Ruby On Rails (5 Days Content)

Class Overview

In this Ruby on Rails training course, students will learn to create database-driven websites using Ruby on Rails. They will learn to install Ruby and Rails, to program in Ruby and use Ajax in their Ruby on Rails applications.

Class Prerequisites

Experience in the following areas is required:

* HTML

Experience in the following areas would be beneficial:

* Server-side programming experience
* SQL

Class Goals

* Learn to program in Ruby
* Learn to install and configure Ruby and Rails
* Understand the Model-View-Controller framework architecture
* Learn to build database-driven applications with Ruby on Rails
* Learn to work with templates
* Learn to use Ajax in Ruby on Rails applications
* Learn to test Ruby on Rails applications

Class Outline

Day1: Ruby Language Skills and Techniques

1. Running Ruby
    1. Command-line Ruby
    2. The Interactive Ruby (irb) console
2. Objects, variables, and methods
    1. Basic object-orientation concepts
    2. Naming conventions
    3. Variable assignment
    4. Local vs. instance variables
    5. Method-calling semantics
    6. Method arguments and return values
3. Built-in classes

1. String
2. Array
3. Hash
4. Symbol
5. Numerics

4. Arrays
    1. Arrays as method return values
    2. Array operations
    3. Getting items from an array
    4. Setting array items
    5. Hands on Examples using Array.

5. Hashes
    1. Hash operations
    2. Determining hash key uniquenes
    3. Alternate hash key syntax
    4. Hands on Examples using Hashes

6. Summary and Conclusion

Day 2:

7. Blocks and iterators
    1. Blocks vs. methods vs. lambdas
    2. Collection iteration
    3. Single-object iteration
    4. Procs vs Lambdas

8. Modules
    1. Modules as namespaces
    2. Modules as class mixins

9. Classes
    1. Inheritance
    2. Classes as objects
    3. The accessor & setter methods
    4. The instance methods
    5. The class methods & variables

10. Ruby File I/O, Directories
    1. File.new, OpenMethod

2. Sysread Method

3. IO.readlines

11. Summary and Conclusion

Day 3. Getting Started with Rails

12. Installing Rails

13. Platform requirements

1. Supported database backends

2. Ruby installation

3. InstantRails for Windows

14. Creating a new application

1. The 'rails' command

2. Tour of the Rails application layout

15. Application configuration and bootstrapping

1. Creating the databases

2. Configuring database.yml

3. Setting the default route

16. Connecting to a Rails application

1. controller/action/id URL semantics

2. Dispatcher and routing roadmap

3. Basic custom route creation

4. Examining the log files

17. Rails tools

1. Managing tasks with rake (Ruby make)

2. The application console

18. The Model/View/Controller (MVC) framework architecture

1. Separation of concerns

2. MVC in the application directory layout

19. The Rails philosophy: "Convention over configuration"

20. Summary and Conclusion

Day 4: Model Design and Database Management

21. Domain modeling for Rails and Ruby

1. Describing the "what" of the application

2. Creating ActiveRecord models with "generate"

22. Object-relational mapping with ActiveRecord
    1. ActiveRecord models and Ruby classes
    2. ActiveRecord associations
        1. One-to-one, one-to-many
        2. Many-to-many
23. "Rails-friendly" SQL
    1. Table-naming conventions
    2. Primary and foreign keys
24. Database maintenance with ActiveRecord Migrations
    1. Default migrations
    2. Customizing migrations
    3. Migrating backwards

Controller Actions and View Templates

25. Basics of controller/view interaction
    1. Creating controllers and views with "generate"
    2. Default rendering rules
    3. Shared controller/template instance variables
    4. Separating controller logic from view specifics
26. HTML templating with Embedded Ruby (ERb)
    1. Rules of ERb processing
    2. Layouts
    3. Using master and partial templates
27. Fine-tuning controllers and view
    1. Controller filters
    2. Redirecting requests
    3. Default and custom view helper methods
28. Writing and processing HTML forms in Rails
    1. Using form helper methods
    2. "Magic" field initialization from instance variables
    3. Accessing CGI data through the "params" hash
29. Ajax calls and RJS (Ruby/JavaScript) templates
    1. Basic DOM updating with Ajax
    2. Using RJS for composite Ajax calls

Day 5 Application Testing

30. Rails unit tests

    1. The Ruby TestUnit framework

    2. Writing fixtures

    3. Addressing test failures and errors

31. Functional (controller) tests

    1. Triggering controller requests from tests

    2. Examining controller responses

32. Ruby On Rails Training: Test Driven Development

    1. TDD Intro

    2. RSpec

    3. cucumber

    4. Capybara

    5. Test doubles, including mocks and stubs

    6. Factories

33. Ruby and Rails Resources

    1. Mailing lists

    2. Websites

    3. Books

    4. IRC channels

34. Summary and Conclusion