

In this lecture, we will discuss...

- ✧ Foundation blocks for integrating Mongo with Ruby Driver Example



Setup and DAO

✧ Setup

- New rails application, `mongoid`

✧ DAO class infrastructure

- Connection, database, collection

CRUD Operations

✧ CRUD

- `all`
- `find`
- `insert`
- `update`
- `delete`



Scaffolding

✧ Scaffolding

- Controller
- Views
- *Note: Does **not** create the model class*



Pagination

- ✧ Paging – MVC application with **paging**
- ✧ `will_paginate`
- ✧ Will add page properties



Summary

- ✧ Build a working MVC example
- ✧ Simulate a middleware ORM consistent with the Rails ActiveRecord framework

What's Next?

- ✧ Rails setup



In this lecture, we will discuss...

- ✧ Rails setup
- ✧ `mongoid` installation

New Application

✧ Create new application

- `rails new zips`

✧ Add `mongoid` gem to Gemfile

- Note: Mongoid will be covered in depth in Module 3
- `gem 'mongoid', '~> 5.0.0'`



Configuring mongoid.yml

- ✧ Mongo database configuration
 - `rails g mongoid:config`
- ✧ mongoid.yml – database connection information
- ✧ `config/application.rb` - bootstraps mongoid within applications -- like rails console



Importing Data

✧ Import zips.json

- `mongoimport --db zips_development --collection zips --file zips.json`

Start Rails Server

✧ Start Server

- `rails s`

✧ *Note: Need to run the command **inside** the zips folder*



Rails Console

✧ Rails console

- `rails c`

✧ Rails console – **handy** for poking around, basic calls, debug etc.



Summary

- ✧ Setting up rails application
- ✧ `mongoid` gem
- ✧ `rails` console

What's Next?

- ✧ DAO class infrastructure



In this lecture, we will discuss...

- ✧ DAO class infrastructure



DAO Class

✧ Model class

- **connects** to MongoDB
- Access to the **collection** (Example: “zips”)

✧ **Consistent** with ORM operations

- find, insert, update, delete methods in the DAO class



DAO Class – zip.rb

```
class Zip
  # convenience method for access to client in console
  def self.mongo_client
    Mongoid::Clients.default
  end

  # convenience method for access to zips collection
  def self.collection
    self.mongo_client['zips']
  end
end
```



Summary

- ✧ Simulating a middleware ORM that is consistent with the Rails ActiveRecord framework
- ✧ “Data Access Object” and “Entity” at the same time

What's Next?

- ✧ CRUD operations



In this lecture, we will discuss...

✧ CRUD



DAO Class – ORM Mapping

- ✧ `all` - maps to `find`
- ✧ `find` – maps to `find(hash)`
- ✧ `save` - maps to `insert_one`
- ✧ `update` – maps to `update_one`
- ✧ `destroy` – maps to `delete_one`



Adding Methods to Zips.....

✧ `all`

- Return all documents in zips collection

✧ `self.all(prototype={},
sort={:population=>1}, offset=0,
limit=100)`

- Paging and Sorting

find and save

✧ find id

- Return a **specific** instance for a given id

✧ save

- Save the state of the **current** instance

Update **and** destroy

✧ Update (updates)

- accepts as **hash** and performs an **update** on those values after accounting for any name mappings

✧ destroy

- **delete** the document from the database that is associated with the instance's `:id`



Summary

- ✧ Basic CRUD operations

What's Next?

- ✧ Scaffolding



In this lecture, we will discuss...

- ✧ Model mixin
- ✧ `Scaffold` command
- ✧ Helpers

ActiveModel::Model Mixin Behavior

```
class Zip
  include ActiveModel::Model
  ...
  def persisted?
    !@id.nil?
  end
  def created_at
    nil
  end
  def updated_at
    nil
  end
end
```

- ✧ Check to see if a **primary key** has been assigned
- ✧ JSON marshalling will also **expect** a `created_at` and `updated_at` by default

scaffold command

```
$ rails g scaffold_controller Zip id city state population:integer
  create  app/controllers/zips_controller.rb
  invoke  erb
  create  app/views/zips
  create  app/views/zips/index.html.erb
  create  app/views/zips/edit.html.erb
  create  app/views/zips/show.html.erb
  create  app/views/zips/new.html.erb
  create  app/views/zips/_form.html.erb
  invoke  test_unit
  create  test/controllers/zips_controller_test.rb
  invoke  helper
  create  app/helpers/zips_helper.rb
  invoke  test_unit
  invoke  jbuilder
  create  app/views/zips/index.json.jbuilder
  create  app/views/zips/show.json.jbuilder
```



Helpers

```
module ZipsHelper
  def toZip(value)
    #change value to a Zip if not already a Zip
    return value.is_a?(Zip) ? value : Zip.new(value)
  end
end
```

- ✧ `app/helpers/zips_helper.rb` - method will convert a Mongo document to a Ruby class instance

```
<% @zips.each do |zip| %>
  <% zip=toZip(zip) %>
```

`app/views/zips/index.html.erb`



Summary

✧ Scaffold command

What's Next?

✧ MVC Demo and Pagination



In this lecture, we will discuss...

- ✧ `show`
- ✧ `new` **and** `create`
- ✧ `edit` **and** `update`
- ✧ `destroy`
- ✧ `paging`

Show

```
#GET /zips/{id}
#GET /zips/{id}.json
  before_action :set_zip, only: [:show, :edit, :update, :destroy]
  def set_zip
    @zip = Zip.find(params[:id])
  end

  def show
  end
```

New and Create

```
#POST /zips/new
```

```
def new
```

```
  @zip = Zip.new
```

```
end
```



“New” returns an initial prototype to the form to start editing

```
#POST /zips
```

```
def create
```

```
  @zip = Zip.new(zip_params)
```



“Create” accepts the results and creates new instance in the database

```
  respond_to do |format|
```

```
    if @zip.save
```

```
      format.html { redirect_to @zip, notice: 'Zip was successfully created.' }
```

```
      format.json { render :show, status: :created, location: @zip }
```

```
    else
```

```
      format.html { render :new }
```

```
      format.json { render json: @zip.errors, status: :unprocessable_entity }
```

```
    end
```

```
  end
```

```
end
```

Edit and Update

```
http://localhost:3000/zips/00002/edit
```

```
#GET /zips/{id}
```

```
  before_action :set_zip, only: [:show, :edit, :update, :destroy]
```

```
  def set_zip
```

```
    @zip = Zip.find(params[:id])
```

```
  end
```

```
  def edit
```

```
  end
```

```
#PUT /zips/{id}
```

```
  def update
```

```
    respond_to do |format|
```

```
      if @zip.update(zip_params)
```

```
        format.html { redirect_to @zip, notice: 'Zip was successfully updated.' }
```

```
        format.json { render :show, status: :ok, location: @zip }
```

```
      else
```

```
        format.html { render :edit }
```

```
        format.json { render json: @zip.errors, status: :unprocessable_entity }
```

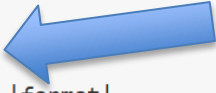
```
      end
```

```
    end
```

```
  end
```



“Edit” retrieved the instance from the database



“Update” found the instance in the database and applied the changes

Destroy

```
#DELETE /zips/{id}
def destroy
  @zip.destroy
  respond_to do |format|
    format.html { redirect_to zips_url, notice: 'Zip was successfully destroyed.' }
    format.json { head :no_content }
  end
end
```



Paging

✧ `gem 'will_paginate', '~>`

```
<table>
...
<tbody>
  <% @zips.each do |zip| %>
    <% zip=toZip(zip) %>
    <tr>
      <td><%= zip.id %></td>
    ...
  </tr>
  <% end %>
</tbody>
</table>
<%= will_paginate @zips %>
```

“will_paginate” – adds page properties
from the database

Paging (controller and model)

```
def index
  #@zips = Zip.all
  @zips = Zip.paginate(:page => params[:page])
end
```

Controller passes the value to model

```
def self.paginate(params)
  Rails.logger.debug("paginate(#{params})")
  page=(params[:page] || 1).to_i
  limit=(params[:per_page] || 30).to_i
  offset=(page-1)*limit

  #get the associated page of Zips -- eagerly convert doc to Zip
  zips=[]
  all({}, {}, offset, limit).each do |doc|
    zips << Zip.new(doc)
  end

  #get a count of all documents in the collection
  total=all({}, {}, 0, 1).count

  WillPaginate::Collection.create(page, limit, total) do |pager|
    pager.replace(zips)
  end
end
```

Will translate the will_paginate input to all() query inputs

Will translate document array results to will_paginate result



Summary

✧ MVC – proven model

What's Next?

✧ Module 2

