

Homework 4: MVC Model

For this homework, you will create simple model classes in Rails, write tests to run them, and practice using the basic version control features of Git.

You will do this homework as a team; however, each member of your team will be responsible for the completion of a particular task.

Each team member will choose one task from the list below to complete. All team members must do a different task. If your team has only four members, then ignore Task 5. IMPORTANT: Be sure to add your university username (e.g., mine is “sdflming”) in a comment at the top of your model class file. (Otherwise, how will we know which work is yours?)

How to submit your team’s work

Before you can submit, all team members must have merged their code into the master branch and pushed the updates to GitHub. If a team member does not complete his/her work on time, you may submit without his/her contribution.

To submit your team’s work, you must “tag” the current commit in the master branch:

```
$ git tag -a hw4v1 -m 'Tagged Homework 4 submission (version 1)'  
$ git push origin --tags
```

To grade your work, I will check out the appropriate tag, and run it on my machine.

Note that if for some reason you need to update your submission, simply repeat the tagging process, but increment the version number (e.g., hw4v2, hw4v3, hw4v4, etc.).

The Tasks

The tasks are given on the following pages. For each of the following tasks:

- Create a model class as per the given UML class diagram.
- Add attribute validations to the class as specified. Here is a page to help you:
 - http://guides.rubyonrails.org/v4.2.4/active_record_validations.html
- Write unit tests as follows. For each attribute write one test for a valid value of the attribute. For each validation of the attribute write one test that violates the validation rule. For example, if a string attribute has a length validation and a presence validation, you will have 3 tests for that attribute: one with a valid string, one with a string of invalid length, and one with an empty string. In the case of an “allow_blank” validation, include a test for a blank value. Here are couple pages to help you:
 - http://guides.rubyonrails.org/v4.2.4/active_record_basics.html - crud-reading-and-writing-data
 - <http://guides.rubyonrails.org/v4.2.4/testing.html>

Task 1

Model class to create:

OwnershipRecord
year_acquired : integer year_relinquished : integer purchase_price : integer

Validations:

- Year acquired must be present.
- Year relinquished may not be present.
- Purchase price must be present.
- Year acquired must be less than or equal to year relinquished (if present).
- No years may be in the future.
- All years must be at least 1886 (year of first automobile).
- Purchase prices must be non-negative.

Task 2

Model class to create:

UserProfile
name : string birth_year : integer phone_number : string region : string

Validations:

- Name must be present.
- Birth year must be present.
- Phone number may not be present.
- Region must be present.
- Birth year must be less than or equal to the current year minus 17.
- Birth year must be greater than 1900.
- Phone number must be of the form “123-456-7890”.
- Region must be one of the following: Northeast, Midwest, South, West, Non-US.

Task 3

Model class to create:

Review
title : string body : text score : decimal

Validations:

- Title must be present.
- Body must be present.
- Score must be present.
- Title must be between 5 and 55 characters in length.
- Body must be between 500 and 1500 characters in length.
- Score must be a value between 0 and 10.

Task 4

Model class to create:

Automobile
model : string model_year : integer kbb_url : string

Validations:

- Model must be present.
- Model year must be present.
- KBB URL may not be present.
- Model must be between 1 and 20 characters in length.
- Model year must not be in the future.
- Model year must be at least 1886 (year of first automobile).
- KBB URL must follow the proper syntax for an HTTP or HTTPS URL (described in https://en.wikipedia.org/wiki/Uniform_resource_locator) and have a domain of *kbb.com*.

Task 5

Model class to create:

Manufacturer
name : string phone_number : string email : string

Validations:

- Name must be present.
- Phone number must be present.
- Email may not be present.
- Name must be 1 to 30 characters in length.
- Phone number must be of the form “123-456-7890”.
- Email must follow proper syntax (described in https://en.wikipedia.org/wiki/Email_address).