INFO 2310

Topics in Web Programming
Ruby on Rails

Week 8

Following
&& Unfollowing

Go ahead and login to Amazon and start your EC2 instances

Login to PuTTY

- open PuTTY
- On the left panel, navigate to Connection->SSH->Auth
  - Next to "Private key file for authentication:", click "Browse", and select the *.ppk file you created on the previous step.
- Then, navigate to Connection->Data
  - For "Auto-login username", type "ec2-user"
- Navigate to "Session" (the very top)
  - Copy the "Public Domain Name" of your EC2 instance; you can see this on the instances page of the Amazon console, when an instance is selected
  - Paste it into the "Host Name (or IP address)" field
- Click "Open"

Login to WinSCP

- Open WinSCP
  - Paste in your domain to "Host name", as you did in PuTTY
  - Type "ec2-user" for the "User name"
  - Click "..." to select your private key file
  - Click "Login"
- Set NotePad++ as the default editor.
  - Click Options->Preferences
  - Select "Editors" from the left tab
  - Click Add
  - Select "External Editor"
  - Find NotePad++ (C:\Program Files (x86)\Notepad++)
  - Click "Open", then "Okay"
  - Drag it to the top of the editor list

Today's branch

Since we are working on a new feature today, let's start on a feature branch

```
git status                          # should display nothing to commit
git checkout -b following-users     # checkout a new branch
git branch                          # view branches
```

Lecture 8 specs

There are 3 specs to download for today;

https://raw.github.com/goggin13/curails-mg343/master/spec/requests/relationship_spec.rb
=> **spec/requests/relationship_spec.rb**

https://raw.github.com/goggin13/curails-mg343/master/spec/models/user_spec.rb
=> **spec/models/user_spec.rb**

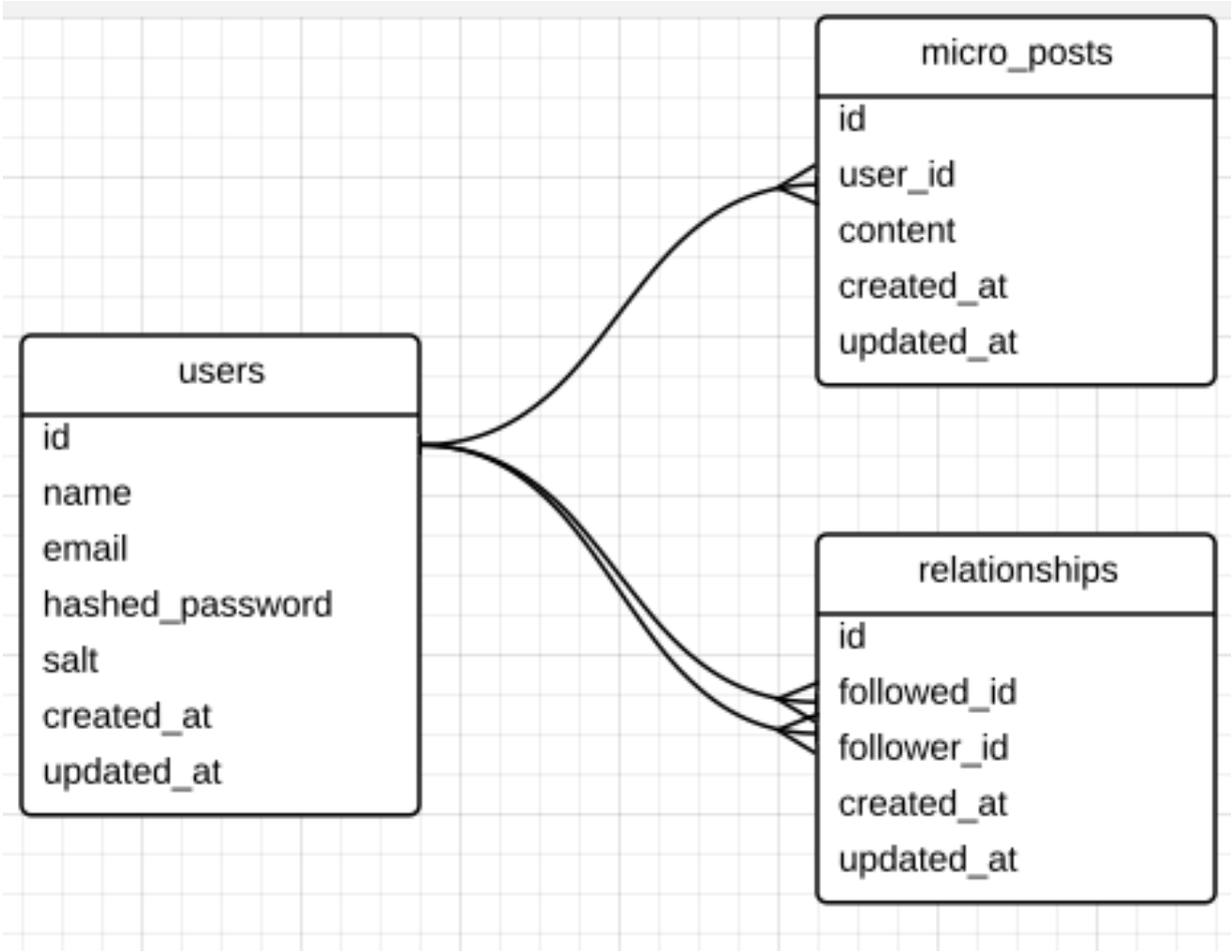
https://raw.github.com/goggin13/curails-mg343/master/spec/models/relationship_spec.rb
=> **spec/models/relationship_spec.rb**

Following Users

Time to add some social to our app; users should be able to follow/unfollow one another.

The home page will display the feed of all the users that you are following.

ER Diagram


micro_posts
id
user_id
content
created_at
updated_at
users
id
name
email
hashed_password
salt
created_at
updated_at
relationships
id
followed_id
follower_id
created_at
updated_at

Generate Migration

rails generate model Relationship follower_id:integer followed_id:integer

```
class CreateRelationships < ActiveRecord::Migration
  def change
    create_table :relationships do |t|
      t.integer :follower_id
      t.integer :followed_id

      t.timestamps
    end

    add_index :relationships, :follower_id
    add_index :relationships, :followed_id
    add_index :relationships, [:followed_id, follower_id], unique: true
  end
end
```

Run the migrations

bundle exec rake db:migrate
bundle exec rake db:test:prepare

Our Relationship model

```
class Relationship < ActiveRecord::Base
  attr_accessible :followed_id, :follower_id

  belongs_to :follower, class_name: "User"
  belongs_to :followed, class_name: "User"

  validates :follower_id, presence: true
  validates :followed_id, presence: true
  validates_uniqueness_of :follower_id, scope: :followed_id
end
```

bundle exec rspec spec/models/relationship_spec.rb

should be passing

Notice we are having to start to do some "configuration" in the "convention over configuration". More in the next slide...

Add relationships to our User model

```
class User < ActiveRecord::Base
  has_many :micro_posts

  has_many :relationships, foreign_key: "follower_id", dependent: :destroy
  has_many :followed_users, through: :relationships, source: :followed

end
```

bundle exec rspec spec/models/user_spec.rb -e "relationships"
should be passing

ER Diagram with labels from Rails relationships

ActiveRecord relation functions

We'll use the examples of a User and MicroPosts
a User has_many MicroPosts

```
user = User.find(1)

# Return a micro post by this user with the content "Hello, World"
user.micro_posts.find_by_content("Hello, World")

# Create a new micro post for this user with the content "Hello, World"
user.micro_posts.create!(content: "Hello, World")

# Locate and then destroy a micro post by this user with the content "Hello, World"
user.micro_posts.find_by_content("Hello, World").destroy
```

Using the API from the above slide, create these functions on the user object:

```
class User < ActiveRecord::Base
    # Returns the Relationship object this user has with other_user
    # or nil if no relationship exists
    def following?(other_user)
    end

    # create a Relationship object where this user is following other_user
    def follow!(other_user)
    end

    # destroy the Relationship object where this user is following other_user
    def unfollow!(other_user)
    end
end
```

bundle exec rspec spec/models/user_spec.rb -e "following functions"

should be passing

HINT: They are all one line functions!!

A follow form

app/views/relationships/_form.html.erb

```
<% unless current_user == @user %>
    <div id="follow_form">
        <% if current_user.following?(@user) %>
            <%= render 'unfollow' %>
        <% else %>
            <%= render 'follow' %>
        <% end %>
    </div>
<% end %>
```

A follow button

app/views/relationships/_follow.html.erb

```
<%= form_for(current_user.relationships.build(followed_id: @user.id)) do |f| %>
      <div>
            <%= f.hidden_field :followed_id %>
      </div>
      <%= f.submit "Follow", class: "btn btn-large btn-primary" %>
<% end %>
```

An unfollow button

app/views/relationships/_unfollow.html.erb

```
<%= form_for(current_user.relationships.find_by_followed_id(@user),
            html: { method: :delete }) do |f| %>
  <%= f.hidden_field :followed_id %>
  <%= f.submit "Unfollow", class: "btn btn-large" %>
<% end %>
```

Routes for our forms

```
INFO2310::Application.routes.draw do
  .
  .
  resources :sessions,      only: [:new, :create, :destroy]
  resources :relationships, only: [:create, :destroy]
  .
  .
end
```

```
class RelationshipsController < ApplicationController

    # params[:relationship][:followed_id] contains the id of the user to follow;
    # use our functions from the last exercise to have the current_user follow them
    def create
        respond_to do |format|
            format.html { redirect_to @user }
            format.js
        end
    end

    # params[:relationship][:followed_id] contains the id of the user to follow;
    # use our functions from the last exercise to have the current_user UNfollow them
    def destroy
        respond_to do |format|
            format.html { redirect_to @user }
            format.js
        end
    end
end
```

Finally, add the form to a profile page

Render the follow form on a profile page, if there is an authenticated use

app/views/users/show.html.erb

```
<% if signed_in? %>
  <%= render 'relationships/form' %>
<% end %>
```

Before we AJAXify

Let's test we got it right without AJAX

bundle exec rspec spec/requests/relationships_spec.rb

And we can try it out in our browser as well

Script partial for create

app/views/relationships/create.js.erb

```
$("#follow_form").html("<%= j(render('relationships/unfollow')) %>")
```

Script partial for destroy

app/views/relationships/destroy.js.erb

```
$("#follow_form").html("<%= j(render('relationships/follow')) %>")
```

And set the 'remote' flag on our forms

app/views/relationships/_follow.html.erb

```
<%= form_for(current_user.relationships.build(followed_id: @user.id)) do |f| %>
=>
<%= form_for(current_user.relationships.build(followed_id: @user.id), remote: true) do |f| %>
```

app/views/relationships/_unfollow.html.erb

```
<%= form_for(current_user.relationships.find_by_followed_id(@user),
                html: { method: :delete }) do |f| %>
=>
<%= form_for(current_user.relationships.find_by_followed_id(@user),
                remote: true,
                html: { method: :delete }) do |f| %>
```

Try it out

Now we should be able to follow/unfollow via AJAX

Where statements

```
# A collection of all the users who have the username 'goggin13'
User.where('username = ?', 'goggin13')

# A collection of users who do not have a nil email and whose ids are in the
# array [1,2,3,4], ordered by email descending.
ids = [1,2,3,4]
User.where('email != ? and id in (?)', nil, ids)
      .order('email DESC')

# You can always add the 'paginate' call to the end of these functions
User.where('username = ?', 'goggin13').paginate(paginate_options
```

And update our existing feed function

```
class User < ActiveRecord::Base

    # Update our feed function so that it returns all of the MicroPosts
    # that were created by this user OR users this user is following,
    # ordered by created_at descending.
    def feed(paginate_options)
        micro_posts.paginate(paginate_options)
    end
end

# This may be useful...
followed_user_ids = followed_users.map { |u| u.id }
```

bundle exec rspec spec/models/user_spec.rb -e "feed"
will pass when you're done

Our feed is done!

Let's try it out.

We should be able to follow and unfollow other users and see their MicroPosts displayed on our home page.

Live updates

It would be cool if we could automatically refresh a user's feed whenever a user they are following creates a new post.

We can achieve this by "polling" our server for updates.

Here's our strategy:

- Every X seconds, via JavaScript, we look at the home page and retrieve the ID of every MicroPost that is currently being displayed
- We make an AJAX call with those IDs to a new controller function
- The controller function will query for the user's feed, and if it finds any MicroPosts whose ID is NOT in the list we just sent, it will execute the JavaScript necessary to render them out onto the page.

A new route

First, let's add a route for our new controller function; note in this case ORDER MATTERS. The new route must go above 'resources :micro_posts'

config/routes.rb

get '/micro_posts/refresh'

resources :micro_posts

Why does the order matter?

resources :micro_posts generates a URL pattern that looks like this:

/micro_posts/:id

The path to a single MicroPost.

This pattern matches **/micro_posts/refresh** as well. So if the **/micro_posts/:id** pattern was listed first in the routes file then **/micro_posts/refresh** would be unreachable.

The controller function

app/controllers/micro_posts_controller.rb

```
# GET /micro_posts/refresh?ids=[1,2,3,4,5]
def refresh
    feed = current_user.feed(page: 1)
    @new_micro_posts = feed.reject { |p| params[:ids].include?(p.id.to_s) }
    respond_to do |format|
        format.js
    end
end
```

The JavaScript

Is a little more involved;

Let's grab the code from the lecture_8.txt file and walk through it.

Try it out!

In order to see it in action, we can use the Rails console to create some new posts from someone we are following. We'll also take this opportunity to demonstrate how powerful (convenient) chaining together ActiveRecord commands can be.

```
User.find_by_email('goggin13@gmail.com')  # retrieve my user's by their email
    .relationships                        # collection of my relationships
    .first                                # get the first relationship
    .followed                             # get the user being followed
    .micro_posts                          # get their collection of micro_posts
    .create! content: "Do you love chaining too?"       # and create a new one
```

Commit time

```
git status                          # see what we modified
git add -A                          # add all the changes
git commit -m "authentication"



git checkout master                 # merge it back into master
git merge following-users

git push origin master              # github
git push heroku master              # heroku

# execute this command and follow the instructions closely
for i in {1..10}; do echo 'have a great Spring break!!!'; done
```

Today we...

- Created a new Relationship model
- allowed users to follow/unfollow eachother via AJAX
- implemented an auto-refresh feature for our feed with AJAX polling