

Welcome

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Quae, perferendis nisi nihil debitis aspernatur doloribus quam eveniet quibusdam tempora esse! Repudiandae, assumenda, debitis doloribus ea eius ab at quae totam. Lorem ipsum dolor sit amet, consectetur adipisicing elit. Asperiores, inventore aliquid ipsam debitis nulla vitae omnis nemo quisquam?

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Building A Sinatra App With MySQL

Phase 2 Project Development for Flatiron School Software Engineering

DRAFT Version: 20210118:635PM

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HTML + CSS

DEVELOPMENT + GitHub

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Getting Started

As I am a new Ruby developer, I've learned the importance of understanding how the process works for getting a project started from scratch.

You have to start with a plan. Typically the work begins when the stakeholders and the business team have decided on a new technology 'business' requirement which then evolves into a list of specifications outlining the functionality and features of this new business initiative.

This application uses Sinatra with Active Record with a MySQL database. My 'client' is a project I need to complete to graduate from Flatiron School.

With this idea in mind, my Phase 2 Requirements from Flatiron School are represented in the chart below.



REQUIREMENTS & SPECIFICATIONS

1. Build an MVC (Links to an external site.) Sinatra application.
2. Use ActiveRecord (Links to an external site.) with Sinatra.
3. Use multiple models.
4. Use at least one has_many relationship on a User model and one belongs_to relationship on another model.
5. Must have user accounts - users must be able to sign up, sign in, and sign out.
6. Validate uniqueness of user login attribute (username or email).
7. Once logged in, a user must have the ability to create, read, update and destroy the resource that belongs to user.
8. Ensure that users can edit and delete only their own resources - not resources created by other users.
9. Validate user input so bad data cannot be persisted to the database.
10. BONUS: Display validation failures to user with error messages (Links to an external site.).
(This is an optional feature, challenge yourself and give it a shot!)

Now the SPEC's As Defined by the Project

Technical specifications define functional and feature goals for the project. These can be further defined as user stories to ensure you have met each requirement as a developer.

- [] Use Sinatra to build the app
- [] Use ActiveRecord for storing information in a database
- [] Include more than one model class (e.g. User, Post, Category)
- [] Include at least one has_many relationship on your User model (e.g. User has_many Posts)
- [] Include at least one belongs_to relationship on another model (e.g. Post belongs_to User)
- [] Include user accounts with unique login attribute (username or email)
- [] Ensure that the belongs_to resource has routes for Creating, Reading, Updating and Destroying
- [] Ensure that users can't modify content created by other users
- [] Include user input validations
- [] BONUS - not required - Display validation failures to user with error message (example form URL e.g. /posts/new)
- [] Your README.md includes a short description, install instructions, a contributors guide and a link to the license for your code

Confirm

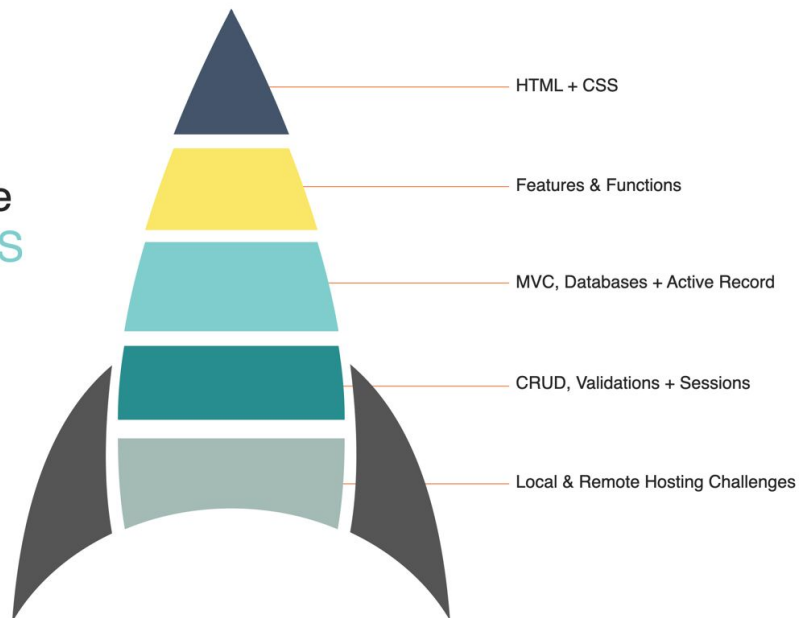
- [] You have a large number of small Git commits
 - [] Your commit messages are meaningful
 - [] You made the changes in a commit that relate to the commit message
 - [] You don't include changes in a commit that aren't related to the commit message
-



RESEARCH & PLANNING

BUILDING the WORKFLOWS

Describes my methodology for approaching my development workflow



Getting started on a project of this size as a newby can be overwhelming for some. I've elected to break the overall specifications into modular topics. That way I can plan my approach.

DEVELOPMENT + GITHub

Discusses how I use RubyMine to speed up the development of Github projects and how I manage to merge different branches for each iteration of my project.

HTML + CSS

The User Experience or the Front - End defines the structure of the application and how an end-user interacts with the features and functionality of the application. I'll use a layout.erb to define my overall theme and build my pages using CSS.

Features & Functions

My project tracks the status of our guest rentals and payments received. First I'll build the application in Sinatra using basic concepts in Ruby.

MVC, Databases + Active Record

Choosing a database framework is the way to achieve MVC using Sinatra. Based on the requirements for this project we will use Active Record. However I'll use MySQL as the backend for my application.

CRUD, REST, USERS, Validations + Sessions

I'll need to determine how to use routes to get and post data from the back-end. In addition, I'll also need to add in features for making changes and/or deleting that data. Using a combination of HTML/ERB pages will achieve this. Thinking of it as a series of actions: list all, creating, saving, editing, searching, filtering and deleting data.

Users Roles & Logins

Understanding roles or user permission should validate the current users permissions and update the database should those permissions change.

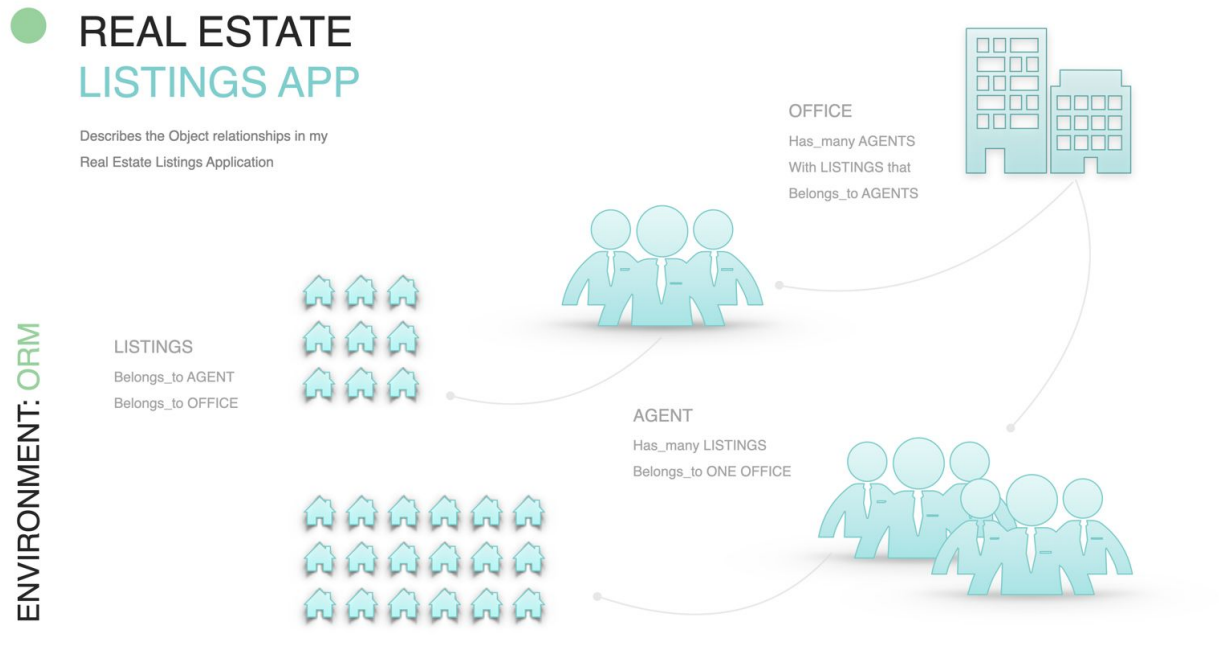
Sessions works with permissions to validate if the current user is logged in or not, establishes that current user's permissions and tracks the users activities while visiting the site.

Users should be able to register or sign-up. This will require: sign-up, login, and redirects to handle the user login/logout.

Local & Remote Hosting Challenges

After the project is completed and before I submit it for review, I'll need to plan on hosting it on a remote server. For the purpose of this session it was suggested we use Heroku.

Now that I have all that figured out, I can actually start planning my code.



DEVELOPMENT + GitHub

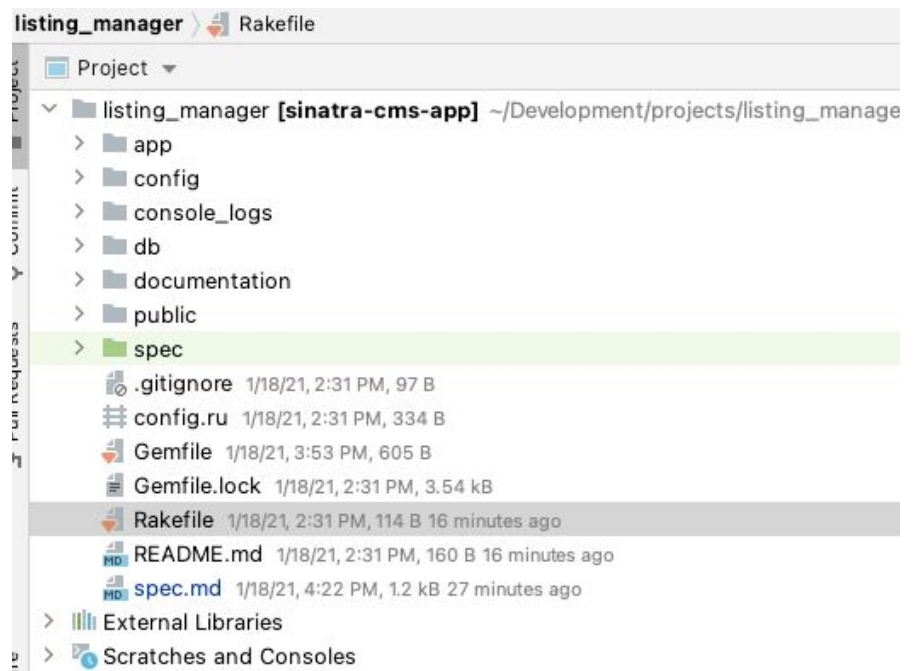
I like to work on both Mac and PC platforms because my work as a contractor gives me far more options if I'm familiar with both. My ORMS, in this case, is MySQL 5.7.32 with ActiveRecord and Sinatra.

| | WINDOWS ¹ | MAC BIG SUR |
|----------|--------------------------------------|---------------------------|
| MySQL DB | Windows (x86, 32-bit), MSI Installer | brew install mysql@5.7.32 |
| Ruby | GEMFILE | GEMFILE |
| IDE | Rubymine 2020.3 | Rubymine 2020.3 |

¹ See Windows Eventmachine error: <https://github.com/eventmachine/eventmachine/issues/820>

SETTING UP THE FILE STRUCTURE

- app
 - controllers
 - application_controller.rb
- models
- views
- config
- db
- documentation
 - Sinatra With MySQL - Google Docs.pdf
- public
 - images
 - javascript
 - stylesheets
 - favicon.ico
- spec
- .gitignore
- config.ru
- Gemfile
- Gemfile.lock
- Rakefile
- README.md
- spec.md



INSTALL MYSQL

First, install MySQL for your OS and ensure the gem mysql2 is installed or added to your Gemfile prior to using bundle install.

| - CONFIG/DATABASE.YML PREP - LOCAL ENVIRONMENT

I install MySQL using Homebrew²

```
brew install mysql@5.7
```

After installing, I'll need to add the \$PATH to my zsh shell path using:

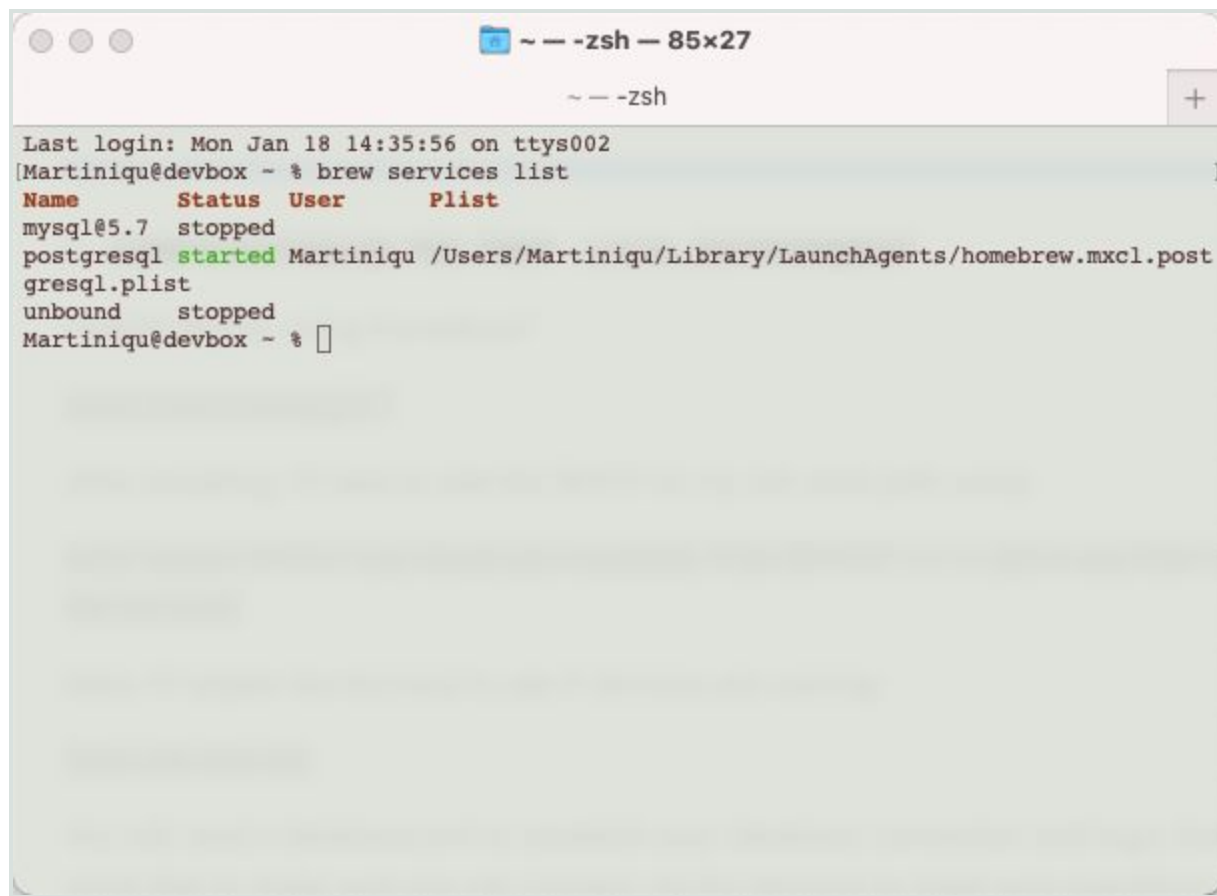
```
echo 'export PATH="/usr/local/opt/mysql@5.7/bin:$PATH"' >> ~/.zshrc and then restart the terminal.
```

Next, I'll reopen the terminal to see if services are running:

```
brew services list
```

² Install MySQL on Mac OS with homebrew:

<https://medium.com/macoclock/installing-mysql-5-7-using-homebrew-974cc2d42509>



```
~ --zsh -- 85x27
~ --zsh

Last login: Mon Jan 18 14:35:56 on ttys002
[Martiniqu@devbox ~ % brew services list
Name      Status User      Plist
mysql@5.7  stopped
postgresql started Martiniqu /Users/Martiniqu/Library/LaunchAgents/homebrew.mxcl.postgresql.plist
unbound    stopped
Martiniqu@devbox ~ %
```

Starting the MySQL Service:

```
brew services start mysql@5.7
```

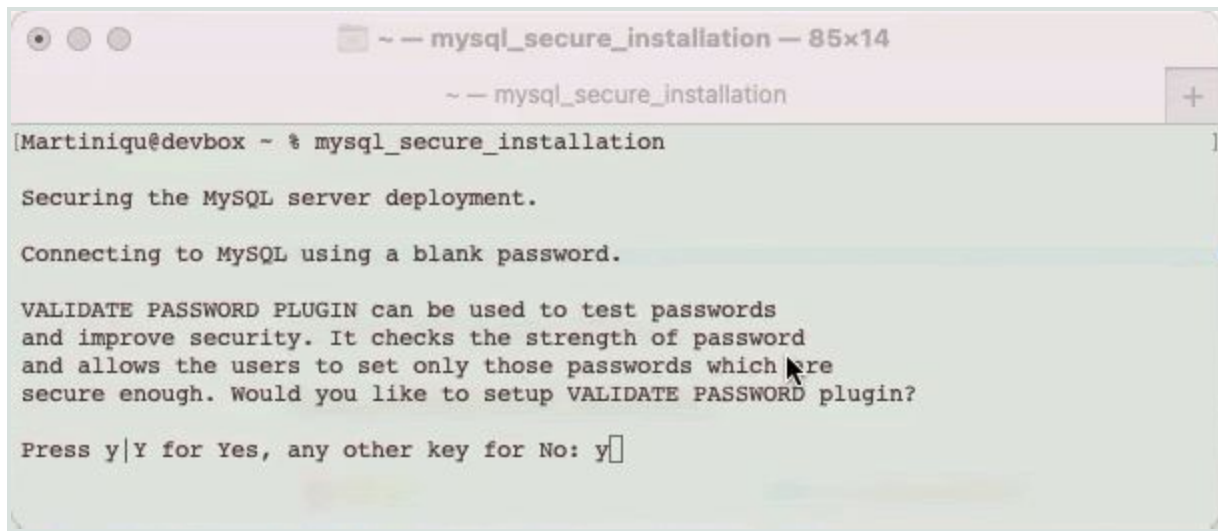


```
~ --zsh -- 85x7
~ --zsh

[Martiniqu@devbox ~ % brew services start mysql@5.7
==> Successfully started `mysql@5.7` (label: homebrew.mxcl.mysql@5.7)
Martiniqu@devbox ~ %
```

Securing the MySQL Installation

```
mysql_secure_installation
```



```
~ -- mysql_secure_installation -- 85x14
~ -- mysql_secure_installation

[Martiniqu@devbox ~ % mysql_secure_installation

Securing the MySQL server deployment.

Connecting to MySQL using a blank password.

VALIDATE PASSWORD PLUGIN can be used to test passwords
and improve security. It checks the strength of password
and allows the users to set only those passwords which are
secure enough. Would you like to setup VALIDATE PASSWORD plugin?

Press y|Y for Yes, any other key for No: y
```

View clip online [here](#)

Finally, brew install mysql-connector-c

<https://medium.com/@nazrulworld/mysql-connector-c-api-libmysqlclient-install-and-configure-in-macos-ddd3ece8c3d3>

Adding the database.yml

You will need a database.yml to establish your database connection and login, but it's a good idea to make sure you can connect via the terminal to make sure everything is set up correctly.

The screenshot shows an IDE window titled "listing_manager - database.yml". The editor displays the contents of the `database.yml` file:

```

16 database: listings_development
17 pool: 5
18 username:
19 password:
20
21

```

Below the editor, a terminal window is open, showing the output of a MySQL command:

```

Server version: 5.7.32 Homebrew

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

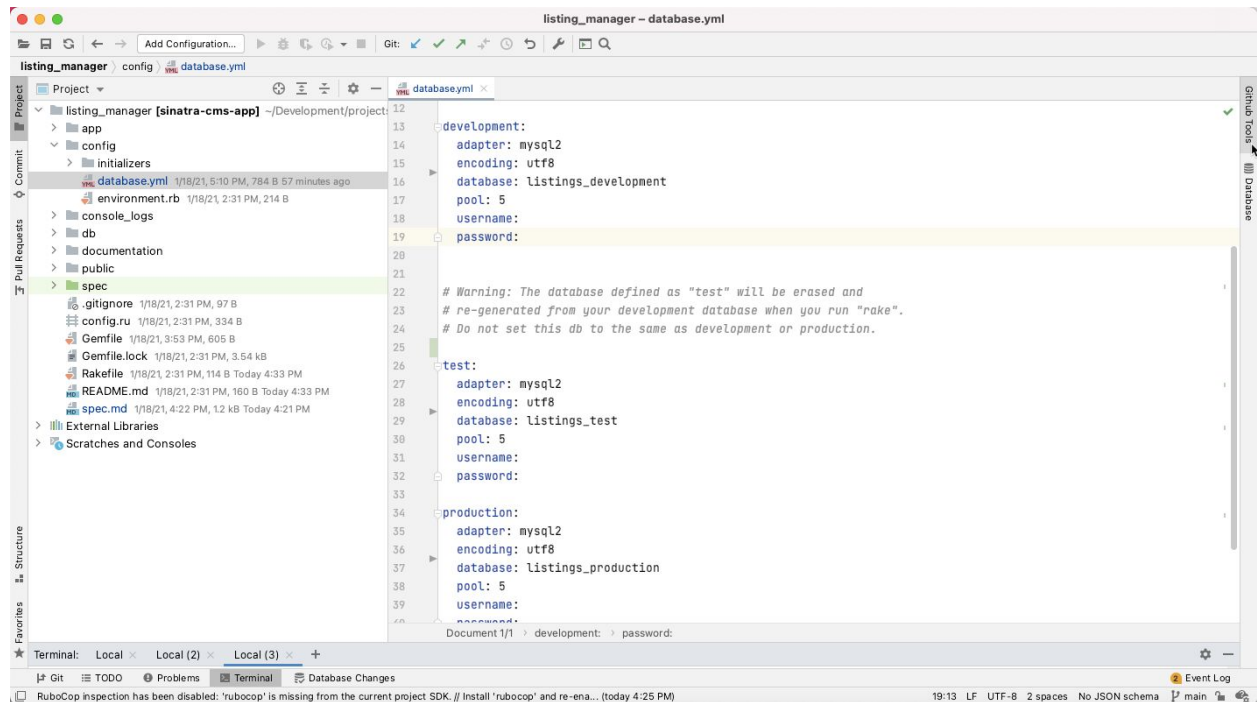
mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
4 rows in set (0.00 sec)

mysql>

```

The IDE interface includes a sidebar on the left with a project tree showing the file structure of the `listing_manager` project, including `app`, `config`, `initializers`, `database.yml`, `environment.rb`, `console_logs`, and `db`. The bottom status bar indicates the file encoding is UTF-8 and the schema is No JSON.

The database.yml connects to the database environments for development, test, and production environments³ because I'll need to sync this to a GitHub account for review.



³ I'll need to research how to securely add a secret password for the logon.

ACTIVERECORD PATTERNS & CONVENTIONS

- * Table name: lowercase plural name of model - agents
- * Model filename: singular lowercase (underscored) - agent.rb
- * Class name: singular camelcase - Agent

I've added this as a note from the Rails class we were given this week as it filled in some gaps for me.

USE RAKE -T

To create my database using the database.yml, I'll need to run rake db:create, afterwards I'll plan my ORM and begin my migrations.

CREATING THE DATABASE

```
% rake db:create
```

```
Created database 'listings_development'
```

```
Created database 'listings_test'
```

DESIGNING ROLES/PERMISSION TABLE

I'd like to start with the Roles table. In essence it will look something like this:

| FIELDS | DATATYPE | NULL | KEY | EXTRA |
|-----------|----------|------|-----|----------|
| Role_ID | INTEGER | No | PRI | Auto_Inc |
| Role_name | INTEGER | No | | |

ROLES TABLE: CREATING THE MIGRATION, MODEL & SEEDS

```
% rake db:create_migration create_roles_table role_name:string
```

Role.rb

```
class Role < ActiveRecord::Base

  # Validate if table exists == true, if not...

end
```

seeds.rb

```
# db/seeds.rb

require_relative '../app/models/role'

Role.create({role_name: "admin"}, {role_name: "agent"}, {role_name: "guest"})
```

```
% rake db:seed
```

The screenshot displays a web application interface with a database table named 'roles'. The table has four columns: 'id', 'role_name', 'created_at', and 'updated_at'. There are three rows of data:

| id | role_name | created_at | updated_at |
|----|-----------|--------------------|--------------------|
| 1 | admin | 2021-01-20 14:0... | 2021-01-20 14:0... |
| 2 | agent | 2021-01-20 14:0... | 2021-01-20 14:0... |
| 3 | guest | 2021-01-20 14:0... | 2021-01-20 14:0... |

The interface also shows a file explorer on the left with the following structure:

- Project
 - listing_manager [sinatra-cms-app] ~/Development/pr
 - app
 - config
 - console_logs
 - db
 - imports
 - migrate
 - schema.rb 1/20/21, 8:10 AM, 995 B
 - seeds.rb 1/20/21, 9:04 AM, 195 B 11 minutes ago
 - documentation
 - public
 - spec
 - .gitignore 1/18/21, 6:15 PM, 123 B
 - config.ru 1/18/21, 2:31 PM, 334 B
 - Gemfile 1/18/21, 3:53 PM, 605 B
 - Gemfile.lock 1/20/21, 7:31 AM, 3.51 kB
 - Rakefile 1/18/21, 2:31 PM, 114 B
 - README.md 1/18/21, 6:20 PM, 146 B
 - spec.md 1/18/21, 4:22 PM, 12 kB
 - External Libraries
 - Scratches and Consoles

The bottom status bar indicates: 'listings_development@localhost: roles synchronized (7 sec, 225 ... (15 minutes ago))'.

ROLES TABLE: ADDING A CONTROLLER AND VIEWS

Now that my role table is set up, I'll need to add a controller and views to manage the data in this table.

AGENT CONTACT INFO TABLE

Agents can update/edit personal information and their listings. Mapping out the models helps me understand how they will work with Routes.

This table has information on each agent and is linked to the Listings table and the Portfolio table by way of a foreign key. For privacy reasons, I've not linked this table to any sessions or permissions.

In hindsight, I should have created a separate table to track logins. Maybe that will be a project for Phase 3 development at Flatiron.

Agents Table

| FIELDS | DATATYPE | NULL | KEY | EXTRA |
|-------------|-----------|------|-----|---------------|
| Agent_ID | INTEGER | No | PRI | Auto_Inc |
| Listings_ID | INTEGER | No | FK | Listings Data |
| Role_ID | INTEGER | No | FK | Listings Data |
| Username | VARCHAR | Yes | | |
| Password | VARCHAR | Yes | | |
| Office | VARCHAR | Yes | | |
| Email | VARCHAR | Yes | | |
| Company | VARCHAR | Yes | | |
| Contact | VARCHAR | Yes | | |
| Photo | BLOB | Yes | | |
| Created_At | TIMESTAMP | Yes | | |

| | | | | |
|------------|-----------|-----|--|--|
| Updated_At | TIMESTAMP | Yes | | |
|------------|-----------|-----|--|--|

MODELS/URLS & ROUTES

(OFFICE/FINANCIAL) PORTFOLIO TABLE

Functioning as a financial and visual portfolio for potential investors, prospective clients and other agents or offices, agents manage their portfolios and have control over who has access to the portfolio. The data also functions as a newsletter.

| FIELDS | DATATYPE | NULL | KEY | EXTRA |
|----------------|-----------|------|-----|----------------------------------|
| Portfolio_ID | INTEGER | No | PRI | Auto_Inc |
| Agent_ID | INTEGER | No | FK | Agent |
| Listing_ID | VARCHAR | No | FK | Listings |
| Address | INTEGER | Yes | | Address, City, State, Zip |
| Keywords | VARCHAR | Yes | | Marketing SEO |
| Status | VARCHAR | Yes | | Sold, New, Rent, Purchase, Lease |
| Shared_with | ENUM | Yes | | (private, shared, public) |
| Date_Listed | DATE | Yes | | 4/11/2018 |
| Bedrooms | VARCHAR | Yes | | 4BR |
| #Bathrooms | VARCHAR | Yes | | 5BA |
| Summary | BLOB | Yes | | Description |
| Square_Footage | VARCHAR | Yes | | 2500 SQFT |
| Asking_Price | INTEGER | Yes | | \$325,000.00 |
| Photo 1 | BLOB | Yes | | Featured Image |
| Photo 2 | BLOB | Yes | | |
| Photo 3 | BLOB | Yes | | |
| Photo 4 | BLOB | Yes | | |
| Created_At | TIMESTAMP | Yes | | |
| Updated_At | TIMESTAMP | Yes | | |

LISTINGS DATA TABLE

All new listings are added to this table, which functions as a tracker for managing portfolio data and views for each listing.

Listings - Permission - Logs Table

| FIELDS | DATATYPE | NULL | KEY | EXTRA |
|--------------|-----------|------|------|-----------------------|
| Listings_ID | INTEGER | No | PRI | Auto_Inc |
| Portfolio_ID | INTEGER | Yes | FK | |
| Agent_ID | INTEGER | Yes | FK | |
| Listing_ID | INTEGER | Yes | FK | |
| Sessions | STRING | Yes | Hash | |
| Roles | ENUM | Yes | | read_only, read_write |
| Created_At | TIMESTAMP | Yes | | |
| Updated_At | TIMESTAMP | Yes | | |

OBJECT.RELATIONAL.MAPPING

Because Ruby objects don't map to the way databases store data, we use ORM to do this mapping. If you think of an application as having a front-end, middle-tier and back-end, then this concept falls within the logic of separating out the UI, logic and data in the application.

ACTIVE RECORD - DRY

MODEL.VIEW.CONTROLLER



Resources:

Development + Github

Windows Ruby Eventmachine error

<https://github.com/eventmachine/eventmachine/issues/820>. Run from terminal >
gem install eventmachine --platform ruby -- --use-system-libraries
--with-ssl-dir=c:/msys64/mingw64

MySQL Installation Mac OS

<https://coderwall.com/p/os6woq/uninstall-all-those-broken-versions-of-mysql-and-re-install-it-with-brew-on-mac-mavericks>

<https://www.positronx.io/how-to-install-mysql-on-mac-configure-mysql-in-terminal/>

<https://medium.com/macoclock/installing-mysql-5-7-using-homebrew-974cc2d42509>

Heroku

MySQL

<https://devcenter.heroku.com/articles/cleardb>

<https://devcenter.heroku.com/articles/cleardb#the-cleardb-shared-mysql-complete-tutorial>

Ruby

<https://devcenter.heroku.com/articles/ruby-support#ruby-versions>