 1.9.2@rails3 --create
```

Install Rails 3.0:

```
$ gem install rails
$ rails -v
Rails 3.0.6
```

First project  bare project

```
$ mkdir -p ~/rails
$ cd ~/rails
$ rails new bare
```

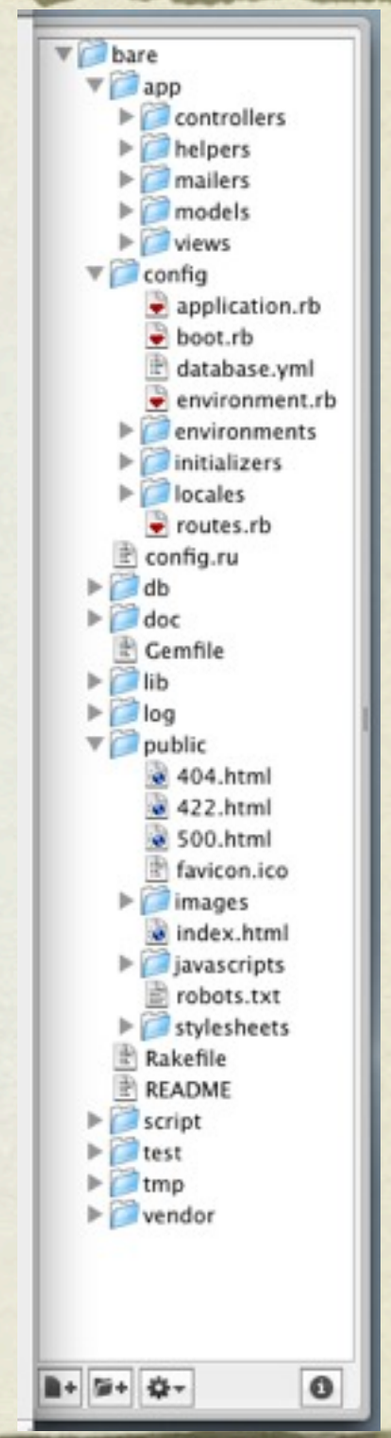
```
$ cd bare
$ bundle install # run whenever we change Gemfile
$ rake db:migrate # run whenever we change migrations
$ rails s # stop and run if we change configs (especially initializers)
```

Go to http://127.0.0.1:3000

Reference: http://edgeguides.rubyonrails.org/3_0_release_notes.html

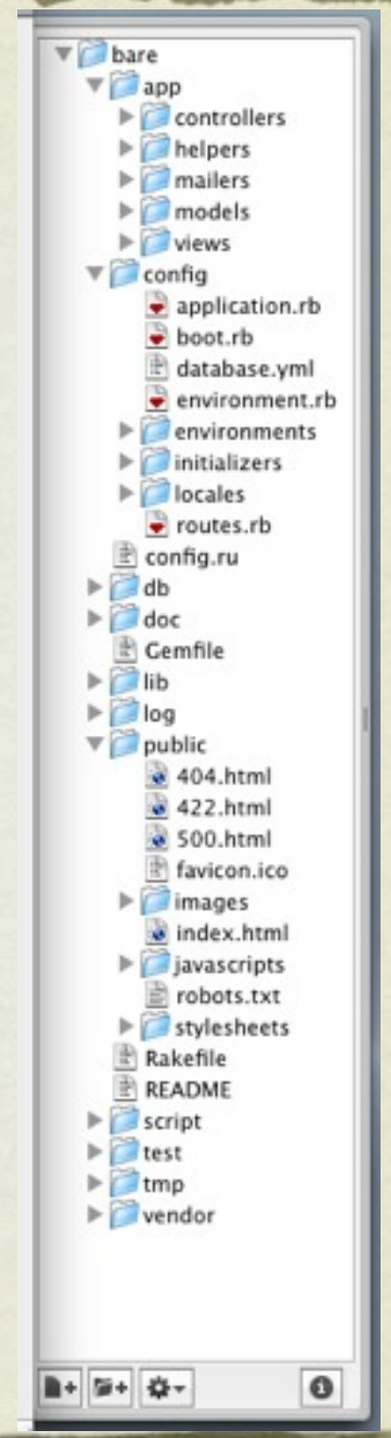
FOLDERS & FILES

- App is where your main body of code goes
  - MVC stuff (in each of the respective folders)
  - helpers methods is code available in views to keep your code clean and dry
  - mailers are a special type of views (e.g. for email)
- config is where your app params and init stuff goes
  - application: general setup stuff
  - database: your DBs
  - environment: development, test, production
  - routes: where your URLs end up



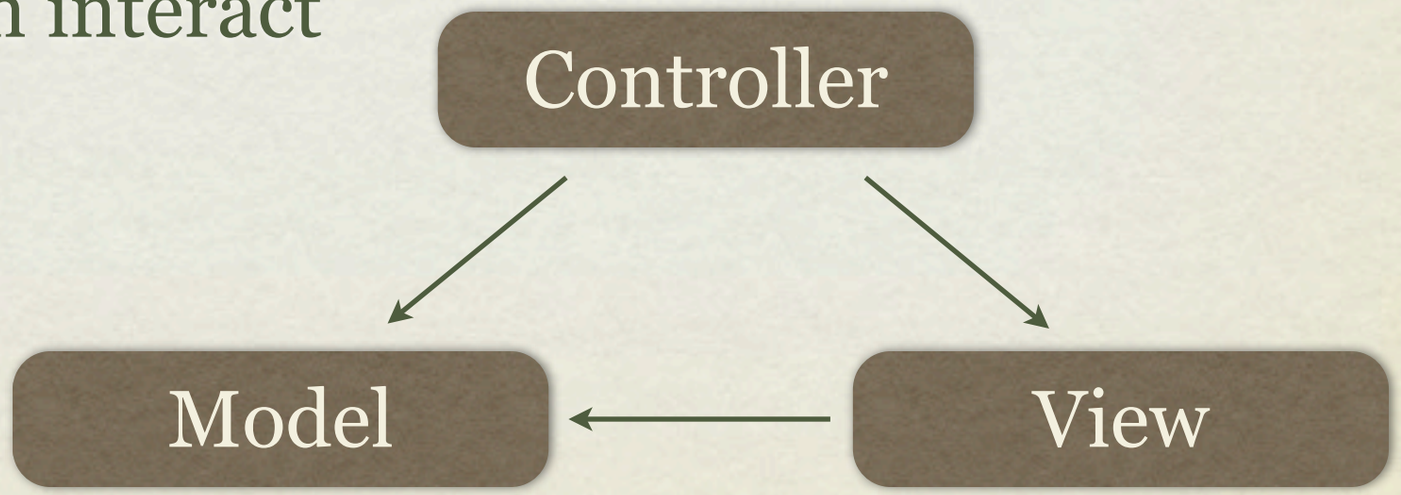
FOLDERS & FILES

- Gemfile: all your dependencies (gems)
- DB
  - where your migrations and, if you choose to use sqlite, db files go
    - also some seeding data might go here
- public
  - your static content goes here
  - your javascript and css as well
- vendor
  - plugins and other code which is not directly of



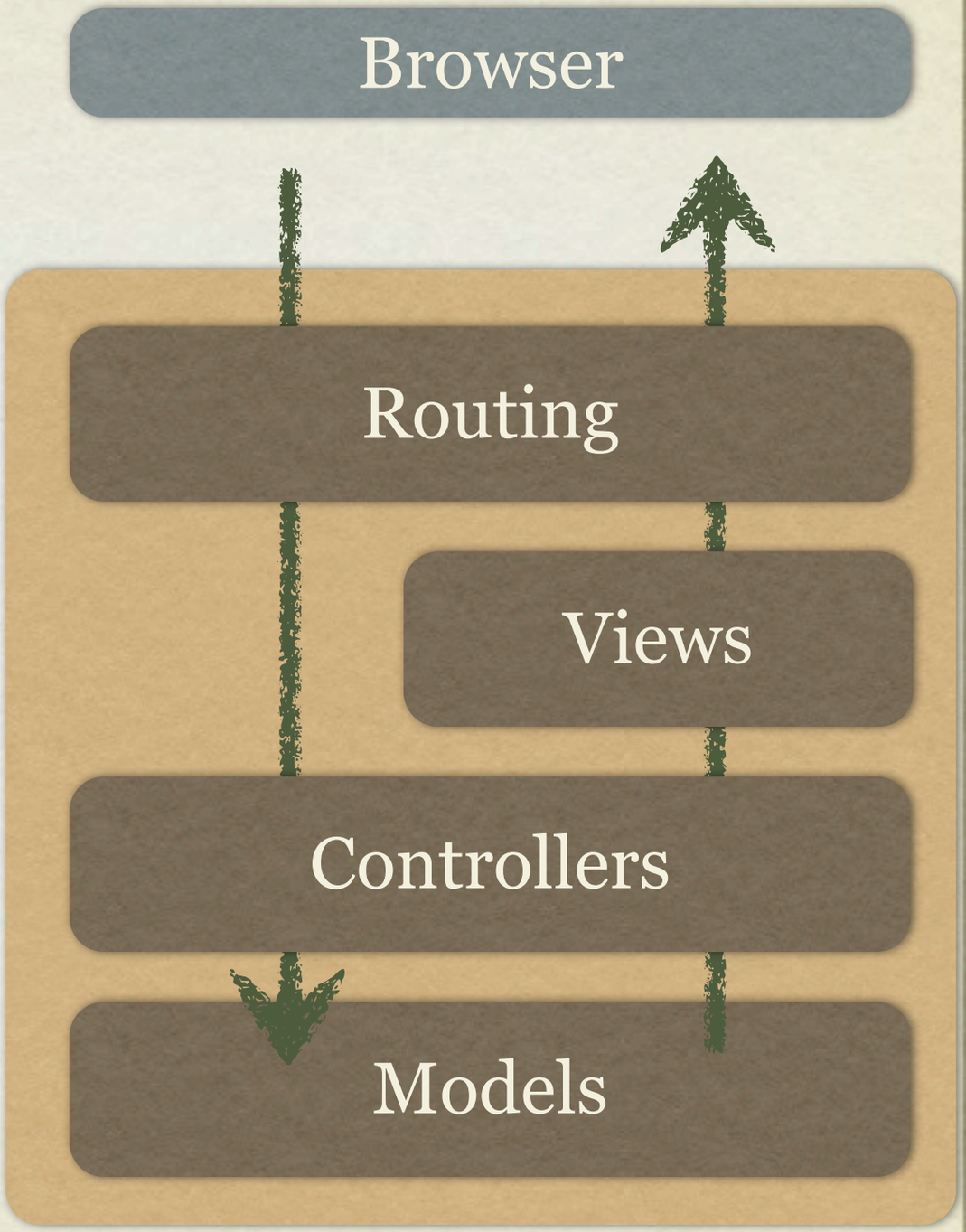
MVC

- Keep the code clean and domain independent
- The idea is that you can truly replace one part with minor modifications to another
- Model: describes your data
- Controller: is the logic behind your app
- View: the frontend side, how does it look for the user and how you can interact



ROUTING IN RAILS

- Routing decides which controller should receive the request
- The controller sets up the models (accesses data) and calls the view
- The view renders the data and gives control back to the routing, which returns the results to the browser



RACK & METAL

- Rack middleware are the pieces that constitute rails
- One calls the next, in a chain. The request is passed by from mw to mw and the response is built on the way back
- Metal is a subset of Rack which allows the coder to wrap around certain functionality (e.g. for performance)

```
$ rake middleware
use ActionDispatch::Static
use Rack::Lock
use ActiveSupport::Cache::Strategy::LocalCache
use Rack::Runtime
use Rails::Rack::Logger
use ActionDispatch::ShowExceptions
use ActionDispatch::RemoteIp
use Rack::Sendfile
use ActionDispatch::Callbacks
use ActiveRecord::ConnectionAdapters::ConnectionManagement
use ActiveRecord::QueryCache
use ActionDispatch::Cookies
use ActionDispatch::Session::CookieStore
use ActionDispatch::Flash
use ActionDispatch::ParamsParser
use Rack::MethodOverride
use ActionDispatch::Head
use ActionDispatch::BestStandardsSupport
run Bare::Application.routes
```

http://guides.rubyonrails.org/rails_on_rack.html

RECAP

```
$ gem install rails
$ rails new projectname
$ rails s
```

app/*

db/*

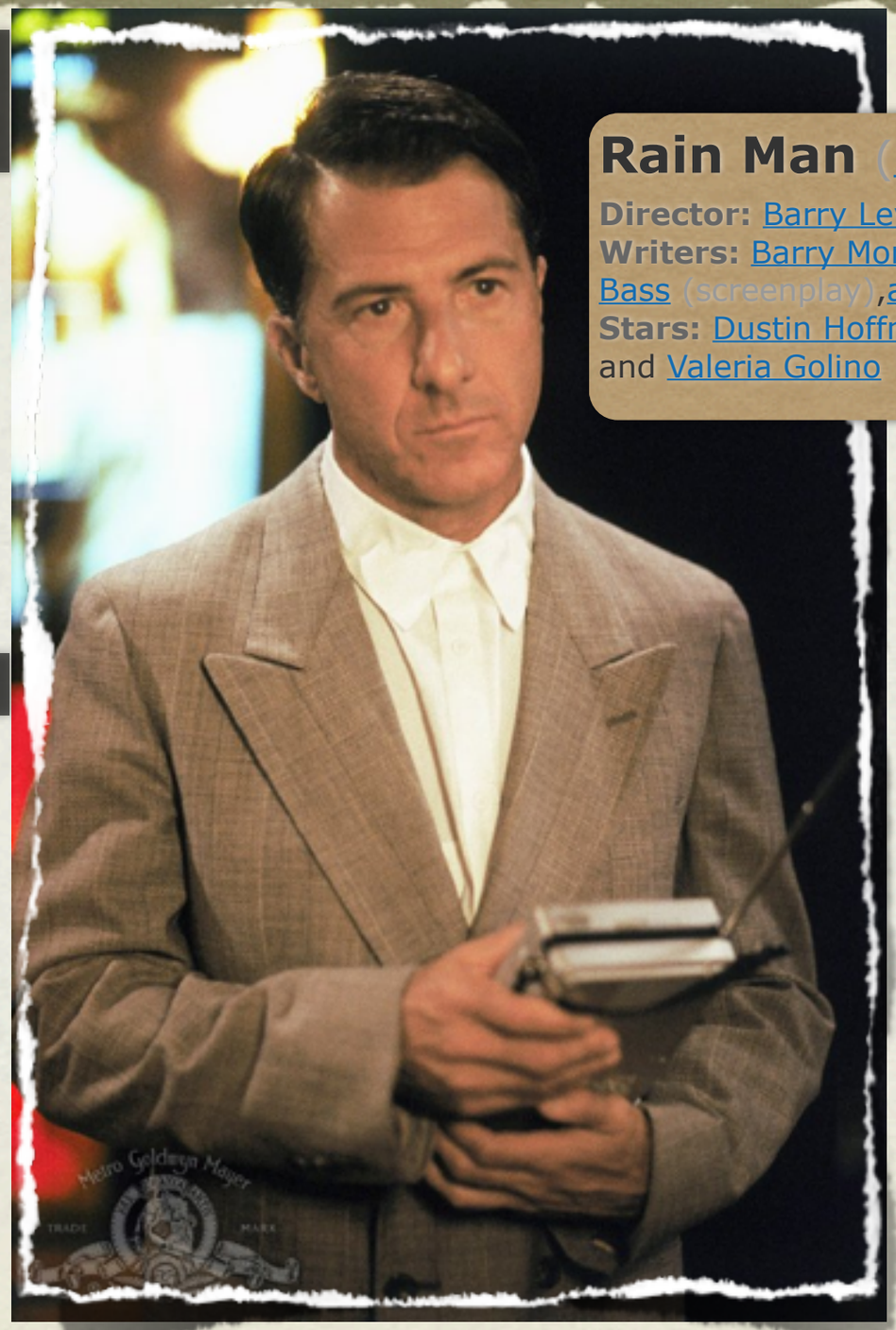
config/*

public/*

M V C

```
$ rake middleware
```

Middleware	Purpose
Rack::Lock	Sets env["rack.multithread"] flag to true and wraps the application within a Mutex.
ActionController::Failsafe	Returns HTTP Status 500 to the client if an exception gets raised while dispatching.
ActiveRecord::QueryCache	Enable the Active Record query cache.
ActionController::Session::CookieStore	Uses the cookie based session store.
ActionController::Session::MemCacheStore	Uses the memcached based session store.
ActiveRecord::SessionStore	Uses the database based session store.
Rack::MethodOverride	Sets HTTP method based on _method parameter or env["HTTP_X_HTTP_METHOD_OVERRIDE"].
Rack::Head	Discards the response body if the client sends a HEAD request.



CLAP, YOU MADE IT


```
3.times do
  3.times do puts "*knock*" end
  puts "Penny!"
end
```


too far?

MODELS

Part 3

GOALS

- Models & Migrations
- Associations
- Add validations
- Add functions
- Callbacks

BEFORE

AFTER

MODEL & MIGRATION

Let's use a generator

publicationdb

```
$ rails g scaffold paper title:string abstract:text submitted:date accepted:date rejected:boolean
$ rake db:migrate
```

Can you guess what 'rake db:drop' does?

Looking at the migration

db/migrate/20110531022112_create_papers.rb

```ruby
class CreatePapers < ActiveRecord::Migration
  def self.up
    create_table :papers do |t|
      t.string :title, :null => false
      t.text :abstract
      t.date :submitted
      t.date :accepted
      t.boolean :rejected, :default => false

      t.timestamps
    end
  end

  def self.down
    drop_table :papers
  end
end
```

MODEL & MIGRATION

Playing around with the model  app/models/paper.rb

```
$ rails c
```

```
> p1 = Paper.new # this will give an error... remember, title cant be null
> p1 = Paper.new :title => “500 Famous tweets”
 => #<Paper id: nil, title: “500 Famous tweets”, abstract: nil, submitted: nil, accepted: nil,
rejected: false, created_at: nil, updated_at: nil>
> p1.save
 => true
> p2 = Paper.create :title => “First days of Linkedin stock”, :abstract => “This paper describes
the chaos and bla bla bla....”
 => #<Paper id: 2, title: "First days of Linkedin stock", abstract: "This paper describes the chaos
and bla bla bla....", submitted: nil, accepted: nil, rejected: false, created_at: nil, updated_at:
nil>
> Paper.all # Paper.first
#...
> Paper.limit(1)
> Paper.find_by_title("First days of Linkedin stock")
#...
> Paper.where(:rejected => false)
#...
> Paper.where(:rejected => true)
 => []
> Paper.where(:rejected => false).limit(1)
#...
```

where
select
group
order
limit
offset
joins
includes
lock
readonly
from
having

ASSOCIATIONS

Looking at the model

app/models/paper.rb

```
class Paper < ActiveRecord::Base
  attr_accessible :title, :abstract, :submitted, :accepted, :rejected
end
```

Let's add authors

app/models/author.rb

app/models/publication.rb

```
$ rails g scaffold author name:string email:string
$ rails g model publication author_id:integer paper_id:integer
$ rake db:migrate
```

Authors can have many publications and publications can have many authors

```
class Paper < ActiveRecord::Base
  attr_accessible :title, :abstract, :submitted, :accepted, :rejected
  has_many :publication
  has_many :authors, :through => :publication
end
```

```
class Author < ActiveRecord::Base
  has_many :publication
  has_many :papers, :through => :publication
end
```

```
class Publication < ActiveRecord::Base
  belongs_to :author
  belongs_to :paper
end
```

ASSOCIATIONS

Again, play some more

```
> a = Author.create(:name => "Stephen King")
 => #<Author id: 2, name: "Stephen King", email: nil, ...>
> a.papers << p1
> a.papers
 => [#<Paper id: 1, title: "Cinderella part III", abstract: nil, submitted: nil, accepted: nil,
rejected: false, ...>]
> p1.authors
 => [#<Author id: 2, name: "Stephen King", email: nil, ...>]

> p1.authors.limit 1 # still just a query (lazy loading)
...

> p1.authors.delete a
> p1.authors
 => []
```

Can we limit so that the same author can’t co-author the same publication with himself?

VALIDATIONS

Adding some validations to prevent multiple “same” authors

```ruby
class Publication < ActiveRecord::Base
  belongs_to :author
  belongs_to :paper

  validates_uniqueness_of :author_id, :scope => :paper_id
end
```

```
> a.papers.delete_all
> a.papers << p
#...
> a.papers << p # validation error
```

```ruby
validates :email, :presence => true,
          :length => {:minimum => 3, :maximum => 254},
          :uniqueness => true,
          :format => {:with => /^([^@\s]+)@((?:[-a-z0-9]+\.)+[a-z]{2,})$/i}
```

Validations run at the moment of saving the model

validates_acceptance_of
validates_associated
validates_confirmation_of
validates_each
validates_exclusion_of
validates_format_of
validates_inclusion_of
validates_length_of
validates_numericality_of
validates_presence_of
validates_size_of
validates_uniqueness_of

FUNCTIONS

Lets add a gender column  db/migrate/20110531033256_add_gender_to_author.rb

```
$ rails g migration add_gender_to_author male:boolean
$ rake db:migrate
```

```
class AddGenderToAuthor < ActiveRecord::Migration
  def self.up
    add_column :authors, :male, :boolean
  end
  def self.down
    remove_column :authors, :male
  end
end
```

Simple enough .. but we want to be able to say “male” or “female”

```
  attr_accessor :gender
  validates :gender, :inclusion => {:in => %w{male female}, :message => "is not male or female"}
  before_save :set_male_or_female

  protected

  def set_male_or_female
    self.male = (@gender == "male")
  end
```

CALLBACKS

Callbacks

- (-) `save`
- (-) `valid`
- (1) `before_validation`
- (-) `validate`
- (2) `after_validation`
- (3) `before_save`
- (4) `before_create`
- (-) `create`
- (5) `after_create`
- (6) `after_save`
- (7) `after_commit`

RECAP

```
$ rails g scaffold paper title:string
$ rake db:migrate
```

```
class CreatePapers < ActiveRecord::Migration
```

```
class Paper < ActiveRecord::Base
```

```
> Paper.create :attr => “value”
```

```
> p = Paper.first
```

```
> p = Paper.find(1)
```

```
> a = Author.create(:name => "Stephen King")
> a.papers << p
> a.papers.create(...)
```

```
  validates_uniqueness_of :author_id, :scope => :paper_id
```

```
  validates :email, :presence => true
```

```
  validates :gender, :inclusion => {:in => %w{male
female}, :message => "is not male or female"}
  before_save :set_male_or_female
```

Mars Attacks! (1996) IMDb

Director: Tim Burton
Writers: Len Brown (trading card series), Woody Gelman (trading card series), and 5 more credits »
Stars: Jack Nicholson, Pierce Brosnan and Sarah Jessica Parker

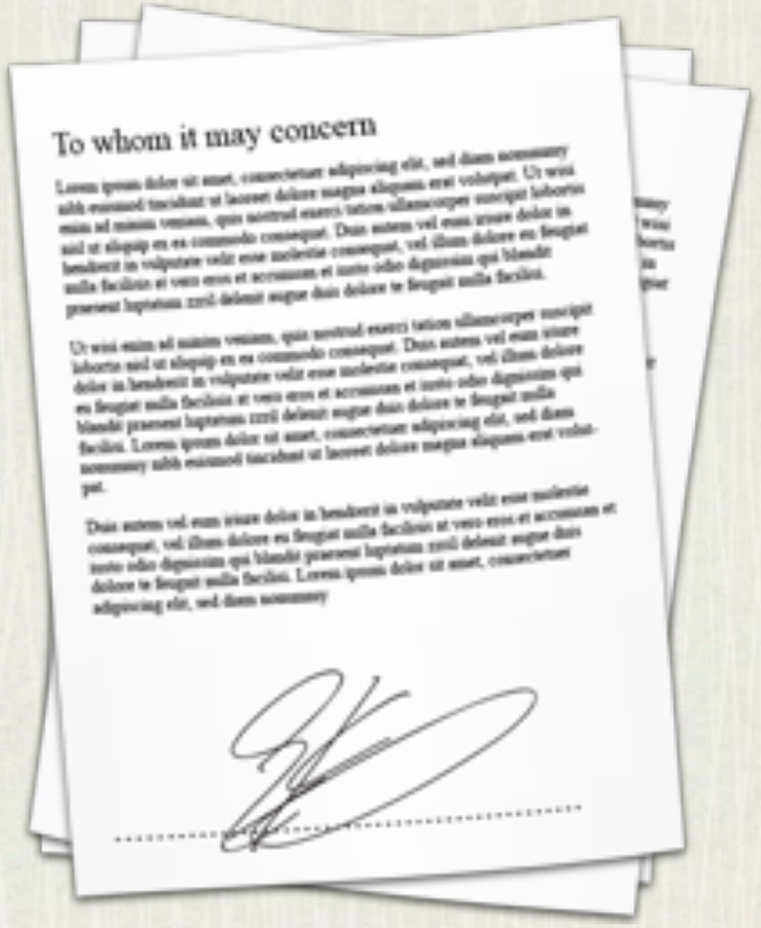
CLAP, YOU MADE IT

You know who you are!

By now I estimate we are at least 30 mins late…

… you! asking all the questions, it’s your fault …

…we could all be home right now.



REFERENCES

and homework

SUPERDUPER!

- Ruby in Twenty Minutes (ruby-lang.org):
  - http://www.ruby-lang.org/en/documentation/quickstart/
- Rails for Zombies (envylabs):
  - http://railsforzombies.org/
- Railscasts (Ryan Bates):
  - http://www.railscasts.com
- The Ruby Toolbox:
  - http://www.ruby-toolbox.com/
- Heroku:
  - http://www.heroku.com/

PayPal DONATE

I'm kidding...

http://enishi.heroku.com

Q&A

und el feedbaco

This picture, shamelessly taken from the template...

NEXT TIME

Controllers, Controllers, Controllers