What is Ruby on Rails ?

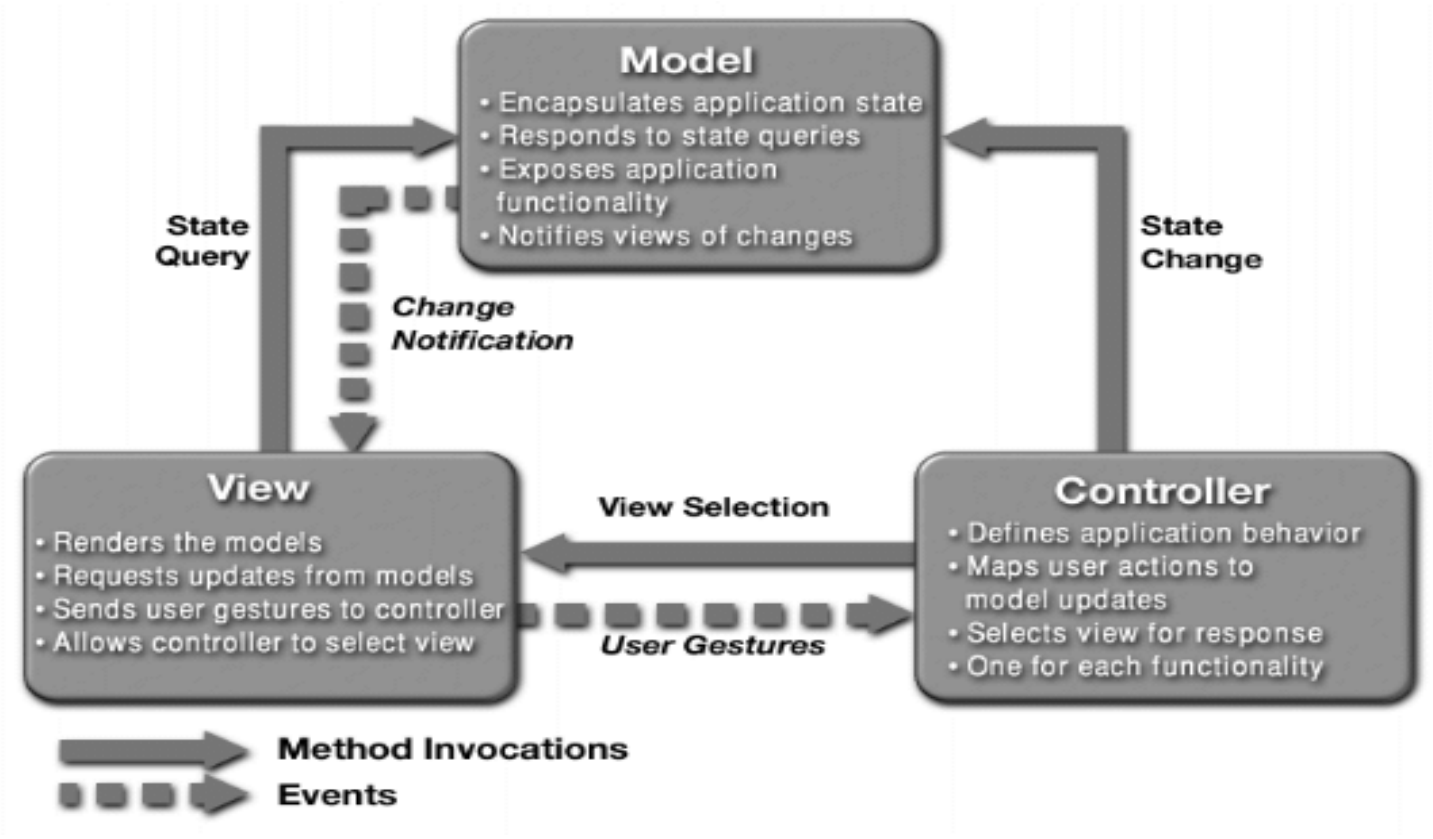
Ruby on Rails is a web application framework written in Ruby, a dynamic programming language.

Ruby on Rails uses the Model-View-Controller (MVC) architecture pattern to organize application programming.

What is Ruby on Rails ?(Continued)

- A *model* in a Ruby on Rails framework maps to a table in a database
- A controller is the component of Rails that responds to external requests from the web server to the application, and responds to the external request by determining which view file to render
- A view in the default configuration of Rails is an erb file. It is typically converted to output html at run-time

Rails implements the model-view-controller (MVC) architecture.



Model View Contoller (MVC)

The MVC design pattern separates the component parts of an application

MVC pattern allows rapid change and evolution of the user interface and controller separate from the data model

Model

- Contains the data of the application
  - Transient
  - Stored (eg Database)

- Enforces "business" rules of the application
  - Attributes
  - Work flow

View

- Provides the user interface
- Dynamic content rendered through templates
- Three major types
  - Ruby code in erb (embedded ruby) templates
  - xml.builder templates
  - rjs templates (for javascript, and thus ajax)

Controller

- Perform the bulk of the heavy lifting
- Handles web requests
- Maintains session state
- Performs caching
- Manages helper modules

Sample Ruby Code: Class

Class Employee: defining three attributes for a Employee; name, age, position

```
class Employee # must be capitalized
 attr_accessor :name, :age, :position
# The initialize method is the constructor
 def initialize(name, age, position)
   @name = name
   @age = type
   @position = color
end
```

New Employee

Creating an instance of the Employee class:

```
a = Employee.new(“JAY", “23", “Test Engineer")

b = Employee.new(“SAM", “24",  “Test Engineer")
```

Method

To be able to describe employees, we add a method to the employee class:

```
def describe
  @name + " is  of " + @age + " years"
   +" working as "
   + @position+ ".\n"
end
```

Calling Method

To get the description of Employee, we can call Employee with the describe method attached :

```
emp= a.describe
puts emp
```

or:

```
puts a.describe
```

What is so special about Rails

Scaffolding

- You often create temporary code in the early stages of development to help get an application up quickly and see how major components work together. Rails automatically creates much of the scaffolding you'll need.

Steps Involved

Creating application on the local host

Step 1: On the Terminal type:

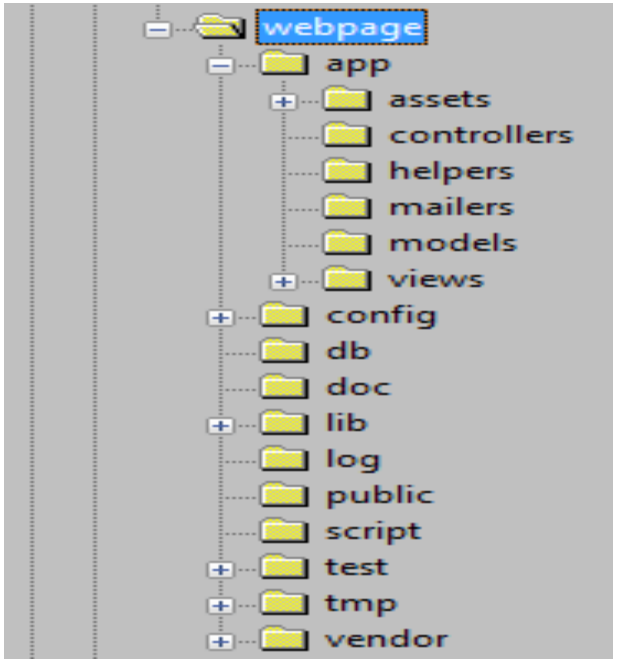
rails new yourapp_name #webpage in my case

hit enter, we see the scripts flow in the terminal creating a bunch of files

```
MINGW32:/c/rails/webpage
Bhaskar@BHASKAR-HP /c/rails (master)
$ rails new webpage
      create
      create  README.rdoc
      create  Rakefile
      create  config.ru
      create  .gitignore
      create  Gemfile
      create  app
      create  app/assets/images/rails.png
      create  app/assets/javascripts/application.js
      create  app/assets/stylesheets/application.css
      create  app/controllers/application_controller.rb
      create  app/helpers/application_helper.rb
      create  app/mailers
      create  app/models
      create  app/views/layouts/application.html.erb
      create  app/mailers/.gitkeep
      create  app/models/.gitkeep
      create  config
      create  config/routes.rb
      create  config/application.rb
      create  config/environment.rb
      create  config/environments
      create  config/environments/development.rb
```

Step 2: Change the directory to the application

cd webpage



These are the files which rails automatically generates to create the framework for our application.

Step 3:

Create the needed controller, model and views for our application

I will keep simple functionality in which a user can post message

$rails generate scaffold post name:string address:text

```
MINGW32:/c/rails/webpage

Bhaskar@BHASKAR-HP /c/rails/webpage (master)
$ rails generate scaffold post name:string address:text
      invoke  active_record
      create    db/migrate/20121117022027_create_posts.rb
      create    app/models/post.rb
      invoke    test_unit
      create      test/unit/post_test.rb
      create      test/fixtures/posts.yml
      invoke  resource_route
       route    resources :posts
      invoke  scaffold_controller
```

- Scaffold command creates a CRUD (Create, Read, Update, Delete) interface for app (a quick way of creating the MVC automatically).

- Alternatively, we can also create our controller, model and view manually using the command

```
// for creating controller
rails generate controller <controller name>
// for creating model
rails generate model <model name>
```

Step 4:

Create Database

rake db:create

database.yml (c:\rails\webpage\config) - VIM

```
# SQLite version 3.x
#   gem install sqlite3
#
#   Ensure the SQLite 3 gem is defined in your Gemfile
#   gem 'sqlite3'
development:
  adapter: sqlite3
  database: db/development.sqlite3
  pool: 5
  timeout: 5000
```

The figure shows the database.yml file created

Step 5:

Since we have recently created a new model for Post, a table must be created in our database and requires that we upgrade the database using this command:

rake db:migrate

Step 5:

Creating a home page

$rails generate controller home index

This creates a controller "home" along with views in the app/view/home directory. Rails will create several files for you, including app/views/home/index.html.erb file. This is the template that we will use to display the results of the index action (method) in the home controller. Open this file in your text editor and edit it to contain the code that you want to display in your index page

Editing homepage

Open file app/views/home/index.html.erb and edit it to contain the code that you want to display in your index page

index.html.erb = (c:\rails\webpage\app\views\home) - VIM

```
<h1 align="center">---------CSCI 5449----------</h1>
<h2 align="center">          Fall 2012                    </h2>
<h3 align="left"> <%= link_to "See messages", posts_path %></h3>
<h3 align="right"> <%=link_to "Write messages", new_post_path %></h3>
<p text-shadow: 5px 5px 5px #FF0000;> <marquee
 direction="right"
 align="top"
>Designed by Bhaskar Vaish
</marquee>
</p>
```

Step 6: Rails Routing

Edit config/routes.rb

routes.rb (c:\rails\webpage\config) - VIM

```
Webpage::Application.routes.draw do
  get "home/index"

  resources :posts
    root :to =>'home#index'
    match 'controller/:id/See Messages' , :to =>'posts#show'
    match 'controller/:id/Write Messages' , :to =>'posts#new
```

The See Messages and Write Messages will appear on the main page

Step 7: Text on the page

Edit the index.html file, enter text which will appear on the screen

index.html.erb = (c:\rails\webpage\app\views\home) - VIM

```
<h1 align="center"><TEXT = #0000>Object Oriented Analysis and Design: CSCI 5449<
/h1>
<h2 align="center">          Fall 2012                    </h2>
<h3 align="left"> <%= link_to "****See messages", posts_path %></h3>
<h3  align="right"> <%=link_to "Write messages****", new_post_path %></h3>
<h2 align="center"> This class is offered every Fall Semester at University of C
olorado Boulder</h2>
<h3 TEXT= #0000;> <marquee
 direction="right"
 align="top"
>Designed by Bhaskar Vaish
</marquee>
</h3>
```

The See Messages and Write Messages will appear on the main page

Step 8: Set Background images and color

Edit the home.css file, to set background image and text color

home.css (c:\rails\webpage\app\assets\stylesheets) - VIM

```
body {
background-image:url('cs1.gif');
background-size:100% 130%;
//background-repeat:no-repeat;
background-origin:content-box;
//background-attachment:fixed;
background-color: #fff;
  color: #0000;  // BV : 333

 }

p, ol, ul, td {
  font-family: verdana, arial, helvetica, sans-serif;
  font-size: 13px;
  line-height: 18px;
}

pre {
  background-color: #000;  // BV eee
  padding: 10px;
  font-size: 11px;
}
```

The See Messages and Write Messages will appear on the main page

Step 8: Testing the application

On the command line enter

```
rails server
```

The application will be uploaded to
http://localhot:3000/