RAILS 3.1

From Idea to Deployment

Ruby on Rails

This is prepared for Beginners Interested
in learning Ruby on Rails Development

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The Idea

"Simplicity boils down to two steps: Identify the essential. Eliminate the rest." – Leo Babauta

- The project: A basic blog application that allows us to add, edit and delete posts.
- You can actually host your blog for free on heroku and just buy a domain.

“Baby steps are not just for babies.”

- Install Rails 3.1 on Windows/ Mac/ Linux
- Setup recipe for Rails Girls

Install Postgresql

brew install postgresql

- Follow instructions (brew info postgresql)

initdb /usr/local/var/postgres

- PostgreSQL is the world's most advanced open source database

Install Navicat Lite

- Download depends on your operating system. There's a link for OS X, Windows and Linux.

Text Editor

- I prefer Textmate but you can use what you like. Textmate has bundles for Ruby on Rails, HAML and others.
- For Linux, GEdit is quite good and it's even free. For some time I have been using Gmate.

- HAML Textmate Bundle
- Ruby on Rails Textmate Bundle

Having installation woes?

- **Search on google.com or ask:**
- Stackoverflow
- #rubyonrails on irc.freenode.net
- me (@bridgeutopia)

Design-driven Development

- Consider how you want things to work, how you want things to look like and how you want to communicate.
- For those who attended Rails Girls (Singapore), there are a lot of resources on the workbook.

Use a Css Framework

- I suggest starting with the design but since this is just a tutorial for you to learn Rails. Let's skip and use Twitter bootstrap.

- You might want to download Less Framework Grid (PSD)

Use Git

- Recommended reading:
- Git for the Lazy
- Git Immersion
- Stop littering your .gitignore's
- Create a github.com account (free)
- Create a heroku account (free)

You can download GitX for OS X.

Use Git

- Git is a version control system.
- The process is:

git init
Update your .gitignore file as needed

git remote add origin user@server:~/gitpath

git status
will display changes made

git commit -a -m "Message"
This will add files modified/created.

git push origin master

Essential Concepts

- Ruby - May take a few hours to read and understand
- REST - The wiki definition is complex. Please read about RESTful Rails.
- CRUD - The actions we perform — create, read, update, delete.
- MVC - Model View Controller

Must Read: RESTful Rails

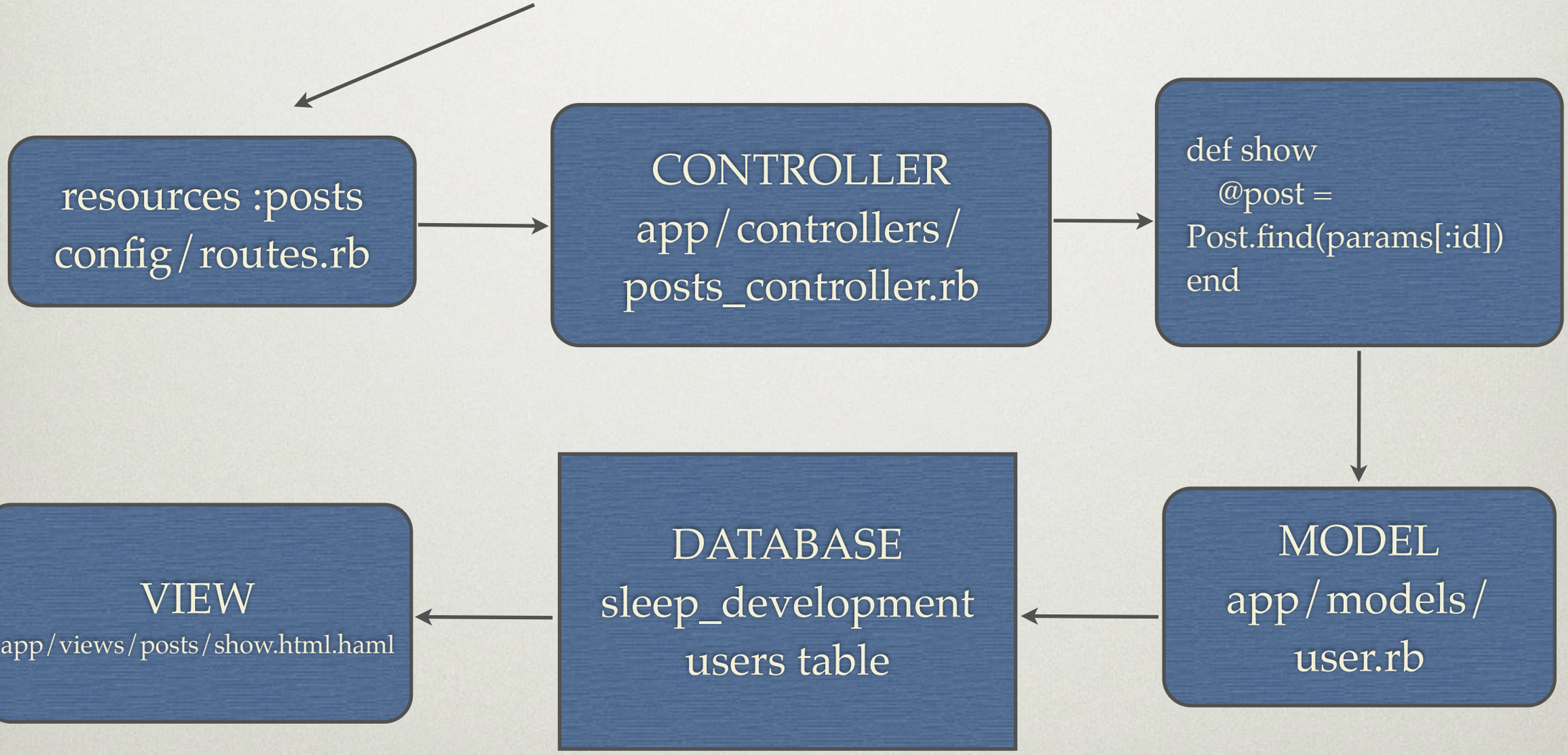
Etc.

- KISS
- DRY
- SLEEP

Big Picture

GET is a request. In Rails, a SHOW action is always a GET request.

user requests for http://localhost:3000/posts/1



Big Picture

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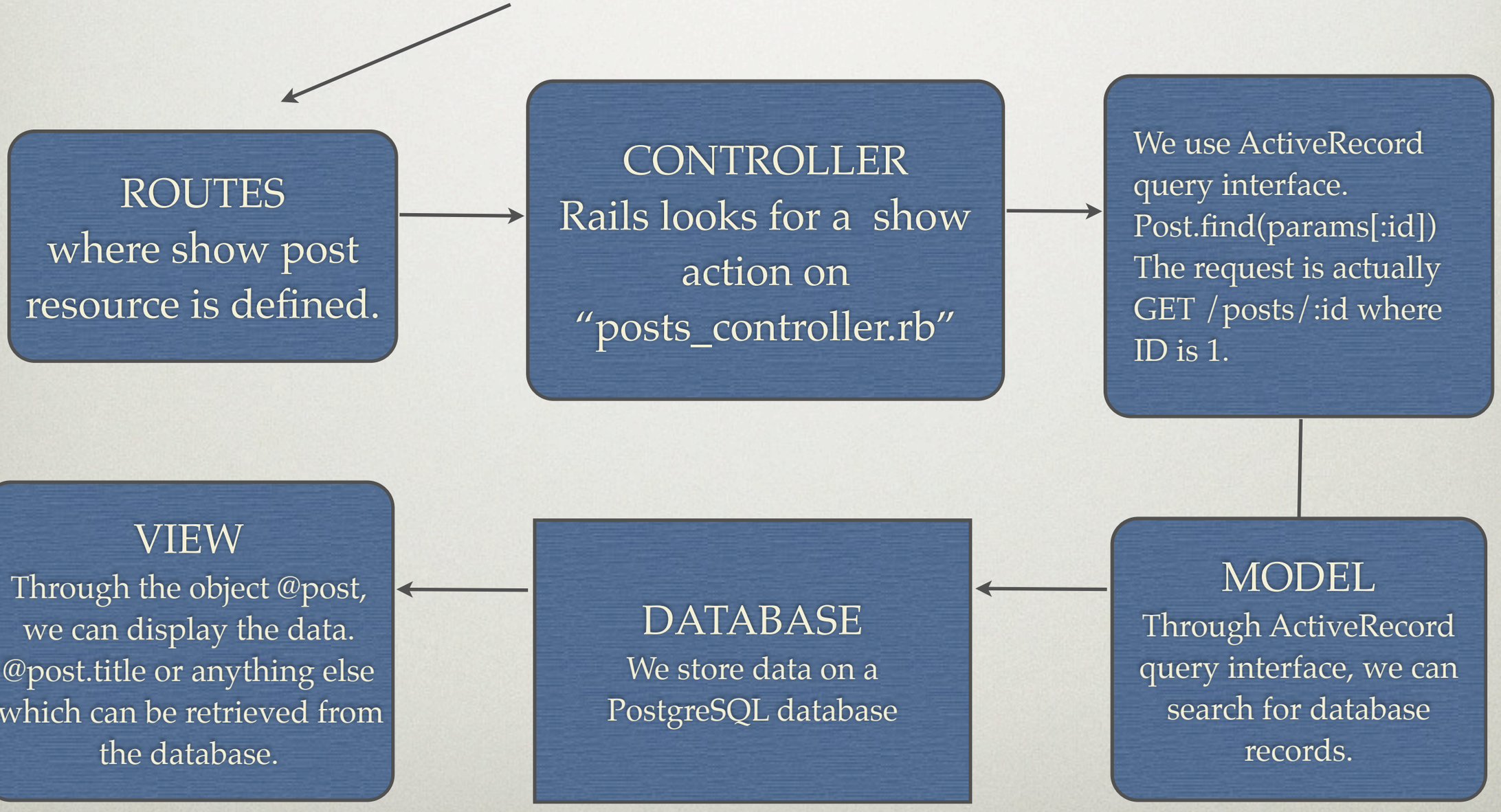

More On REST

- There's a free Peepcode cheat sheet which may be a little outdated as it was written for Rails 2.x but it should help you understand REST for Rails.

Use A Rails Template

- Templates make setting up a Rails application easier.
- This will install dependencies required for creating a Rails application:
- Rails Edge Template

Check out other Rails 3.1 App Templates or build your own.

Use A Rails Template

- rails new *appname* -m https://raw.github.com/bridgeutopia/rails-edge-template/master/template.rb

Answer yes for all except for the MySQL part. We will use PostgreSQL here and Twitter Bootstrap.

Update config file

- If you installed PostgreSQL on a Mac/Linux OS as suggested, your username should be the same as your Mac username. You config/database.yml should look like:

```
development:
  adapter: postgresql
  encoding: unicode
  database: sleep_development
  pool: 5
  username: katz
  password:
```

database name will depend on the name of your app by default or it could be renamed to anything less confusing for you.

Naming conventions

- In Rails, the naming convention is that a database table is in its **plural form** and a model should be in its **singular form**.
- Thus we have: user.rb and the class name User. Rails will expect that we have a table "**users**." Controllers are also in plural form. E.g, **users**_controller.rb.

Rails Models

- Start with the models and the business logic.
- Essentially, we have an admin “user” who wants to login to create a post. And be able to update and delete it as well.

Important: Learn Active Record Query Interface
“FAT Models, Thin Controllers” is a best practice but I would go against FAT anything in your application. If you organize classes well enough, it won’t be so FAT. More on that later.

Active Record

- Read about the Active Record query interface
- Simple examples:
- **Post.find(params[:id])**
- **Post.order('published_at DESC')** will sort based on publish date. The most recent ones will appear first.
- **Post.where(:published=>true).order('published_at DESC')** will only display published posts and order based on publish date.

Haml, Sass & Scss

- Instead of using ERB template system, I recommend HAML simply because it is more readable. For those who know HTML and CSS, you will find HAML quite easy to understand.

In ERB:
** **
<%= yield %>
** **

In HAML:
.container
= yield

HAML
SASS
Textmate Bundle for HAML

Ruby Gems & Bundler

- What are ruby gems?
- They are ruby applications or libraries packaged (usually for open source distribution) via rubygems.org
- What is bundler?
- Bundler is a gem which we use to manage a Ruby application's dependencies. The "Gemfile" contains all dependencies and we can just run "bundle" to install that.

We will use a lot of gems in this application.
An important gem which will be used for authentication is devise.

User Authentication

- Recommended reading: Devise for Rails Authentication
- The first file we will modify is the migration file which creates the fields required for authentication.
- By default, *trackable*, *confirmable* and *lockable* features of devise are not enabled. I do not need confirmable and lockable but I need trackable which allows me to see how many times a user signed in and also log the I.P address of the user.

Check The Ruby Toolbox for other options. Devise is just one of the gems we use for Authentication.

Devise

- The rails template already installed devise if you answered “yes”. You can read the documentation and try to see whether there are any issues on github but I think it’s very stable.

What devise changes can we do for this app?

Create HAML views
Allow user to sign in using username or email

Meet Rake

- rake -T will show you your options. There's quite a lot but for now you only have to bother about two things: rake db:create:all and rake db:migrate
- rake db:create:all will create all databases for 3 different environments based on your config/database.yml file
- rake db:migrate will create the table "user" based on the migration file we just updated.

MIGRATIONS

```
rake db:migrate
```

That will create the users table.

```
rails g migration add_username_to_users
username:string
```

That creates a file which requires some update.

Rails 3.1 Update: Reversible migrations

Migrations

- Adding username (string) cannot be reversed so we cannot use the change method. Read this.

- The change method is something new. Previously we are required to add down method with drop_table :table_name for each migration that required it.

MIGRATIONS

```
def change
  add_column :users, :username, :string
  add_index :users, :username, :unique => true
end
```

Change method works for create_table. In this case, we need the “up” and “down” methods.

The add_index is for optimization.

```
def up
  add_column :users, :username, :string
  add_index :users, :username, :unique => true
end

def down
  remove_column :users, :username
end
```

Migrations

- What happened? Open **Navicat Lite** and create a new PostgreSQL connection. If your username on your Mac/Linux is “katz,” change postgres to “katz”
- View my PostgreSQL connection settings
- After “rake db:migrate,” we should see a users table created.
- **Navicat** should later help you see records created as well.

Adding Validations

- Validations are added on models files.
- On app/models/user.rb, we can add:

```
validates :username, :presence=>true, :uniqueness=>true
```

- We want to make sure username is present and unique every time we create or update a user. But even the validation will not work unless we specify that the field username is accessible via Ruby's **attr_accessible**

```
attr_accessible :email, :password, :password_confirmation, :remember_me, :username
```

- **attr_accessible** doesn't always have to exist for all of your models. It is added for security. To know more about it, read this.

Devise Views

- Most of us do not consume time trying to make authentication work. We may, however, spend some time altering devise defaults. For now we have two goals: allow user to log in using “username” and make sure the views are in HAML and not ERB. Those are sufficient for a basic Rails app that requires authentication. Sometimes logging in using “username” is not even required. I just feel it is better.

```
rails g devise:views
```

That generates view files on app/views/devise but let’s use HAML for consistency.

```
for i in `find app/views/devise -name '*.erb'` ; do html2haml -e $i ${i%erb}haml ; rm $i ;
```

That generates converts everything devise folder to HAML and removes ERB files.

Updating Routes

- Right now you can "rake routes" to see the links available for you. Notice it shows '/users/sign_in' and for me '/login' is a more friendly link so let's update **config/routes.rb** to make that work.

Below this line:

```
devise_for :users
```

Add:

```
devise_scope :user do
  get "/login" => "devise/sessions# new"
  get "/logout" => "devise/sessions# destroy"
  get "/register" => 'devise/registrations# new'
  get "/account" => 'devise/registrations# edit'
end
```

To create a new user, access http://localhost:3000/register

Username

- Add the username field for devise views. On app/views/devise/registrations/new.html.haml and edit.html.haml, add:

```
%div
  = f.label :username
  %br/
  = f.text_field :username
```

- Follow all of the steps on this page except for the migration part because we already have a username field on the database:

How To: Allow users to sign_in using their username or email address

Admin/posts

```
rails g scaffold post user_id:integer title:string body:text slug:string published:boolean
```

- That creates a lot and pretty much everything needed to create a post. But we'll try to create a namespace so we can create posts via /admin/posts/new rather than /posts/new.

```
mkdir -p app/views/admin/posts && cp -R app/views/posts/* app/views/admin/posts
```

- That will copy view files to views/admin. But we need to update the form view (admin/views/posts/_form.html.haml). Change this line:

```
= semantic_form_for @post  do |f|
```

- to this:

```
= semantic_form_for [:admin, @post]  do |f|
```

Admin/posts

- Update the migration file. It should look like this:

```
def change
  create_table :posts do |t|
    t.integer :user_id
    t.string :title
    t.text :body
    t.string :slug
    t.boolean :published
    t.datetime :published_at

    t.timestamps
  end
  add_index :posts, :user_id
  add_index :posts, :slug, :unique=>true
end
```

- The slug field is for Friendly ID because we want friendly URL's.

Admin/posts

- Update the model files. A user has many posts and a post belongs to a user. Let's update the two models and add validation.

app/models/post.rb should look like:

```
class Post < ActiveRecord::Base
  belongs_to :user
  validates :user_id, :presence=>true
  validates :title, :presence=>true
  validates :body, :presence=>true
end
```

and add this to app/models/user.rb:

```
has_many :posts
```

Admin/posts

- We need friendly URL's so let's add the gem 'friendly_id.' We've already added the slug field which is required by the gem.

app/models/post.rb should look like:

```
class Post < ActiveRecord::Base
  belongs_to :user
  validates :user_id, :presence=>true
  validates :title, :presence=>true
  validates :body, :presence=>true

   extend FriendlyId
   friendly_id :title, :use=> :slugged
end
```

Admin/posts

- We need to copy the controller file to admin/controllers/admin.

```
mkdir -p app/controllers/admin/posts && cp -R app/controllers/posts_controller.rb app/
controllers/admin/
```

- Update admin/posts_controller.rb

```
class PostsController < ApplicationController
```

- should be:

```
class Admin::PostsController < ApplicationController
```

- For app/views/posts_controller.rb, you can delete all methods except for index and show. The same is true for the views. Remove app/views/posts/new.html.haml, edit.html.haml and _form.html.haml

Admin/posts

- Update config/routes.rb and add:

```
namespace :admin do
  resources :posts
end
```

- That makes admin/posts/new, admin/posts/, admin/posts/:id, admin/post/edit accessible. But why can anyone access it? Because we haven't added the filter to make sure a user is logged in to access the admin pages. Let's update app/controllers/posts_controller.rb and add this to top of all the methods:

```
before_filter :authenticate_user!
```

Admin/posts

- We need to know who created the post at least so let's update the create action.

```
@post = Post.new(params[:post])
should now be
@post = Post.new(params[:post].merge(:user => current_user))
```

- Finally to get the links working on admin/posts. Simply replace new_post_path to new_admin_post_path and edit_post_path(post) to edit_admin_post_path(post) on the views. And update admin/controllers/posts_controller.rb redirect paths:

```
redirect_to @post
should now be
redirect_to admin_post_path(@post)
```

Index/root

- Make things prettier. Do what you want to with the interface. We can display blog posts on index/root.

```
rm public/index.html
```

- Update config/routes.rb and add below all the other entries:

```
root :to => "posts#index"
```

Dealing with Time

- Why do we have the published_at field? It makes sense especially if we want to publish a post on a future date. But published_at is optional and sometimes we just want it to be the same as created_at. We now need to create an instance method that will allow us to display published at if it is available or display created_at if not. Add this on post.rb

```
def posted_on
  published_at.present? ? published_at : created_at
end
```

- That is shorthand for:

```
if published_at.present?
   published_at
else
 created_at
end
```

Dealing with Time

- We might want to format time and remove the hours and minutes. I like that and prefer that. So I added config/initializers/time_formats.rb

```
Time::DATE_FORMATS[:no_time] = "%B %d, %Y"
```

- On the views file (posts/index.html.haml), we can use that format.

```
.post-details= "Posted on #{post.posted_on.to_s(:no_time)}"
```

Comments

- During Rails Girls, I noticed that many had interest in learning how to add a feedback form and most of you got it working but I have to be honest that I'd rather not code for comments. I use **Disqus**. For those interested in having that feature for any app and don't want to use Disqus, try acts_as_commentable gem. Don't scaffold a comments feature (rails g scaffold comment user_id:integer body:text), all you have to do is follow the instructions on the documentation and make changes to comments_controller.rb. Polymorphism is another concept you should learn.

```
@comment = Comment.new(params[:comment])
```

```
@commentable = params[:comment]
[:commentable_type].constantize.find(params[:commentable_id])
params[:comment][:commentable_id] = @commentable.id
```

Deploying on Heroku

- Make sure you have a public key (id_rsa.pub) on .ssh folder.

```
ls ~/.ssh
```

- If you don't have that, try:

```
ssh-keygen -t rsa -C "your_email@youremail.com"
```

- Register on heroku and install heroku gem (gem install heroku).
- And do:

```
heroku create --stack cedar
```

- Log in to heroku and rename the app created.

Deploying on Heroku

```
git remote add heroku git@heroku.com:sleepy.git
git status
git add -A
git commit  -m “Message”
git push heroku
```

Deploying with Git on Heroku

Deploying on Heroku

```
RAILS_ENV=production rake assets:precompile
git commit -a  -m 'all that'
git push heroku master
heroku run rake --trace db:migrate
```

Update your config/database.yml only if the last command returns an error.

```
heroku run console
ENV['DATABASE_URL']
postgres://username:password@hostname/database
heroku run rake --trace db:migrate
```

PostgreSQL on Heroku

Sleepy App

- Access http://sleepy.herokuapp.com

https://github.com/bridgeutopia/sleep

git clone git://github.com/bridgeutopia/sleep.git

Credits : Rico Sta. Cruz for his gist on global .gitignore and filler text generator.

Recommended Reading: Free Rails 3.0 tutorial by Bryan Bibat

OH-VER

- Overwhelming? There's still a lot to learn. I admit I have a lot to learn despite being an old, senior developer.
- If you are a serious type who wants to learn how to get things done right, learn about **Test Driven Development**. Based on experience, when apps become too complex and there are no tests written, even with a QA tester, it's difficult to see what's wrong. The last thing you want to hear is a user complaining.

RSpec

THANK YOU

I've had much fun during my short stay as a traveler in Singapore. Thanks for the invitation and everything imparted.

#geekcamp Singapore

Rails Girls

Jason Ong of JasoMedia