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Building and Deploying Web Scale  
Social Networking Applications Using  
Ruby on Rails and Oracle

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# Why Ruby/Rails at OOW?

- Ruby is One of the Fastest Growing Open Source Languages
- Ruby on Rails Simplifies Building Database-backed Web 2.0 Applications
- Oracle Wants to Make Ruby Work Well with the database
- Ruby/Rails Hands-on Lab Tuesday 09/23 14:30 - 15:30 Marriott Golden Gate B1
- "*Using Ruby on Rails with legacy Oracle database*" Unconference Thursday 10am, Moscone West 3rd Floor.

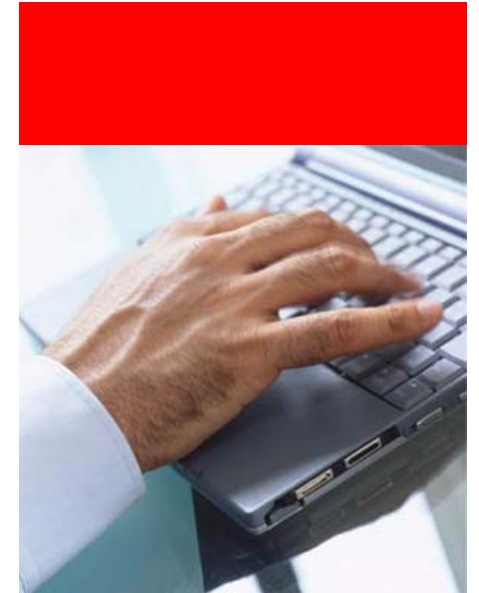


# Agenda

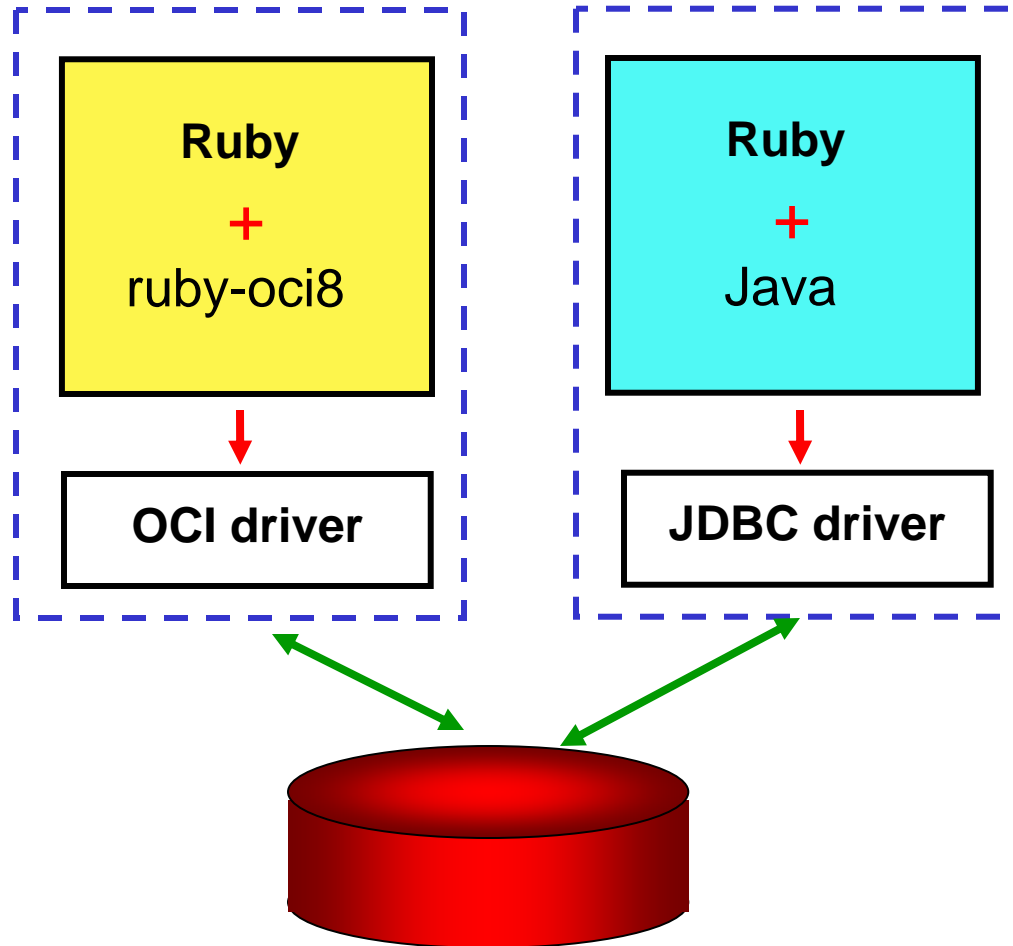
- Using Ruby or JRuby with Oracle
- Using Ruby or JRuby on Rails with Oracle
- Building Scalable Ruby Applications with Oracle: The Making of Mix



# **Using** Ruby or JRuby with **Oracle**



# Using Ruby or JRuby with Oracle





# Ruby-OCI8

- C-based Ruby Adapter using OCI Driver for accessing the Oracle Database

<http://rubyforge.org/projects/ruby-oci8>

`#fetch.rb: using Ruby-OCI8`

```
require 'config.rb'
```

```
conn = OCI8.new(DB_USER, DB_PASSWORD, DB_SERVER)
```

```
cursor = conn.parse("select * from regions")
```

```
cursor.exec
```

```
puts cursor.getColNames.join(",")
```

```
while r = cursor.fetch
```

```
  puts r.join(",")
```

```
end
```

```
cursor.close
```

```
conn.logoff
```

```
puts '-'*80
```



# JRuby

- Pure Java implementation of the Ruby Interpreter using JDBC driver to Access the Oracle database
- JRuby applications deployed as a Java WAR file
- Oracle JDBC

<http://www.oracle.com/technology/tech/oci/index.html>

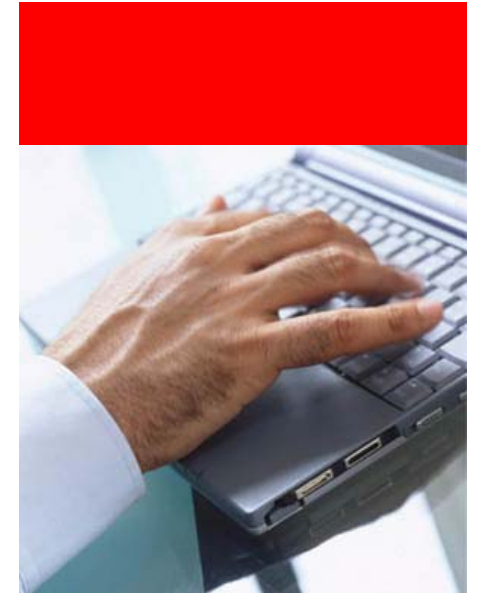


# JRuby Cont'd

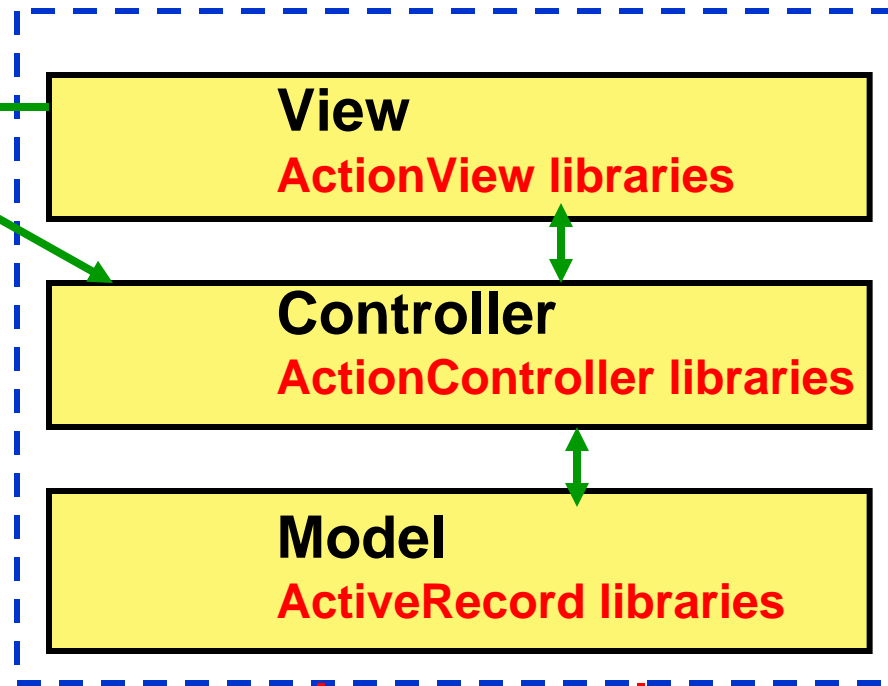
```
#fetch.rb: JRuby
require "ojdbc5.jar"
import java.sql.Statement
import java.sql.Connection
DriverManager.registerDriver
  Java::oracle.jdbc.driver.OracleDriver.new ....
conn =
  DriverManager.getConnection("jdbc:oracle:thin:@server:1521:SID"
    , "user", "password")
stmt = conn.createStatement();
cursor = stmt.executeQuery("select * from regions")
puts cursor.getColNames.join(",")
while r = cursor.fetch
  puts r.join(",")
end
stmt.close
conn.close
puts '-'*80
```



# **Using** Ruby or JRuby on Rails with Oracle



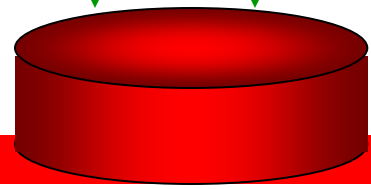
# Ruby or JRuby on Rails



Ruby/JRuby  
On Rails

ruby-oci8

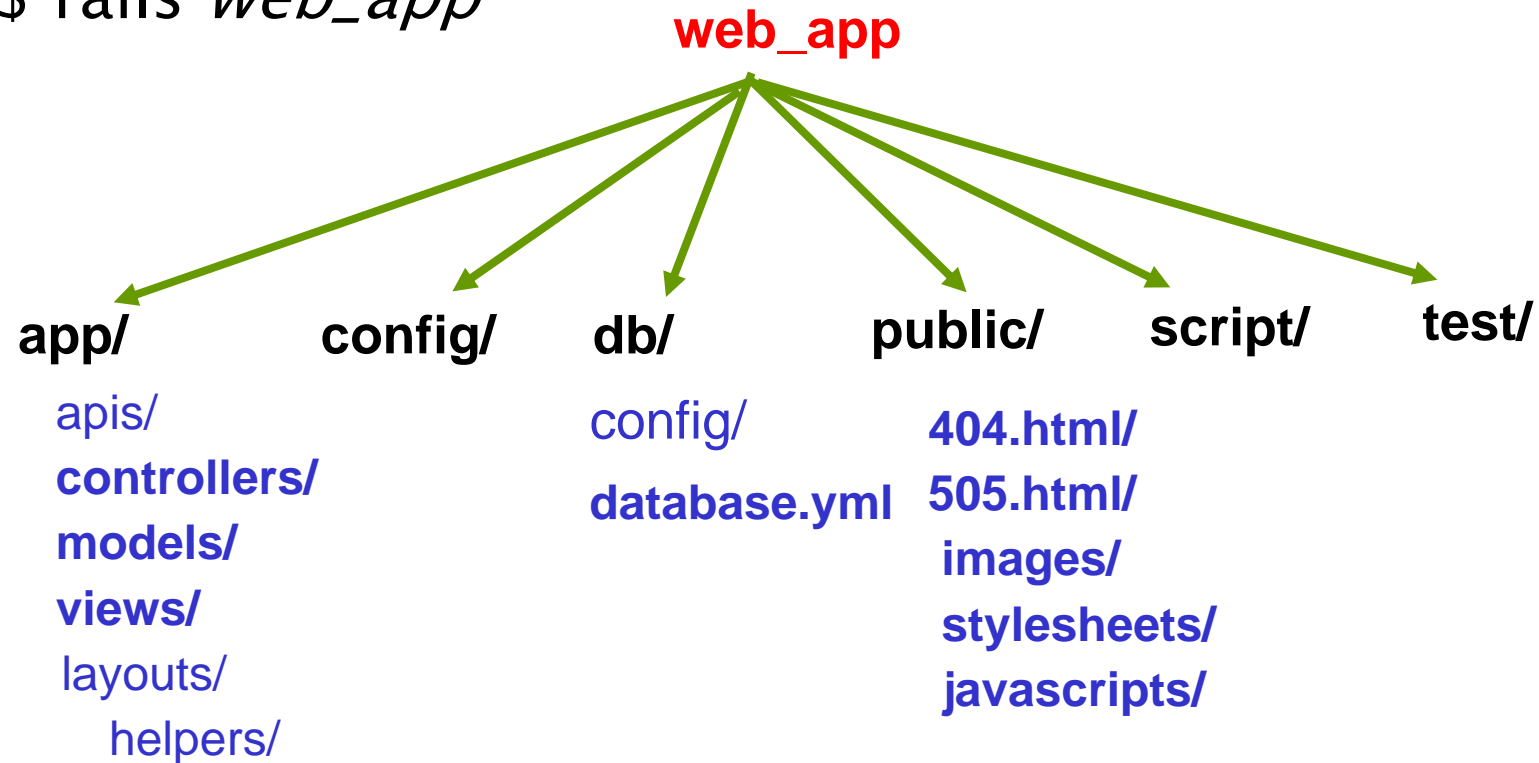
JDBC



# Rails Application Architecture

Structure generated by Rails command

```
$ rails web_app
```



# ActiveRecord – Object Relational Mapping

- Automated mapping between classes and tables, attributes and columns.

classes <-> tables  
object instances <-> rows  
attributes <-> columns

```
class Order < ActiveRecord::Base; end
```

Ruby  
Code



```
CREATE TABLE order ( ... );
```



## ActiveRecord – One-to-One Relationship

- One row in table A (order) is associated with zero or one row in table B (invoice)

```
$ cat app/models/order.rb
  class Order < ActiveRecord::Base
    has_one :invoice
  end

$ cat app/models/invoice.rb
  class Invoice < ActiveRecord::Base
    belongs_to :order
  end
```



## ActiveRecord – One-to-Many Relationship

- One row in table A (order) is associated with zero, one, many rows in table B (line\_item)

```
$ cat app/models/order.rb
class Order < ActiveRecord::Base
  has_one :invoice
  has_many :line_items
end
```

```
$ cat app/models/line_item.rb
class LineItem < ActiveRecord::Base
  belongs_to :order
end
```



# ActiveRecord – Many-to-Many Relationship

- An arbitrary number of rows in table A (**articles**) are associated with an arbitrary number of rows in table B (**authors**)

```
$ cat app/models/article.rb
```

```
class Article < ActiveRecord::Base
  has_and_belongs_to_many :authors
  set_sequence_name "ARTICLES_AUTHORS_SEQ"
end
```

```
$ cat app/models/author.rb
```

```
class Author < ActiveRecord::Base
  has_and_belongs_to_many :articles
  set_sequence_name "ARTICLES_AUTHORS_SEQ"
end
```



# Building a Basic Rails Application

## 1. Create a Rails Application

```
$rails myapp  
$cd myapp
```

## 2. Generate the Model (Table Skeletons)

```
$ruby script/generate model order  
$ruby script/generate model invoice
```

## 3. Generate/Update the DDL (Migration in Ruby Parlance)

```
$vi db/migrate/001_create_orders.rb  
def self.up  
  create_table :orders do |t|  
    t.column :name, :string  
    t.column :description, :string  
  end  
end  
$rake db:migrate -> create the table(s)
```

# Building a Basic Rails Application

## 4. Configuring ActiveRecord for Oracle

ActiveRecord Oracle Enhanced Adapter

<http://rubyforge.org/projects/oracle-enhanced/>

```
$ sudo gem install activerecord-oracle_enhanced-adapter
```

```
.../db/config/database.yml
```

```
#
```

```
development:
```

```
  adapter: oracle-enhanced
```

```
  database: orcl11g ← tnsnames.ora alias
```

```
  username: hr
```

```
  password: hr
```

```
test
```

```
  ... same as above
```

```
production
```

```
  ... same as above
```



# Building a Basic Rails Application

## 5. Define Relations in Model

One-to-One, One-to-Many, Many-to-Many

## 6. Generate Scaffold

Standard actions for CRUD operations on objects of the class..

```
$ruby script/generate scaffold order
```

```
$ruby script/generate scaffold invoice
```

## 7. Launch the WEBrick http server

```
$ruby script/server
```

## 8. Connect to Web Page and do CRUD operations

```
http://<host>:3000/orders
```

```
http://<host>:3000/invoice
```



# What Oracle Brings to Ruby/Rails Applications

## Development Infrastructure

- Connectivity: Ruby OCI8 Adapter, Oracle JDBC
- All Data Types Support
- SQL
- Transaction Management
- Stored Procedures
  - PL/SQL
  - Java
- Row Prefetching



# What Oracle Brings to Ruby/Rails Applications

## Deployment Infrastructure

- Integrated Content Store
- Integrated Database Deployment
- Security
- Advanced Data Compression
- Performance
- Advanced Partitioning
- Diagnosability



# **Building** Scalable Ruby Applications with Oracle

## **The Making** of [mix.oracle.com](https://mix.oracle.com)





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- Oracle VM
- Oracle Enterprise Manager
- More Database

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- Application Server
- Service-Oriented Architecture
- Business Process Management
- Content Management
- Enterprise 2.0 and Portals
- Enterprise Performance Management and Business Intelligence
- Identity Management
- Developer Tools
- More Middleware

### APPLICATIONS

- Oracle E-Business Suite
- PeopleSoft Enterprise
- Siebel
- JD Edwards EnterpriseOne
- JD Edwards World
- Hyperion
- Oracle Fusion
- Application Integration Architecture
- Oracle On Demand
- More Applications

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- Retail
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- Oracle WebLogic Server
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### EVENTS AND NEWS

- Events, Oracle OpenWorld
- Newsroom
- More News and Events

### RESOURCES

- Education, Certification
- Discussion Forums
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MOSCONE CENTER, SAN FRANCISCO

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# What is Mix?

The screenshot shows a browser window with the title "Bringing Oracle Customers, Employees, and Developers together » Oracle Mix". The address bar contains "https://mix.oracle.com/". The browser's top menu bar includes links for Top, Gmail, Gcal, Reader, Docs, gotAPI, railsdoc, Ruby, NYTimes, Delicious, Twitter, Flickr, Mint, Appslab, Mix, Press This, Mibbit, and manalang. The Oracle logo is in the top left, with "Beta" next to it. A search bar is in the top right with the text "New Features! | Sign in" and a search input field containing "Type here to search in" and a dropdown menu showing "user profiles". Below the search bar is a navigation bar with links for MIX HOME, PEOPLE, GROUPS, IDEAS, and Q&A, and a "Go to Oracle.com" button. The main content area features a large red heading "Welcome to Oracle Mix." followed by the text "Mix is here to give everyone a voice and help us to shape the future of Oracle together." Below this are four sections: "Share Ideas." (Let us know how we can improve our products or how we do business. See an idea you like, vote on it or add your comments.), "Join Groups." (Get together with others around products, industries, or more. Can't find a group you like? Start one!), "Network." (Connect with other customers and get to know Oracle experts in your product area or industry.), and "Get Answers." (Got a tough question, ask it. Feeling bright? Help someone and answer a question.). A "Featured Group" box on the right highlights "Oracle OpenWorld San Francisco 2008" with an "Oracle OpenWorld" logo and a "Join!" button. The text in the featured group box reads: "Open forum to connect and collaborate with attendees, partners, Oracle employees, and event staff before, during, and after the show." The browser's scrollbar is visible on the right side.

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## Welcome to Oracle Mix.

Mix is here to give everyone a voice and help us to shape the future of Oracle together.

### Share Ideas.

Let us know how we can improve our products or how we do business. See an idea you like, vote on it or add your comments.

### Join Groups.

Get together with others around products, industries, or more. Can't find a group you like? Start one!

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### Share and Learn.

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#### Featured Group

**Oracle OpenWorld San Francisco 2008**

Open forum to connect and collaborate with attendees, partners, Oracle employees, and event staff before, during, and after the show.

Join!



## What's in Mix?

- People profiles
- Networking
- Idea sharing and voting
- Questions & Answers
- Groups (public/private)
  - Blogging
  - Chat
- Direct messaging
- Feeds



# Demo



# The Backstory

- Oracle IdeaFactory (July 2007)
- Oracle Connect (August 2007)
  - 2000 users in 10 hours
  - 10000 in 3 days
- All created (in 5-6 weeks) with Ruby on Rails by one person



# Oracle Mix

- Launched November 11, 2007 (OOW 2007)
- Built in 6 weeks (Oracle and Thoughtworks – 5 developers)
- At start, no hardware available
- By the week before launch, deployed on:
  - 4x2 single core, 12 gb mem, small NetApp share (3 appservers, 1 database, behind BigIP load balancer)



## The geeky details

- JRuby on Rails (Rails 1.2, JRuby trunk, around 1.1RC1)
  - Initially Rails 1.2, JRuby around 1.1RC1
  - Now Rails 2.1, JRuby 1.1.3
- Oracle Application Server (OC4J)
- Oracle Database 10g
- Oracle Internet Directory (LDAP)
- Oracle SSO
- Oracle HTTP Server
- Oracle Enterprise Linux



## Benefits of the technical platform

- Quick turnaround
- Agile development
- Start to finish took 6 weeks
- Integration with technical stack very easy
  - From Java side
  - From Ruby side



# Stats

- Initial: Code LOC: 2887, Test LOC: 3691
- After 3 weeks
  - 3000 registered people, 40% employees
- After 6 weeks
  - 4400 registered, over 150 ideas, 200 groups
- After 4 months (March 08)
  - 7000 people, 35% employees, 286 groups, 600 ideas, 168 questions
- After 7 months (June 08)
  - 17000 people, 5500 employees, 460 groups, 1081 ideas
- After 10 months (September 08):
  - 31000 people, 10000 employees, about 600 groups
- Today:
  - ???



# Roadmap





# Futures

- API for social networking applications
- Developed by Google and MySpace + others
- Implementing the API's make it possible to integrate with other implementing sites
- Connect V2 add support for OpenSocial, and experimental applications have been added
- Mix will add public OpenSocial support at some point



# Oracle and Ruby On Rails

## What We Are Aiming At

- Community Participation
- Contribute to the Ruby OCI8 Adapter for Oracle
  - Bug Fixes
  - Performance Improvement
  - Comprehensive Support for Oracle Database Types
  - Expose Key Oracle Features
- Packaging/Bundling
- Porting Ruby on Rails Applications to Oracle

# Resources ...

<http://db360.blogspot.com>

<http://blogs.oracle.com/opal/>

<http://www.oracle.com/technology/tech/scripting-languages/index.html>

The screenshot shows a Microsoft Internet Explorer browser window displaying the Oracle Scripting Language Technology Center website. The browser's address bar shows the URL <http://www.oracle.com/technology/tech/scripting-languages/index.html>. The website header includes the Oracle logo and the text "ORACLE TECHNOLOGY NETWORK". A search bar is visible with the text "secure search" and "Technology Network". The main content area is titled "Scripting Language Technology Center" and features a navigation menu with categories: Getting Started, Downloads, Documentation, Forums, Articles, Sample Code, and Tutorials. The main content includes a "What's New" section with several articles, such as "PHP/RoR Sessions at Oracle OpenWorld" and "Easy Integration: From XML to the Datastore Without the Mess". A sidebar on the right contains sections for "Downloads" (listing Oracle Database XE, Oracle 10g Instant Client, Ruby/RoR, and Python), "Blogs" (listing Christopher Jones and Tuq Grall), and "Ruby Discussions" (listing several threads related to Ruby on Rails and Oracle).



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