Web System Development by Ruby on Rails

Day 2(27/Sept/2012)

First Project

Internationalization

Today’s Goal

Run Rails 3 on CentOS, and generate the first project.

Generate the bi-lingual screen using Internationalization(I18n) gem.

The slides are prepared for two languages, Japanese and English. But depending your nationality, you can choose any language, which the locale file is provided.

Preparation of Rails on CentOS Environment

Rails on CentOS Virtual computer disk file is delivered by two ways.

(1) Via RAT team server.

Such information as URL are described in the bulletin board of this lecture.

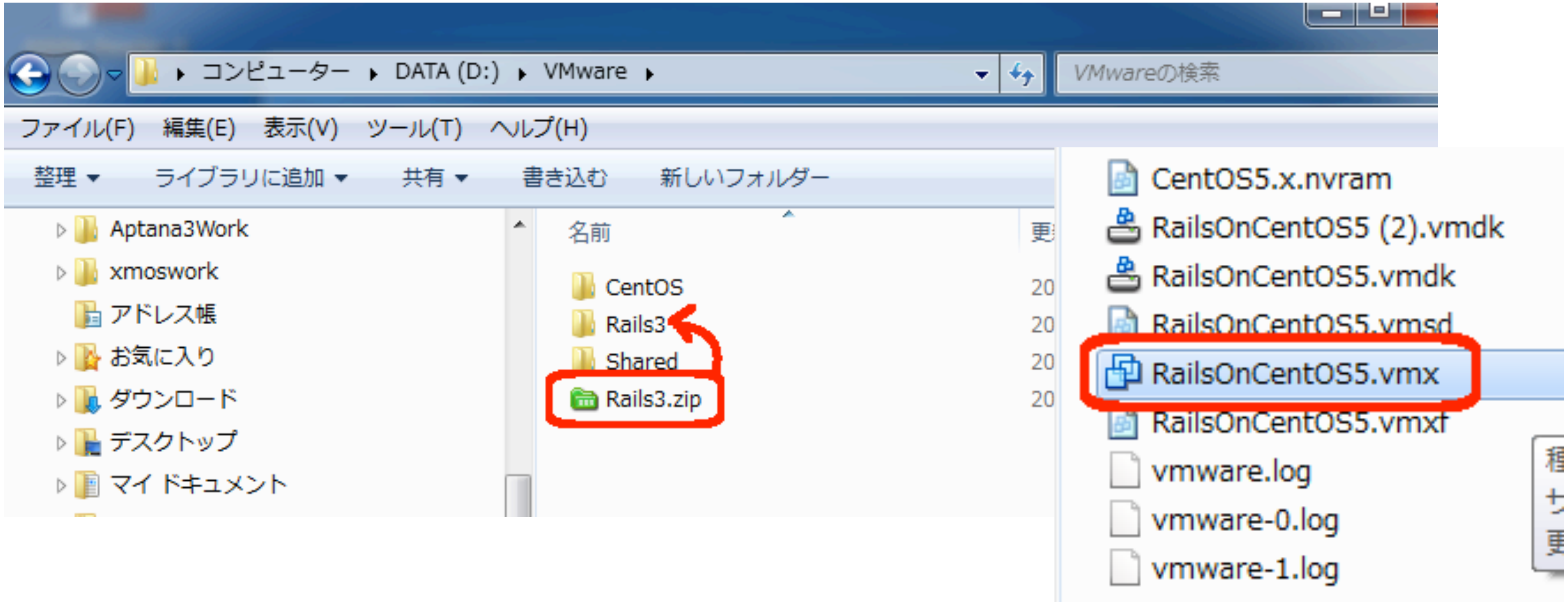
(2) Install the system via DVD disk.

Copy rails3.zip to your VMware folder by either method.

Decompress the ZIP file

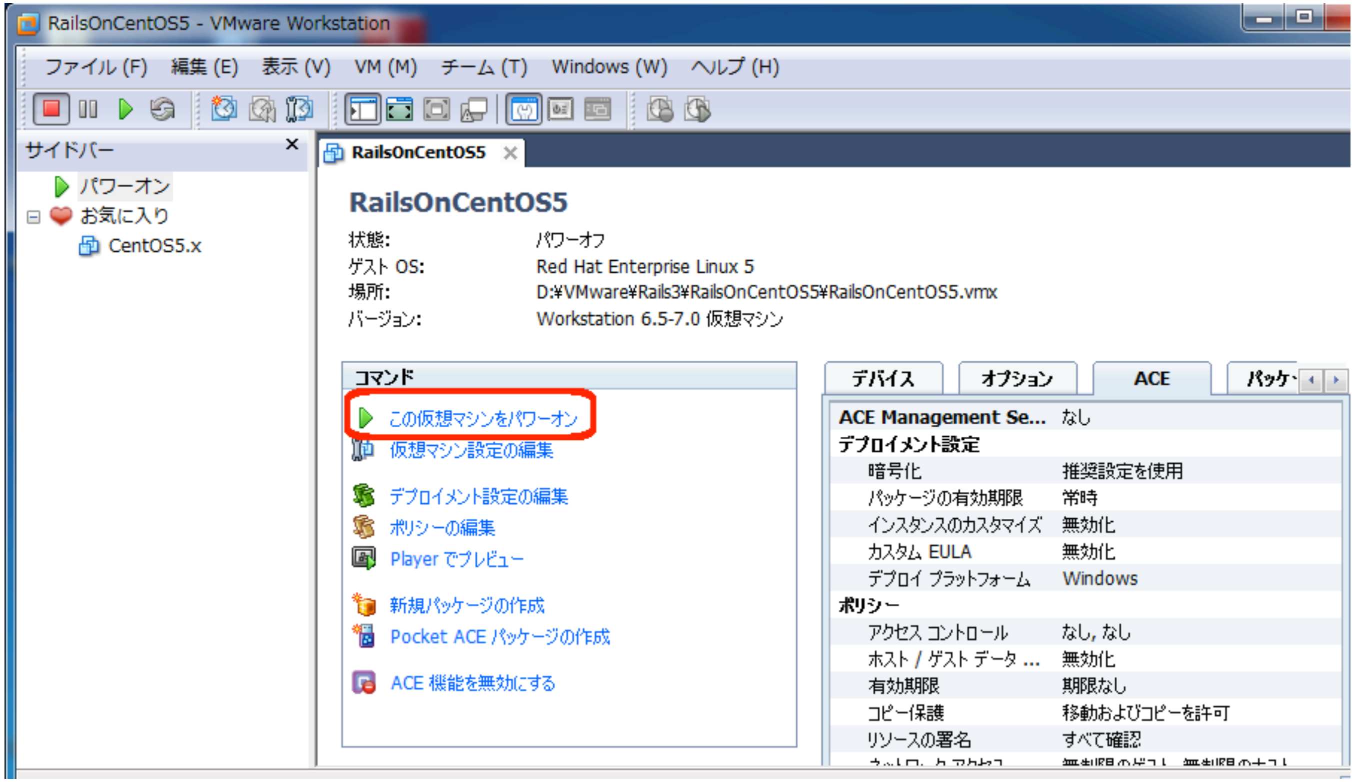
Decompress Rails3.zip.

Then, double click the RailsOnCentOS5.vmx file in the decompressed folder.



Start CentOS

Starting Vmware, you will see the following screen. Here, run CentOS. Messages in the environment is only in Japanese.



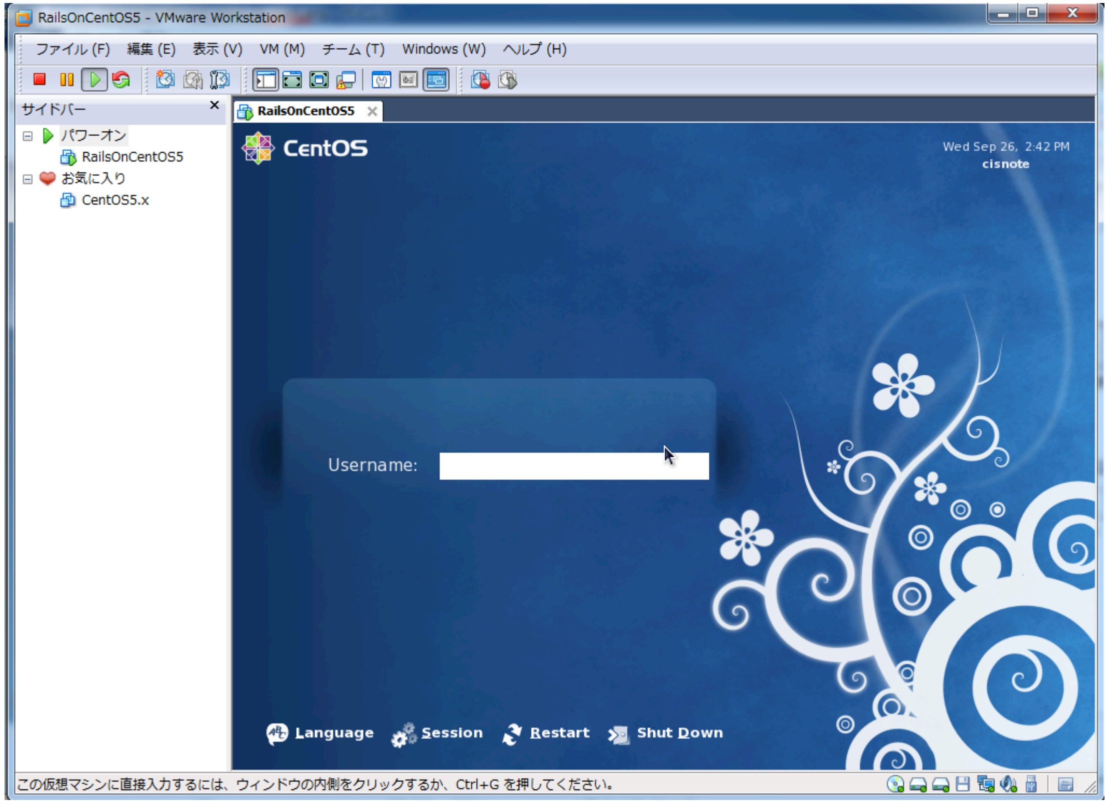
RailsOnCentOS5

状態: パワーオフ
ゲスト OS: Red Hat Enterprise Linux 5
場所: D:¥VMware¥Rails3¥RailsOnCentOS5¥RailsOnCentOS5.vmx
バージョン: Workstation 6.5-7.0 仮想マシン

ACE Management Se...	なし
デプロイメント設定	
暗号化	推奨設定を使用
パッケージの有効期限	常時
インスタンスのカスタマイズ	無効化
カスタム EULA	無効化
デプロイ プラットフォーム	Windows
ポリシー	
アクセス コントロール	なし, なし
ホスト / ゲスト データ ...	無効化
有効期限	期限なし
コピー保護	移動およびコピーを許可
リソースの署名	すべて確認
ネットワーク アクセス	無制限のゲスト、無制限のホスト

Login to CentOS

Login screen of CentOS is as the following; User ID is root, and password is hosei.

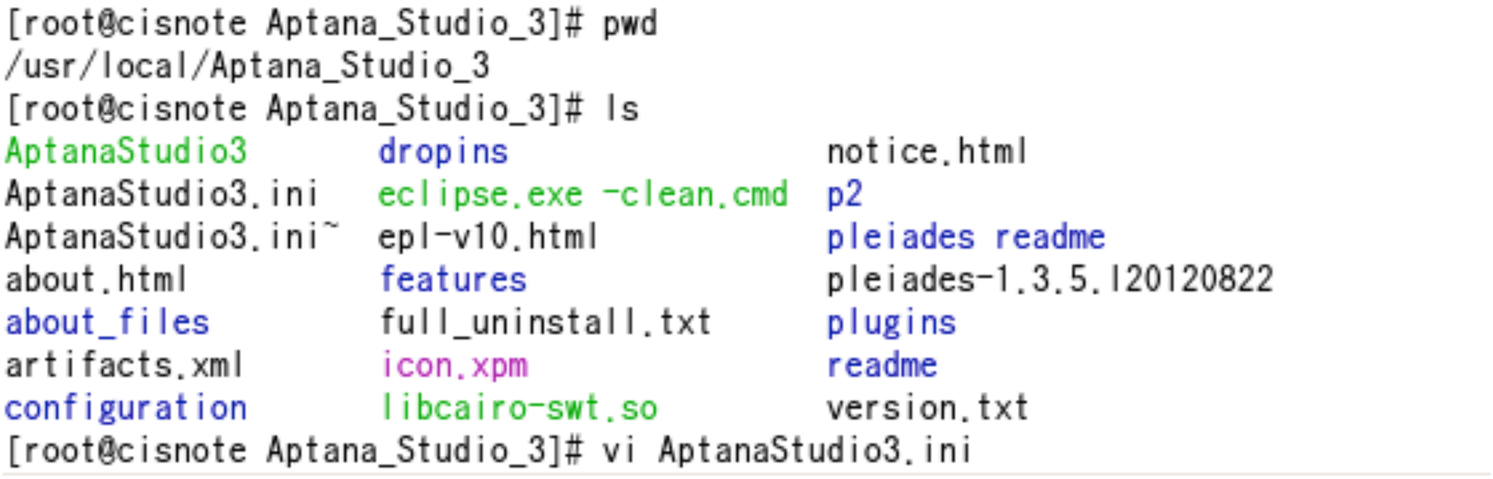


この仮想マシンに直接入力するには、ウィンドウの内側をクリックするか、Ctrl+G を押してください。

English version of Aptana

Aptana is originally provided in English. The ZIP file is prepared for Japanese students.

Aptana is installed in /usr/local/Aptana_Studio_3 directory. By editting the AptanaStudio3.ini file, you can switch the environment back in English.

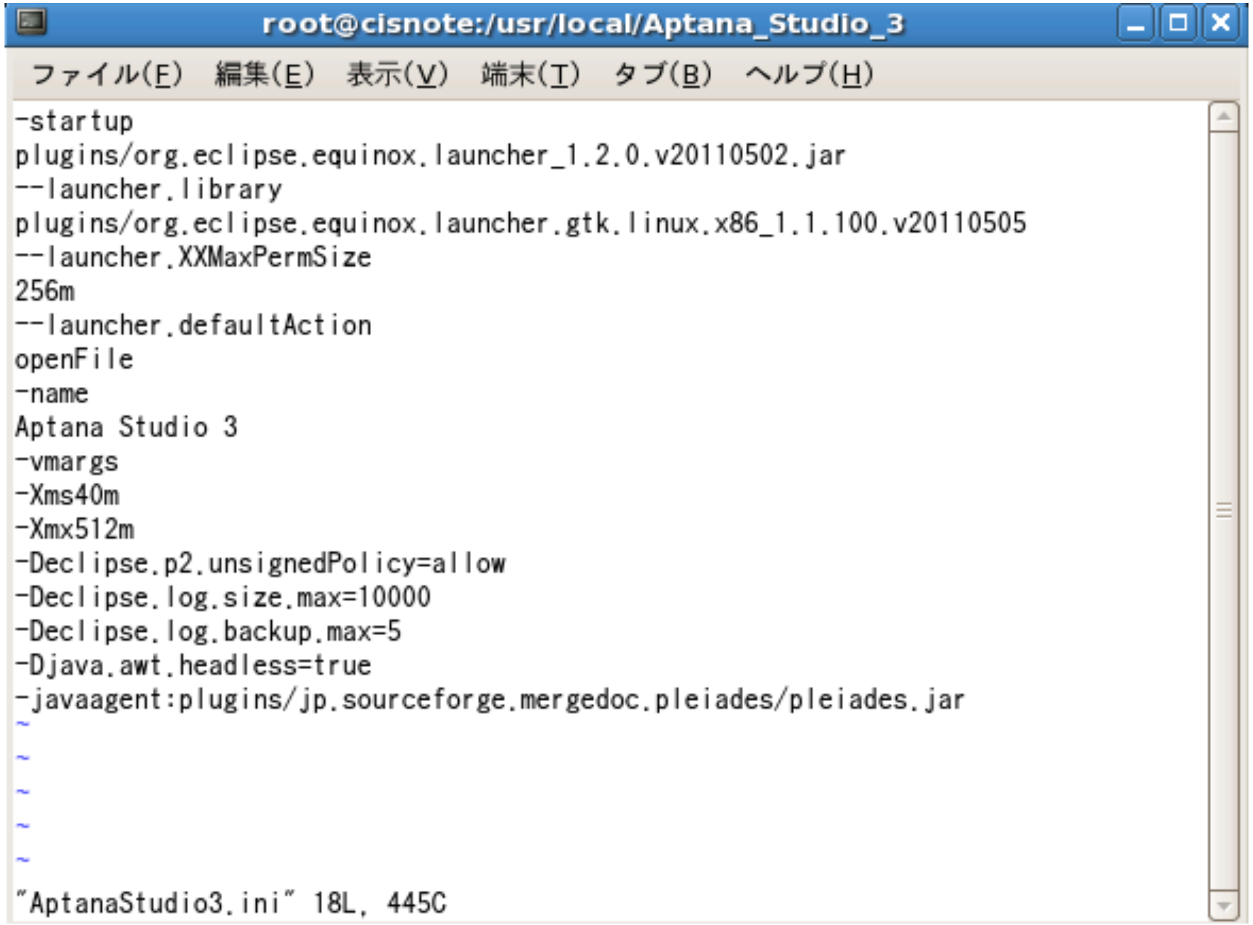


```
[root@cisnote Aptana_Studio_3]# pwd
/usr/local/Aptana_Studio_3
[root@cisnote Aptana_Studio_3]# ls
AptanaStudio3       dropins                  notice.html
AptanaStudio3.ini   eclipse.exe -clean.cmd   p2
AptanaStudio3.ini~  epl-v10.html             pleiades readme
about.html          features                 pleiades-1.3.5.I20120822
about_files         full_uninstall.txt       plugins
artifacts.xml       icon.xpm                 readme
configuration       libcairo-swt.so          version.txt
[root@cisnote Aptana_Studio_3]# vi AptanaStudio3.ini
```

Modifying AptanaStudio3.ini

Remove the last line;

-javaagent:plugins/jp.sourceforge.mergedoc.pleiades/…



root@cisnote:/usr/local/Aptana_Studio_3
ファイル(F) 編集(E) 表示(V) 端末(T) タブ(B) ヘルプ(H)

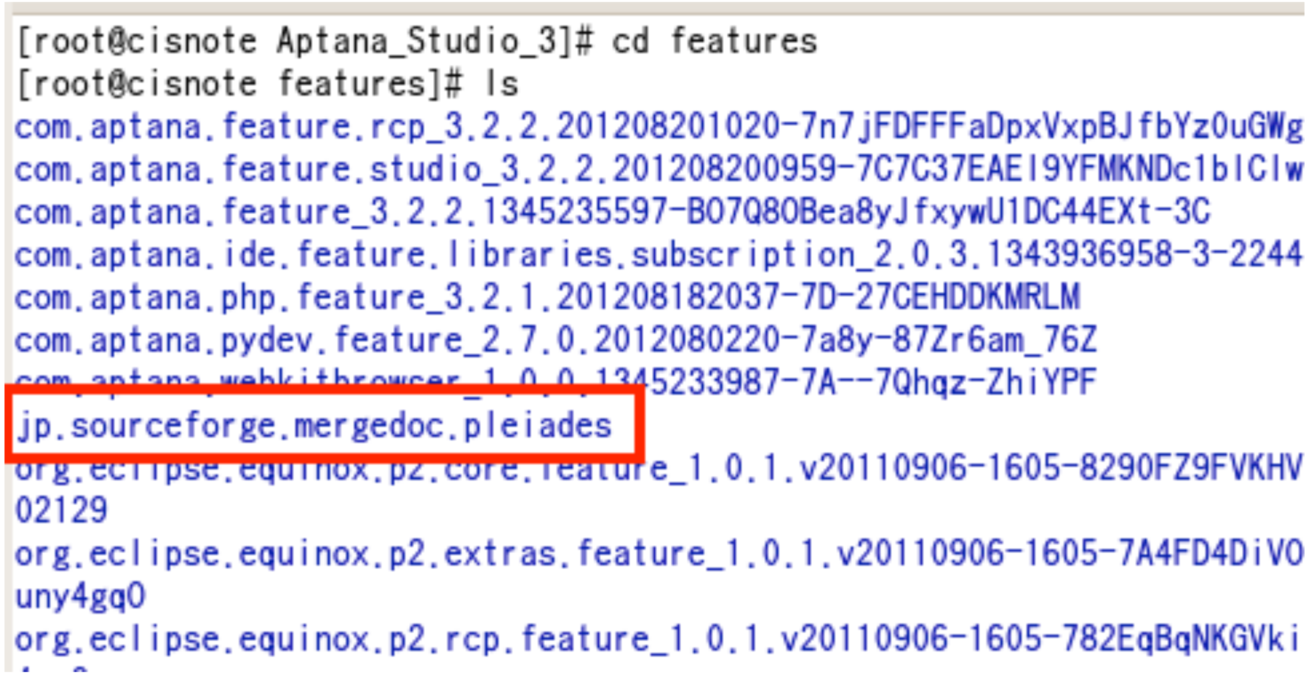
```
-startup
plugins/org.eclipse.equinox.launcher_1.2.0.v20110502.jar
--launcher.library
plugins/org.eclipse.equinox.launcher.gtk.linux.x86_1.1.100.v20110505
--launcher.XXMaxPermSize
256m
--launcher.defaultAction
openFile
-name
Aptana Studio 3
-vmargs
-Xms40m
-Xmx512m
-Declipse.p2.unsignedPolicy=allow
-Declipse.log.size.max=10000
-Declipse.log.backup.max=5
-Djava.awt.headless=true
-javaagent:plugins/jp.sourceforge.mergedoc.pleiades/pleiades.jar
~
~
~
~
~
"AptanaStudio3.ini" 18L, 445C
```

Remove feature file

Remove the following directory in the features directory.

Jp.sourceforge.mergedoc.pleiades

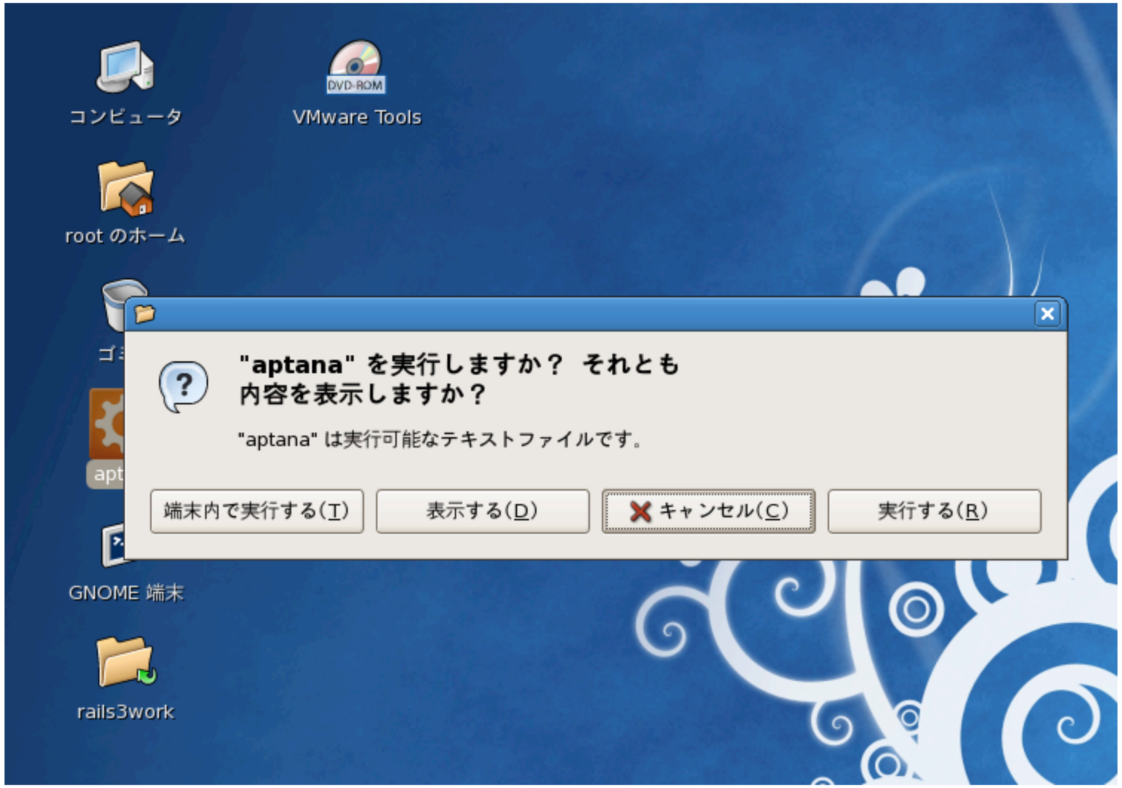
Pleiades is the language patch for Japanese.



```
[root@cisnote Aptana_Studio_3]# cd features
[root@cisnote features]# ls
com.aptana.feature.rcp_3.2.2.201208201020-7n7jFDFFFaDpxVxpBJfbYz0uGWg
com.aptana.feature.studio_3.2.2.201208200959-7C7C37EAEI9YFMKNDc1bIClw
com.aptana.feature_3.2.2.1345235597-B07Q80Bea8yJfxywU1DC44EXt-3C
com.aptana.ide.feature.libraries.subscription_2.0.3.1343936958-3-2244
com.aptana.php.feature_3.2.1.201208182037-7D-27CEHDDKMRLM
com.aptana.pydev.feature_2.7.0.2012080220-7a8y-87Zr6am_76Z
com.aptana.webkitbrowser_1.0.0.1345233987-7A--7Qhqz-ZhiYPF
jp.sourceforge.mergedoc.pleiades
org.eclipse.equinox.p2.core.feature_1.0.1.v20110906-1605-8290FZ9FVKHV
02129
org.eclipse.equinox.p2.extras.feature_1.0.1.v20110906-1605-7A4FD4DiVO
uny4gq0
org.eclipse.equinox.p2.rcp.feature_1.0.1.v20110906-1605-782EqBqNKGVki
```

Start Aptana

Modify the environment to English, then start Aptana by double clicking the Aptana icon on the desktop.



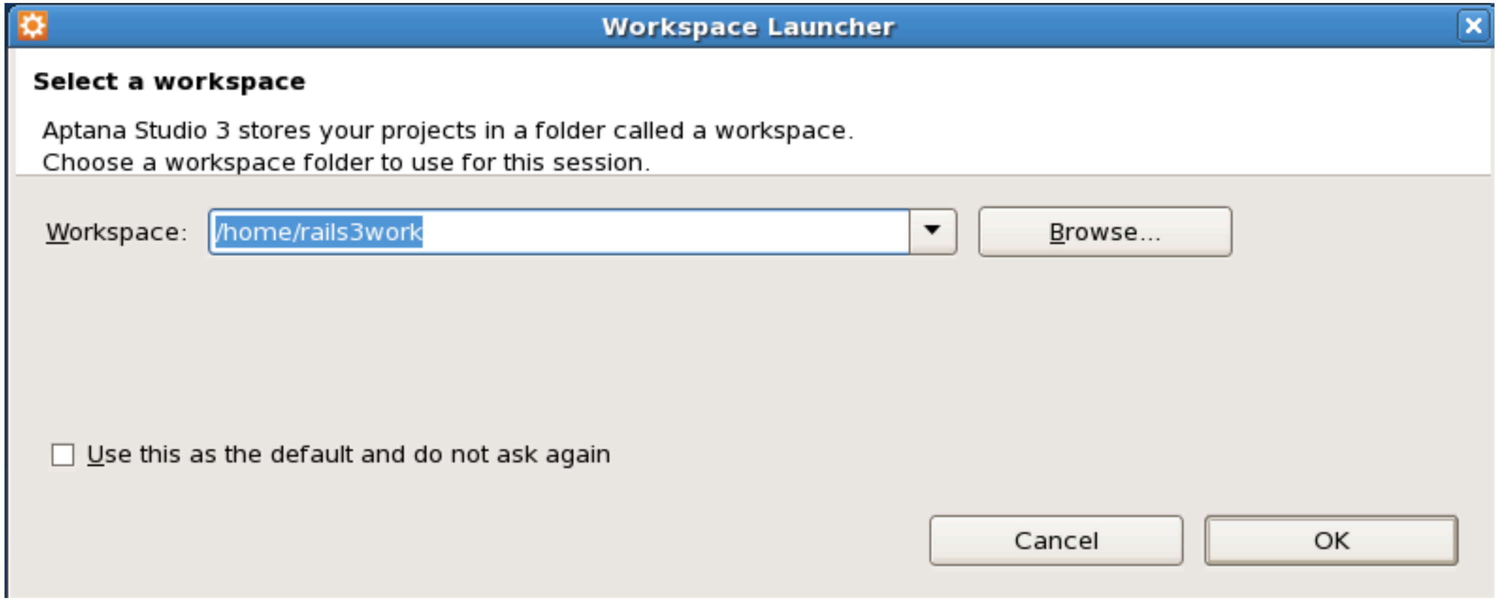
"aptana" を実行しますか？ それとも
内容を表示しますか？

"aptana" は実行可能なテキストファイルです。

Entering Workspace

Aptana’s Workspace is set to Aptana3Work.

IF you want to change the Workspace, do it and keep aware that you have changed the path, when you read my materials.



Workspace Launcher

Select a workspace

Aptana Studio 3 stores your projects in a folder called a workspace.
Choose a workspace folder to use for this session.

Workspace: /home/rails3work

□ Use this as the default and do not ask again

1, 2, 3, 4 of Rails

Important Slide: Repeat the operation and remember!

We can automatically generate the skeleton of WEB application with 1, 2, 3(, 4) steps.

1. Create project

   rails new (project name)

2. Modify Gemfile (when necessary)
3. Generate Entry screen by Scaffolding

   rails g scaffold (singular model name) [Field name:type] …

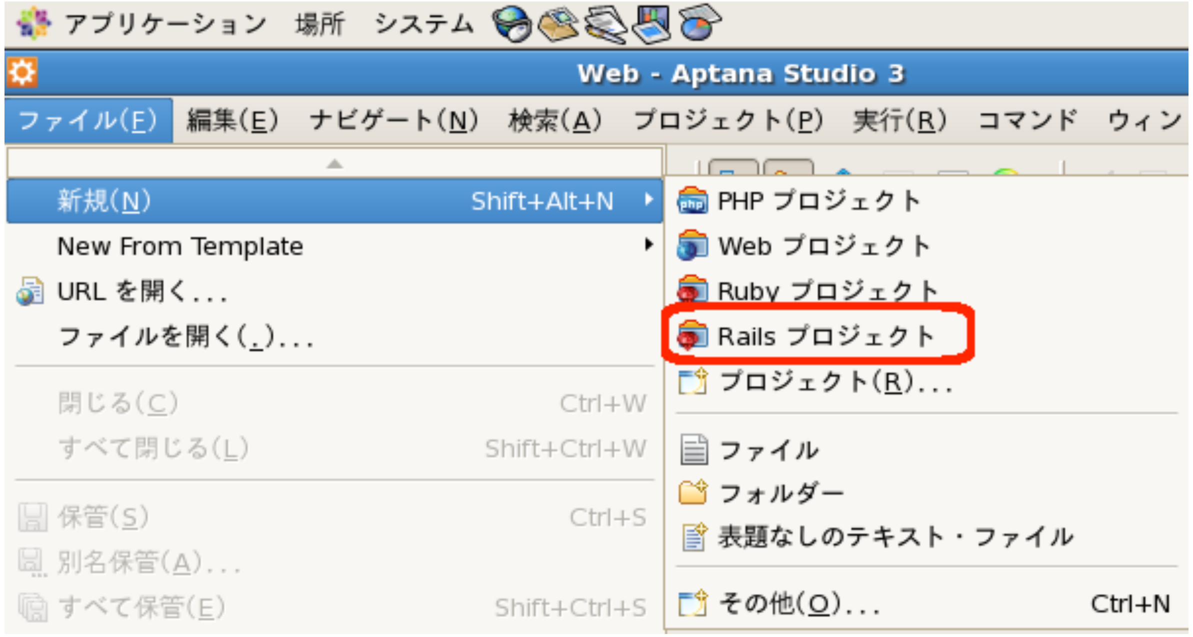
4. Create Database

   rake db:migrate

1. Generate Project

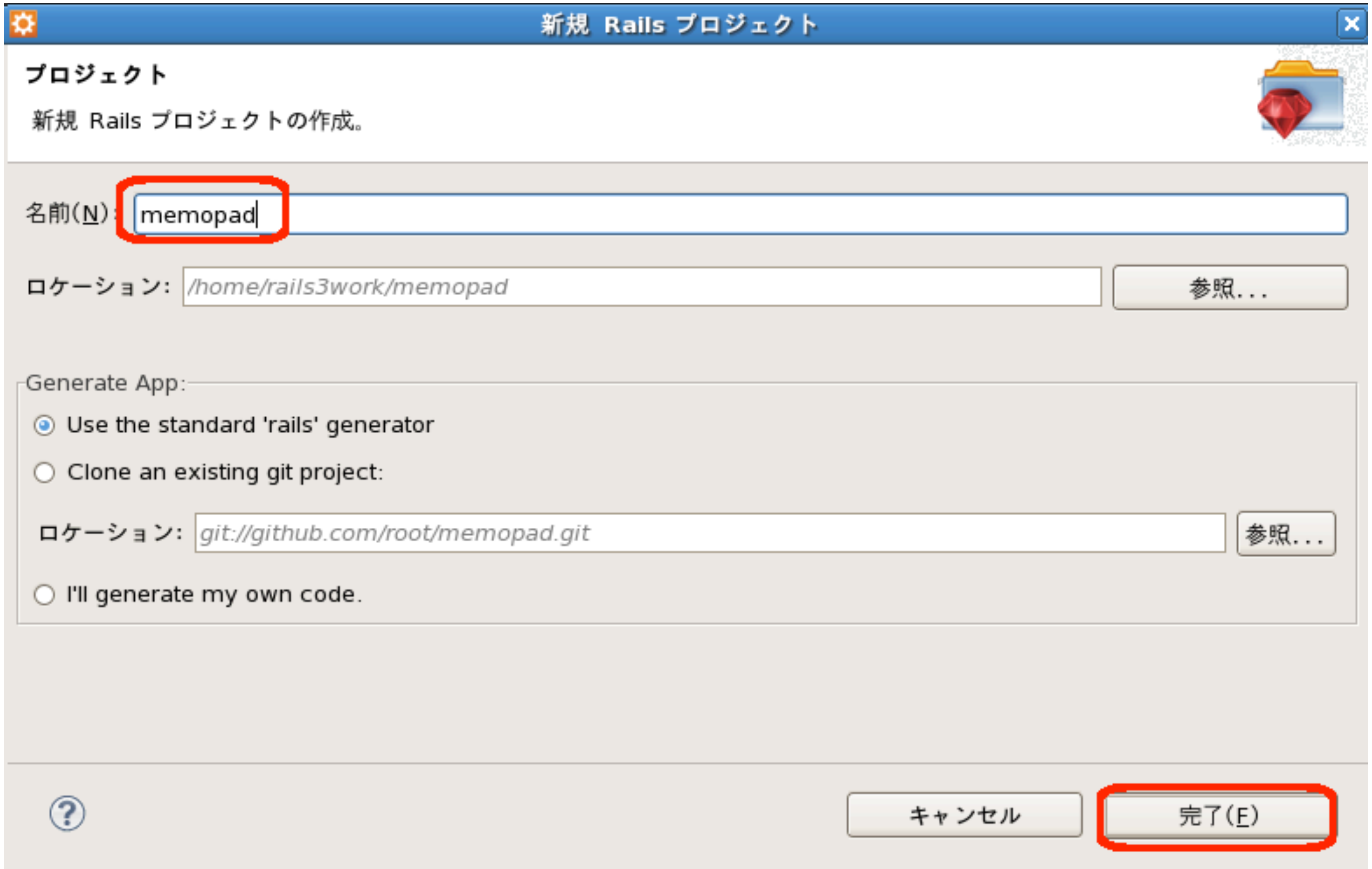
(1) Generate Project on Aptana

File --> New --> Rails Project



1. (2) Input project name

Input project name and then finish.



新規 Rails プロジェクト

プロジェクト

新規 Rails プロジェクトの作成。

名前(N): memopad

ロケーション: /home/rails3work/memopad

Generate App:

● Use the standard 'rails' generator

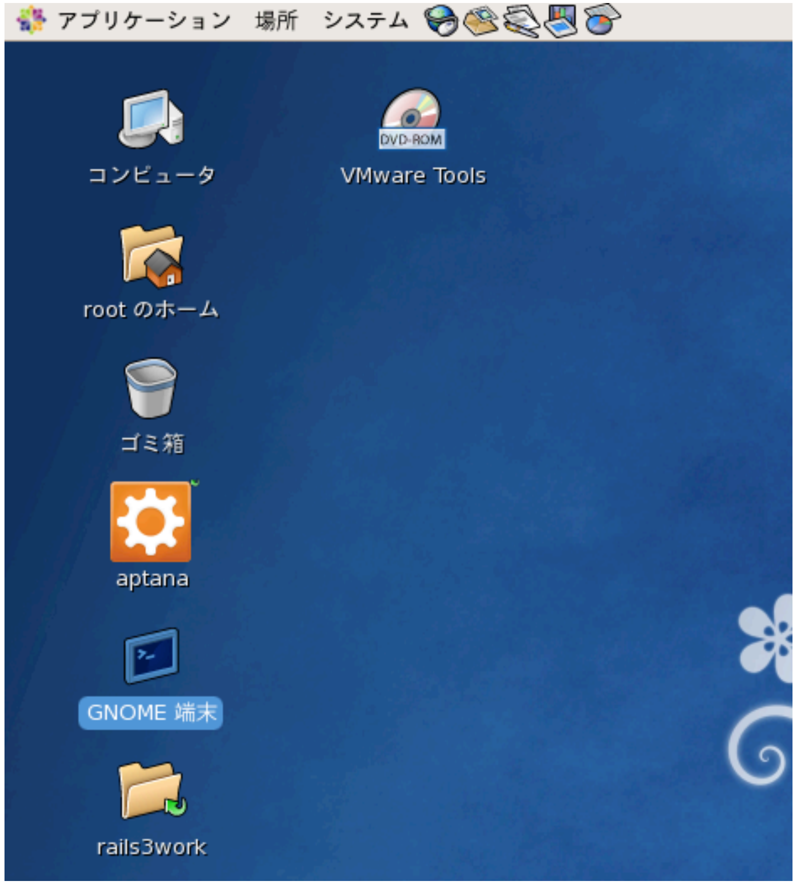
○ Clone an existing git project:

ロケーション: git://github.com/root/memopad.git

○ I'll generate my own code.

1. (3) Start console terminal

Double click Gnome terminal on the desktop



1. (4) Move to working directory

Working directory ‘rails3work’ is created on /home directory.

By typing ls(list) command to check the directory list, and move to the directory by typing cd(change directory) command.

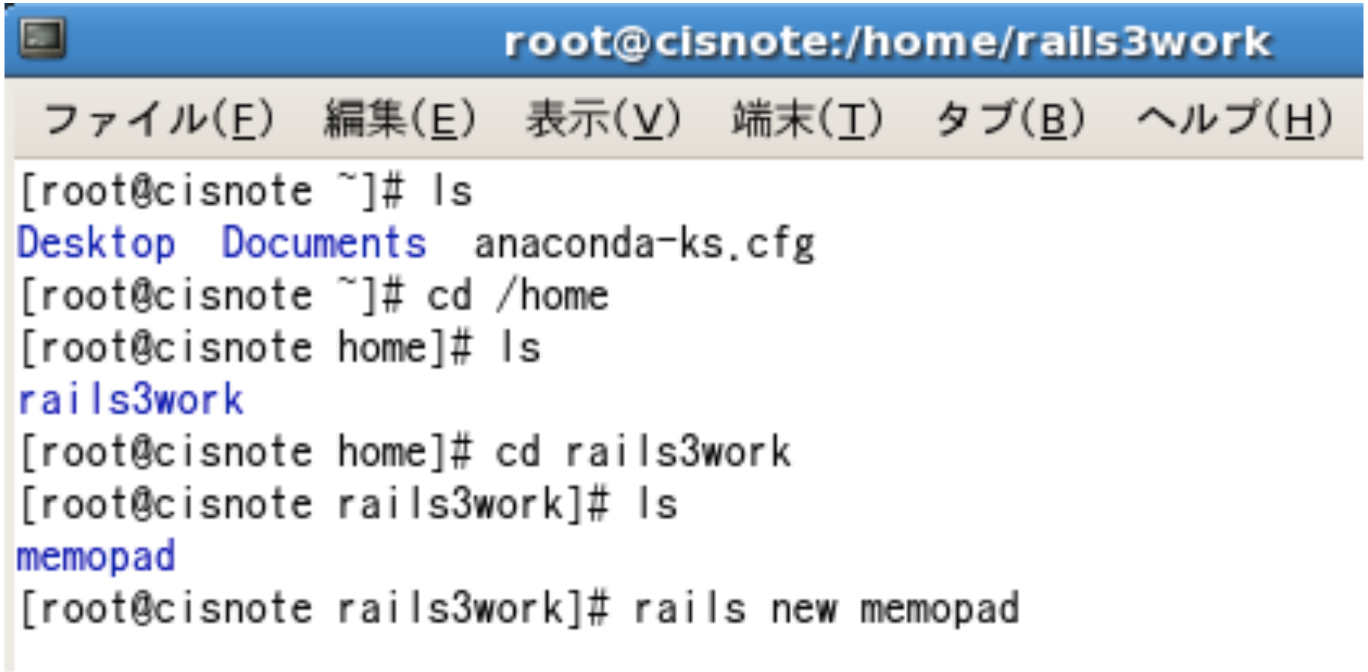
Those commands are LINUX shell command.

Remembering shell commands is essential for middle-grade programmers.

1. (5) Generate Project files

In the rails3work folder (which contains project folder,) type the following;

rails new (project name)



root@cisnote:/home/rails3work
ファイル(F) 編集(E) 表示(V) 端末(T) タブ(B) ヘルプ(H)

```
[root@cisnote ~]# ls
Desktop  Documents  anaconda-ks.cfg
[root@cisnote ~]# cd /home
[root@cisnote home]# ls
rails3work
[root@cisnote home]# cd rails3work
[root@cisnote rails3work]# ls
memopad
[root@cisnote rails3work]# rails new memopad
```

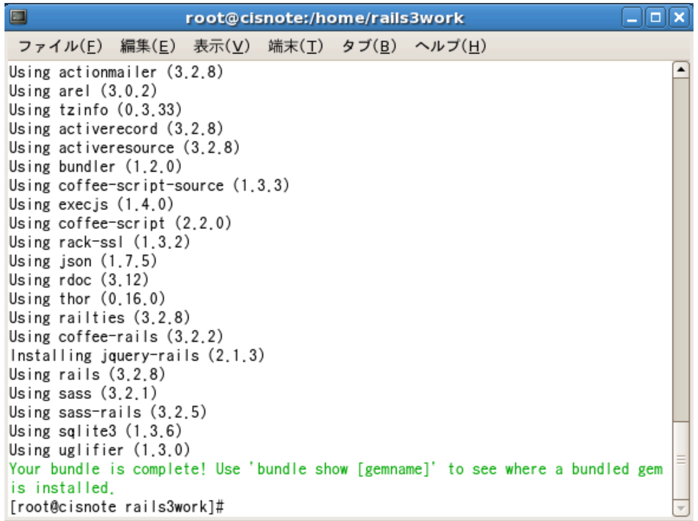
1. (5) Generation screen of project files

When project files are successfully generated, by

bundle install

command, screen would become as the following;

Bundle command will download the necessary files from internet, so you need to generate the project in the internet connected environment.


root@cisnote:/home/rails3work
ファイル(F) 編集(E) 表示(V) 端末(T) タブ(B) ヘルプ(H)

```
Using actionmailer (3.2.8)
Using arel (3.0.2)
Using tzinfo (0.3.33)
Using activerecord (3.2.8)
Using activeresource (3.2.8)
Using bundler (1.2.0)
Using coffee-script-source (1.3.3)
Using execjs (1.4.0)
Using coffee-script (2.2.0)
Using rack-ssl (1.3.2)
Using json (1.7.5)
Using rdoc (3.12)
Using thor (0.16.0)
Using railties (3.2.8)
Using coffee-rails (3.2.2)
Installing jquery-rails (2.1.3)
Using rails (3.2.8)
Using sass (3.2.1)
Using sass-rails (3.2.5)
Using sqlite3 (1.3.6)
Using uglifier (1.3.0)
Your bundle is complete! Use 'bundle show [gemname]' to see where a bundled gem
is installed.
[root@cisnote rails3work]#
```

1. Additional Explanation

Here, we generate the project first with Aptana, and then created files on the shell with ‘new’ rails command.

With some more environmental setting, we could have generated project files on Aptana, I did not tryed this time.

Also, we could generate files on the shell first, and then ‘create a project from files in a directory.’

Results are all the same.

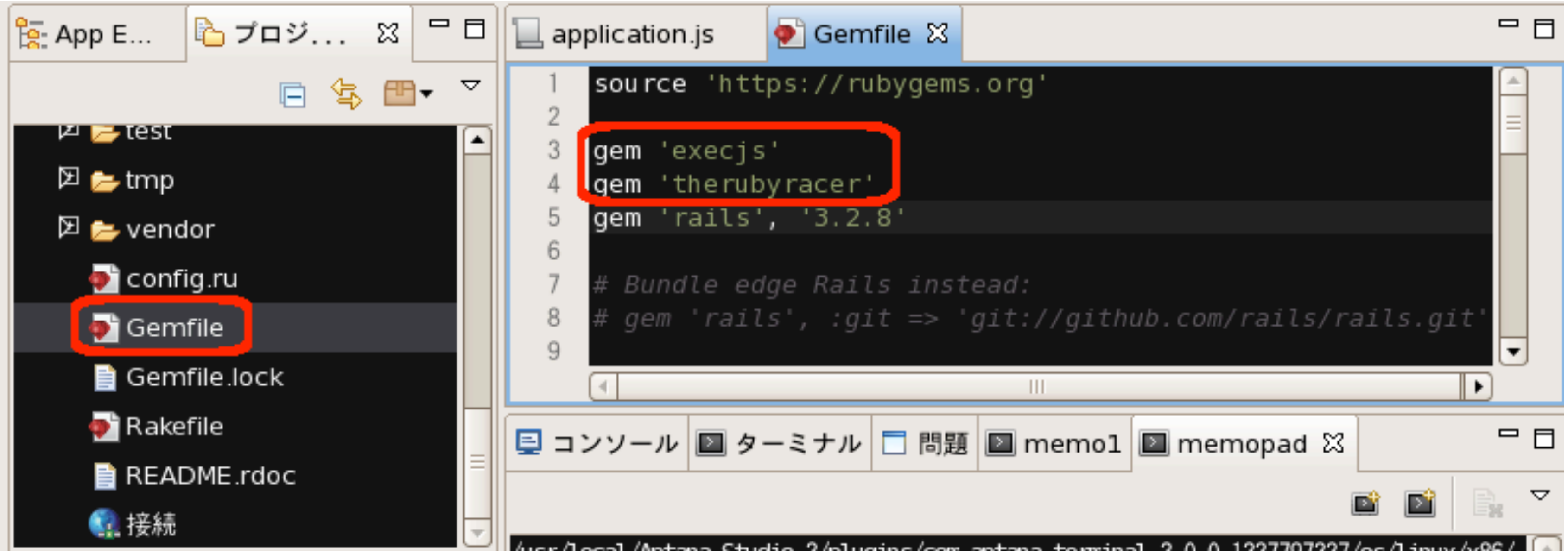
2. (1) Modification of Gemfile

An ‘execjs’ runtime module is not included with current rails version, so we need to add the following two lines in a Gemfile;

gem ‘execjs’

gem ‘therubyracer’

(If you copy and paste from this screen, ‘(single quote) will change its character code, so please type in.)



```
source 'https://rubygems.org'

gem 'execjs'
gem 'therubyracer'
gem 'rails', '3.2.8'

# Bundle edge Rails instead:
# gem 'rails', :git => 'git://github.com/rails/rails.git'

```

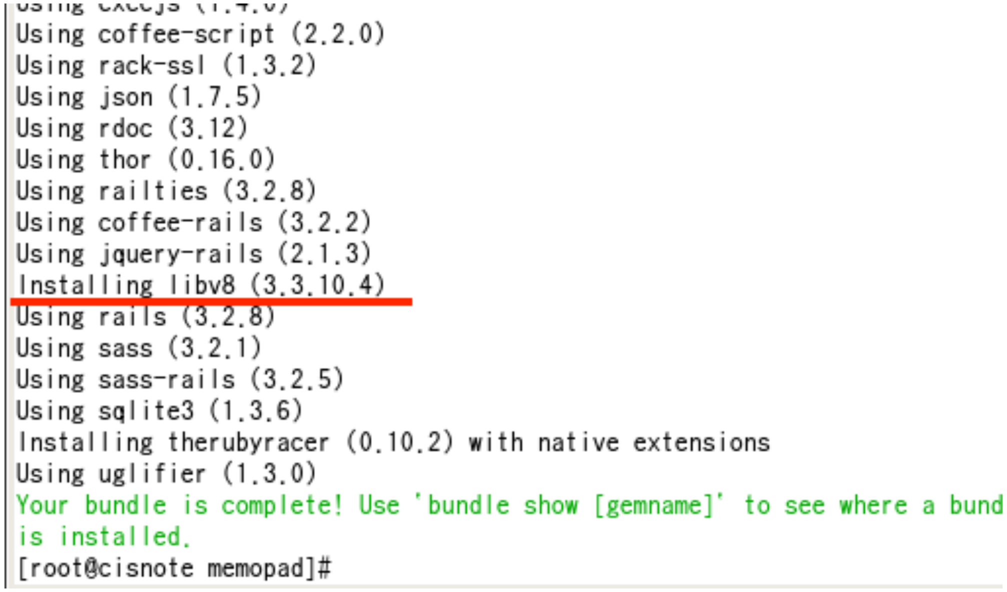
2. (2) Reflection of Gemfile change

When we modify a Gemfile, necessary gem module is specified, but just Gemfile fix is not enough. We need to reflect the change to actual gem environment.

Type

bundle install

on the command prompt. Some gems are added.



```
Using execjs (1.4.0)
Using coffee-script (2.2.0)
Using rack-ssl (1.3.2)
Using json (1.7.5)
Using rdoc (3.12)
Using thor (0.16.0)
Using railties (3.2.8)
Using coffee-rails (3.2.2)
Using jquery-rails (2.1.3)
Installing libv8 (3.3.10.4)
Using rails (3.2.8)
Using sass (3.2.1)
Using sass-rails (3.2.5)
Using sqlite3 (1.3.6)
Installing therubyracer (0.10.2) with native extensions
Using uglifier (1.3.0)
Your bundle is complete! Use `bundle show [gemname]` to see where a bund
is installed.
[root@cisnote memopad]#
```

2. Additional Explanation

It depends on the versions of rails environment what gems should be added to a Gemfile. Please check the original specification of Rails, or many discussions on blogs and web pages.

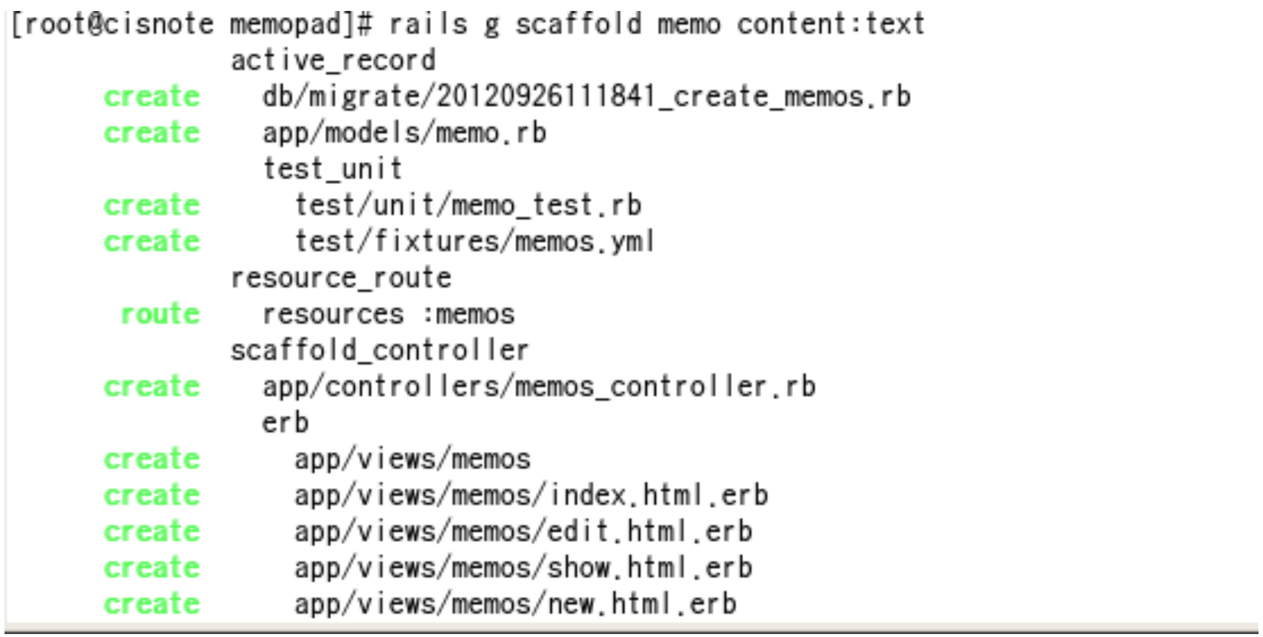
Also, an option is not solitary in many cases. This time too, we could have choosen other gems than 'therubyracer,' because there are many distributions.

3. Scaffold the Entry Screen

The command to scaffold the entry screen is as the following;

rails g scaffold memo content:text

We can shorten ‘generate’ to g.



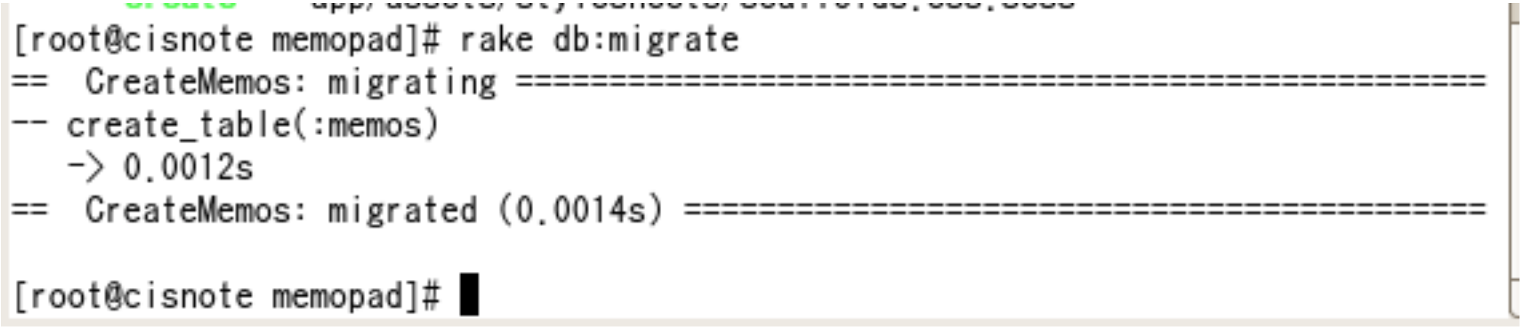
```
[root@cisnote memopad]# rails g scaffold memo content:text
              active_record
      create    db/migrate/20120926111841_create_memos.rb
      create    app/models/memo.rb
                test_unit
      create      test/unit/memo_test.rb
      create      test/fixtures/memos.yml
              resource_route
       route    resources :memos
              scaffold_controller
      create    app/controllers/memos_controller.rb
                erb
      create      app/views/memos
      create      app/views/memos/index.html.erb
      create      app/views/memos/edit.html.erb
      create      app/views/memos/show.html.erb
      create      app/views/memos/new.html.erb
```

4. Database Generation

The command to let Sqlite3 create database is;

rake db:migrate

Now we are ready to run the application.



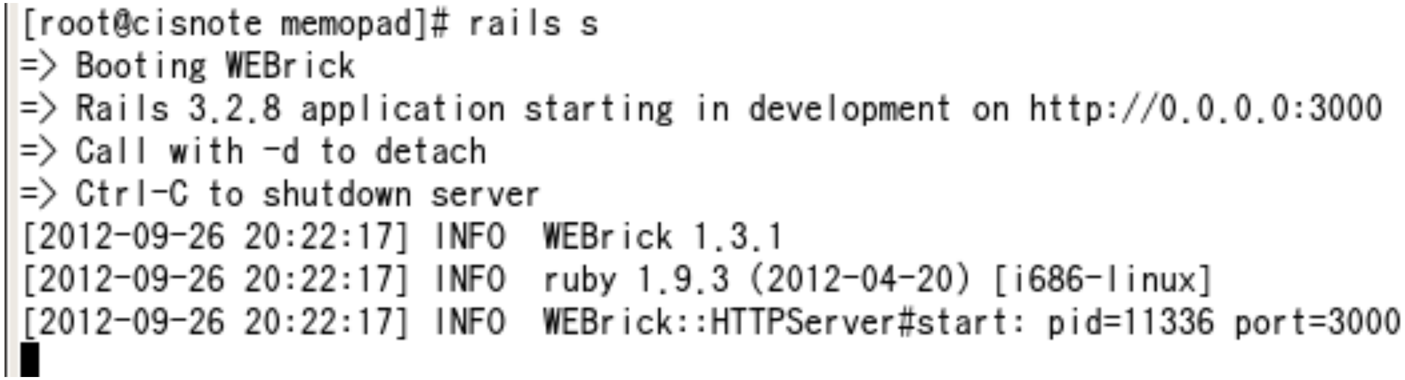
```
[root@cisnote memopad]# rake db:migrate
==  CreateMemos: migrating ====================================================
-- create_table(:memos)
   -> 0.0012s
==  CreateMemos: migrated (0.0014s) ===========================================

[root@cisnote memopad]# 
```

5. Test Run

On the shell (Gnome terminal), type the following command;

rails server

We can shorten ‘server’ to s.

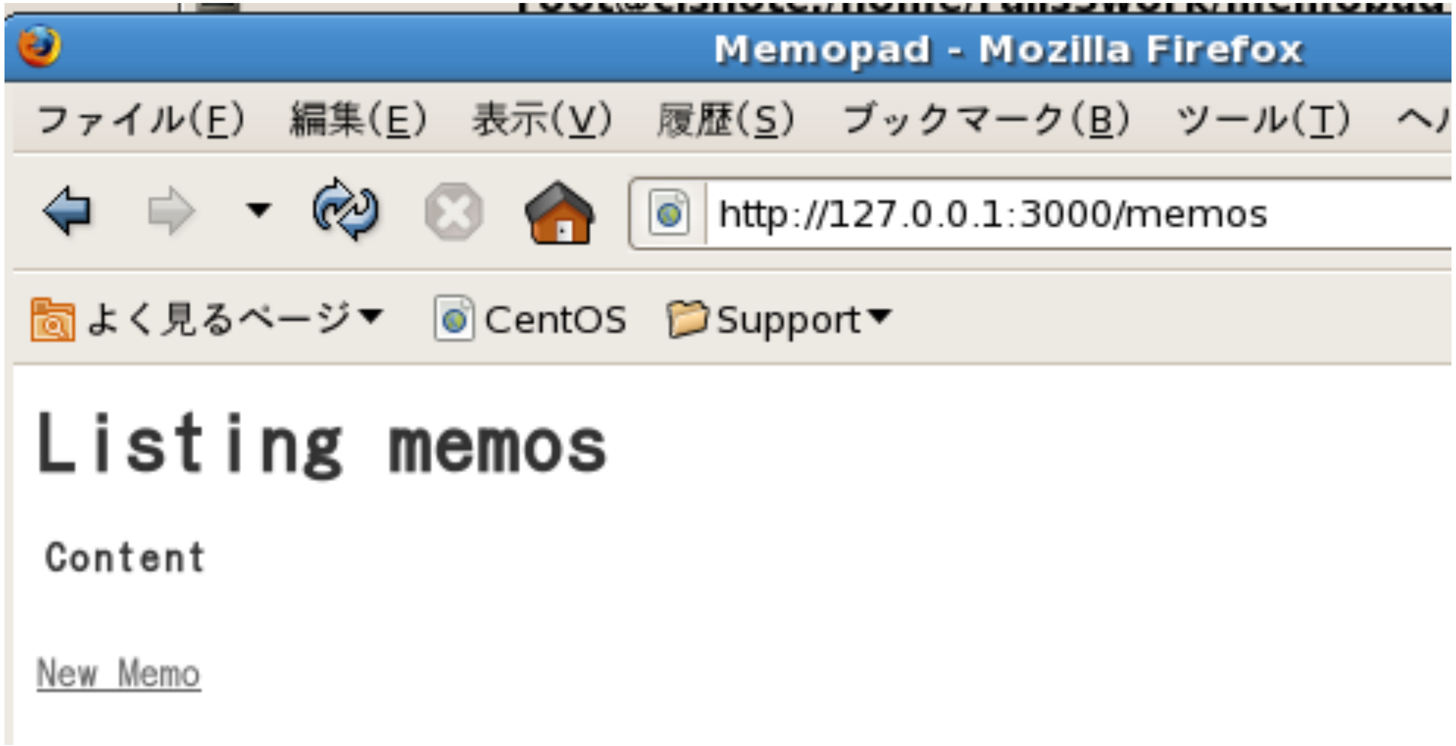


```
[root@cisnote memopad]# rails s
=> Booting WEBrick
=> Rails 3.2.8 application starting in development on http://0.0.0.0:3000
=> Call with -d to detach
=> Ctrl-C to shutdown server
[2012-09-26 20:22:17] INFO  WEBrick 1.3.1
[2012-09-26 20:22:17] INFO  ruby 1.9.3 (2012-04-20) [i686-linux]
[2012-09-26 20:22:17] INFO  WEBrick::HTTPServer#start: pid=11336 port=3000
```

WEB Screen

The WEB screen after the memopad runs is as the following. The URL is

http://127.0.0.1:3000/memopad



Memopad - Mozilla Firefox

Listing memos

Content

New Memo

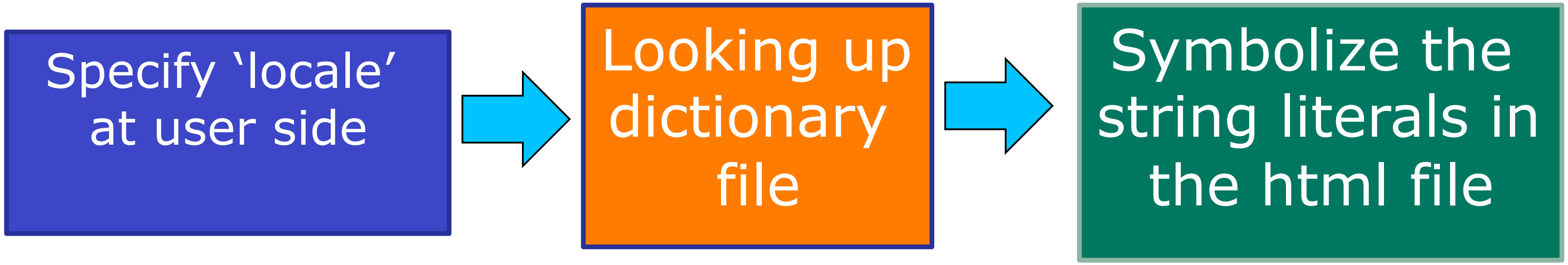
Internationalization

- Now we start Internationalization. (This process is not included in the original lecture plan.)
- Internationalization is a long word, so we count the letters between I and n and shorten the word to I18n.
- The necessary gem for Internationalization is already installed.

Structure of Internationalization

Internationalization is composed with the following three parts;

A. ‘Locale’ specification
B. Dictionary file Description
C. Symbolize the string literals for display


Specify ‘locale’ at user side
Looking up dictionary file
Symbolize the string literals in the html file

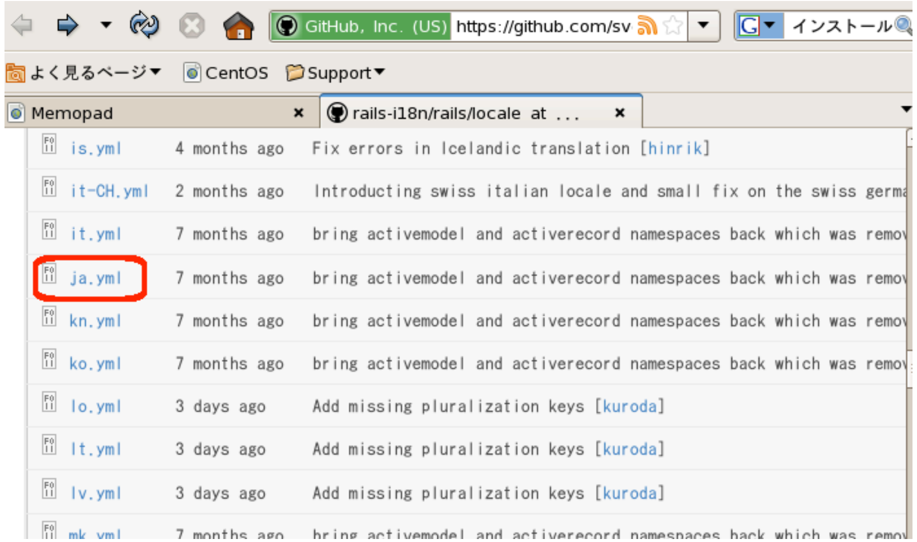
What locales are available?

- We can define any locale. (But the locale code and name should follow the standard.) If we put (locale).yml file under (project)/config/locales directory, the system recognize that the locale is available.

- What locale is standardized already?
  - Case of Java
    - http://lab.moyo.biz/recipes/java/locale/format_1.5.0_05.xsp
  - Case of Windows
    - http://msdn.microsoft.com/ja-jp/library/cc392381.aspx
- en.yml (English) dictionary file is automatically generated.

B. (1) Prepare the second language dictionary (ja.yml in this material)

- For the easiness for each student, we can localaize the message to Japanese (in this sample.) we download the template file from the following site;
- https://github.com/svenfuchs/rails-i18n/tree/master/rails/locale



is.yml	4 months ago	Fix errors in Icelandic translation [hinrik]
it-CH.yml	2 months ago	Introducting swiss italian locale and small fix on the swiss germa
it.yml	7 months ago	bring activemodel and activerecord namespaces back which was remov
ja.yml	7 months ago	bring activemodel and activerecord namespaces back which was remov
kn.yml	7 months ago	bring activemodel and activerecord namespaces back which was remov
ko.yml	7 months ago	bring activemodel and activerecord namespaces back which was remov
lo.yml	3 days ago	Add missing pluralization keys [kuroda]
lt.yml	3 days ago	Add missing pluralization keys [kuroda]
lv.yml	3 days ago	Add missing pluralization keys [kuroda]
mk.yml	7 months ago	bring activemodel and activerecord namespaces back which was remov

B. (2) Dictionary file

First we place the dictionary file in config/locales directory. First, we only have en.yml.

The application can correspond to the languages as many languages as we add (lang).yml files.

Yml is the extension of YAML language.

Tabs and number of spaces have significant meanings.

Those people who are untidy in indentation often cause ERRORS with this language.

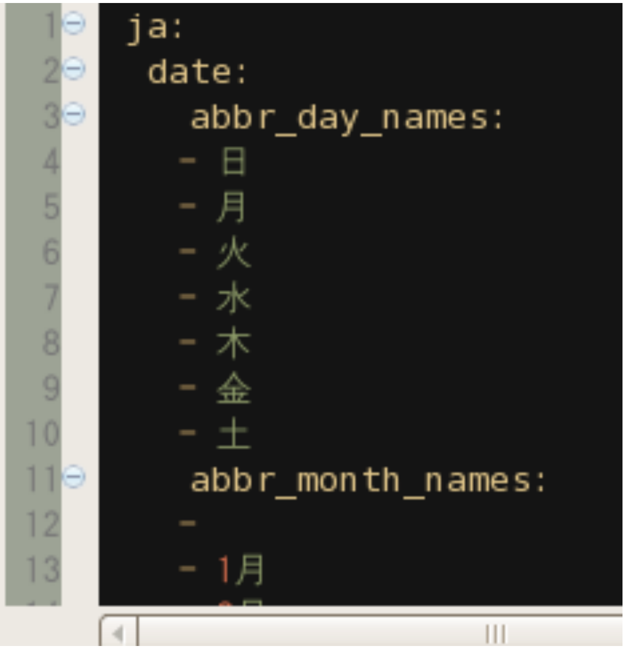
You! Be careful!

B. Supplement: Grammar of YAML

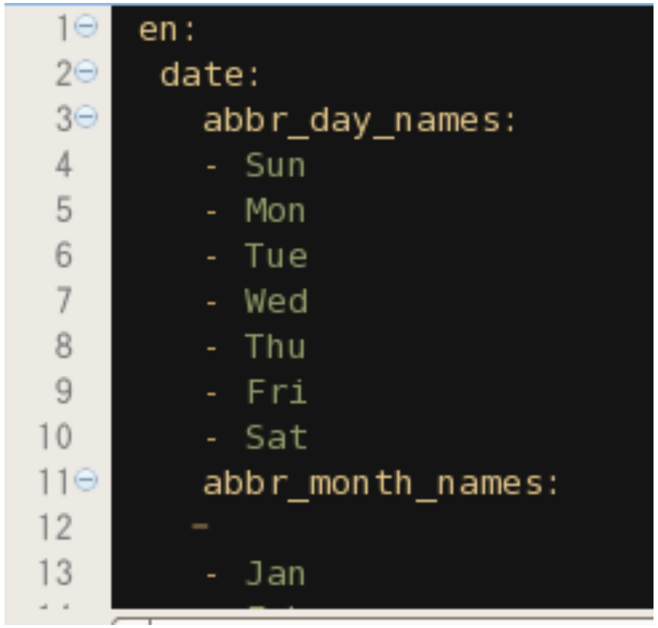
- http://jp.rubyist.net/magazine/?0009-YAML#l2
- Array Expression
  - Write – (dash) at the beginning of line.
- Hash Expression
  - Write as Key: Value
  - After : (colon), one or more spaces are needed
- comment line starts with # (number)
- Data type specification is the same with C or java
- Number of indent spaces are the same for all the same level(depth) nodes.

B. (3) Preparation of Dictionary

Original description were as the folloging;



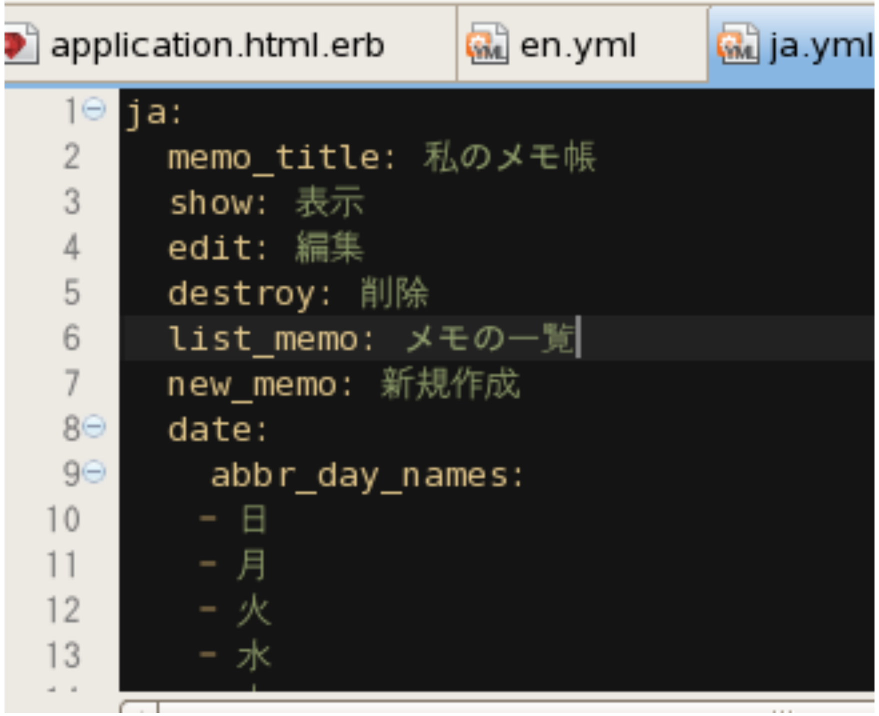
```
ja:
 date:
   abbr_day_names:
   - 日
   - 月
   - 火
   - 水
   - 木
   - 金
   - 土
   abbr_month_names:
   -
   - 1月
```



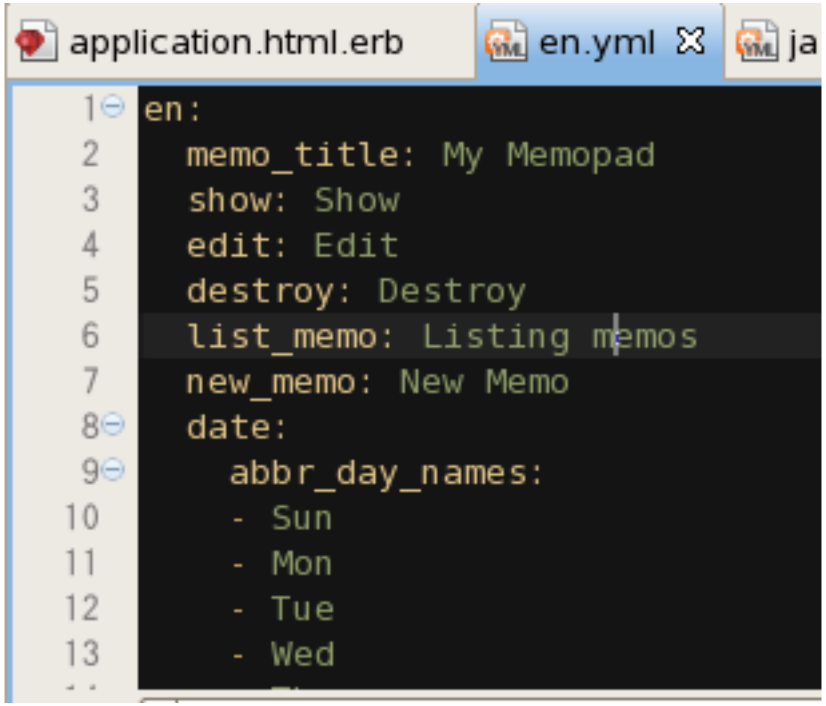
```
en:
 date:
   abbr_day_names:
   - Sun
   - Mon
   - Tue
   - Wed
   - Thu
   - Fri
   - Sat
   abbr_month_names:
   -
   - Jan
```

B. (3) Files after the modification

Modify the files as the following



```
ja:
  memo_title: 私のメモ帳
  show: 表示
  edit: 編集
  destroy: 削除
  list_memo: メモの一覧
  new_memo: 新規作成
  date:
    abbr_day_names:
   - 日
   - 月
   - 火
   - 水
```



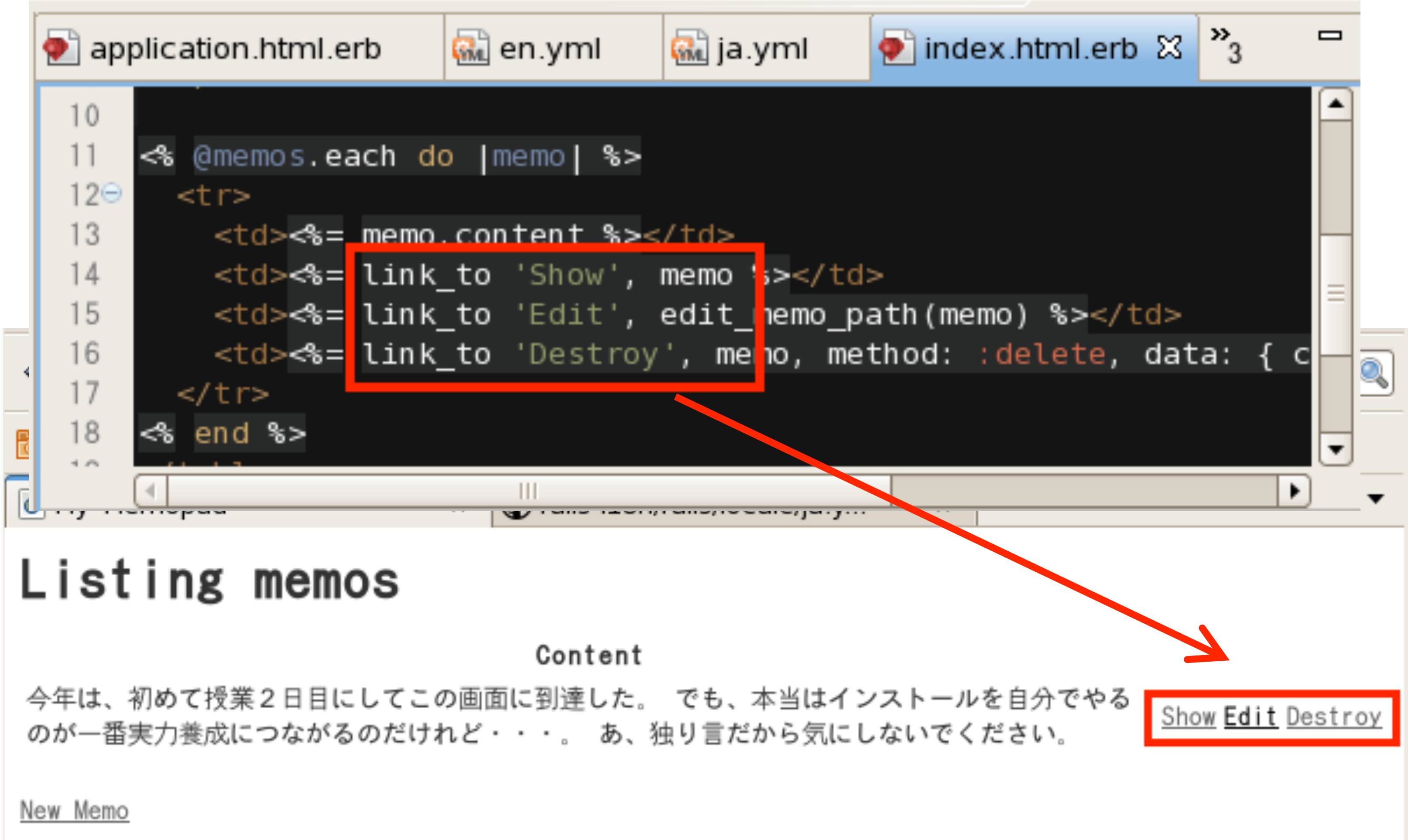
```
en:
  memo_title: My Memopad
  show: Show
  edit: Edit
  destroy: Destroy
  list_memo: Listing memos
  new_memo: New Memo
  date:
    abbr_day_names:
    - Sun
    - Mon
    - Tue
    - Wed
```

Here, hash KEY values(symbols) such as “show” and “memo_title” are the index of the dictionary.

C. (1) Internationalization Part

Modify the following;

App/views/memos/index.html.erb
At line 14 to 16.



```
10
11 <% @memos.each do |memo| %>
12   <tr>
13     <td><%= memo.content %></td>
14     <td><%= link_to 'Show', memo %></td>
15     <td><%= link_to 'Edit', edit_memo_path(memo) %></td>
16     <td><%= link_to 'Destroy', memo, method: :delete, data: { c
17   </tr>
18 <% end %>
```

Listing memos

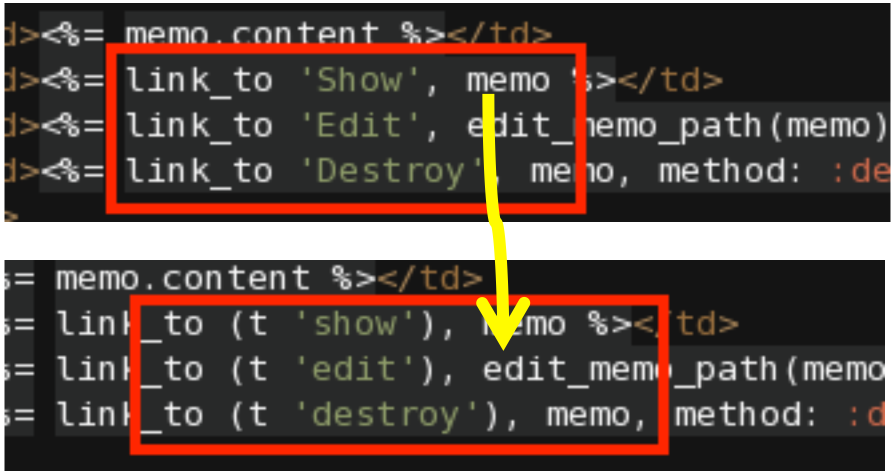
Content	
今年は、初めて授業２日目にしてこの画面に到達した。 でも、本当はインストールを自分でやるのが一番実力養成につながるのだけれど・・・。 あ、独り言だから気にしないでください。	Show Edit Destroy

New Memo

C. (1) Symbolize for I18n

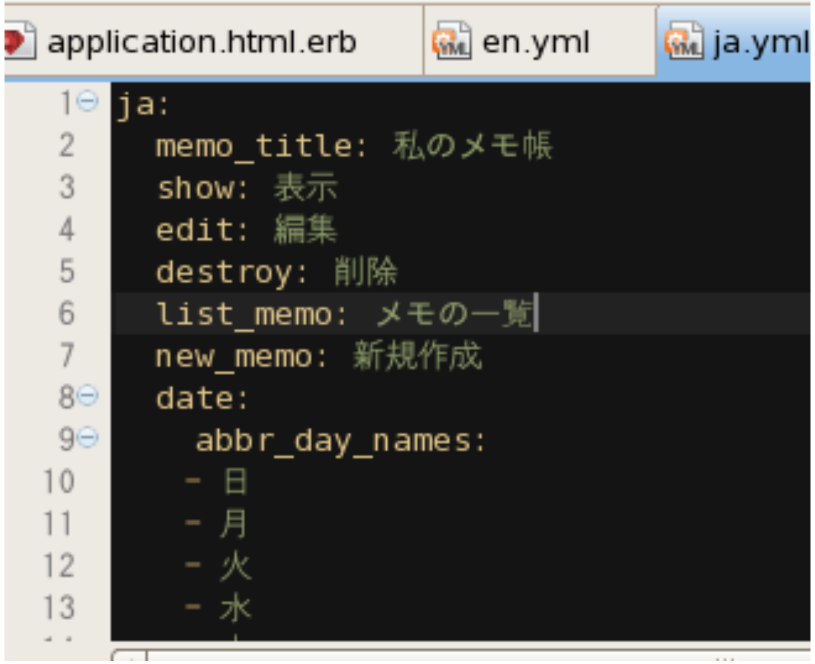
Hand the symbol to t (translate) method.

Rewrite the string literal of ‘Show’ to the method call of (t ‘show’.) Here the symbols should be all defined in the dictionary.



```
d><%= memo.content %></td>
d><%= link_to 'Show', memo %></td>
d><%= link_to 'Edit', edit_memo_path(memo)
d><%= link_to 'Destroy', memo, method: :de
```

```
= memo.content %></td>
= link_to (t 'show'), memo %></td>
= link_to (t 'edit'), edit_memo_path(memo
= link_to (t 'destroy'), memo, method: :d
```



```
ja:
  memo_title: 私のメモ帳
  show: 表示
  edit: 編集
  destroy: 削除
  list_memo: メモの一覧
  new_memo: 新規作成
  date:
    abbr_day_names:
    - 日
    - 月
    - 火
    - 水
```

C. (2) Data Flow in I18n

Symbol ‘show’ is handed to the t (translate) method.

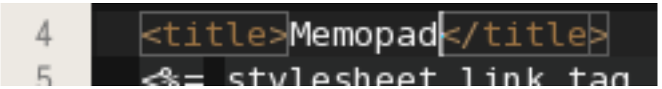
Then the method t will consult the language environment (if it is default or locale argument is handed from the client side,) and look up the proper string for ‘show’.

C. Other I18n parts

Let us switch other title parts and link parts.。

[Before I18n] → [After I18n]

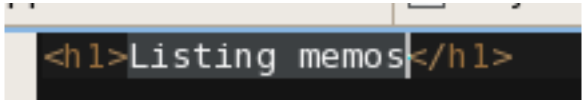
App/views/layouts/application.html.erb
Line 4



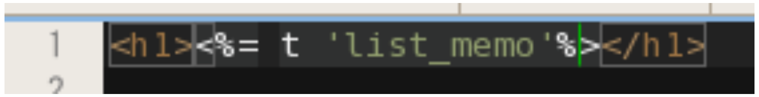
```
4    <title>Memopad</title>
5    <%= stylesheet_link_tag
```

<title><%= t ‘memo_title’ %></title>

App/views/memos/index.html.erb
Line 1

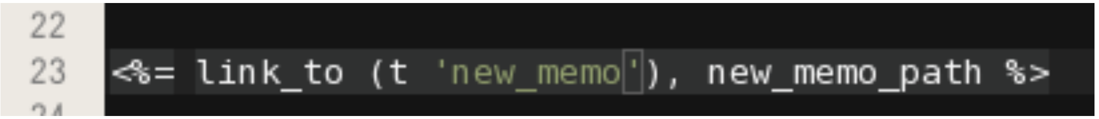


```
<h1>Listing memos</h1>
```



```
1  <h1><%= t 'list_memo'%></h1>
2
```

App/views/memos/index.html.erb
Line 23



```
22
23  <%= link_to (t 'new_memo'), new_memo_path %>
24
```

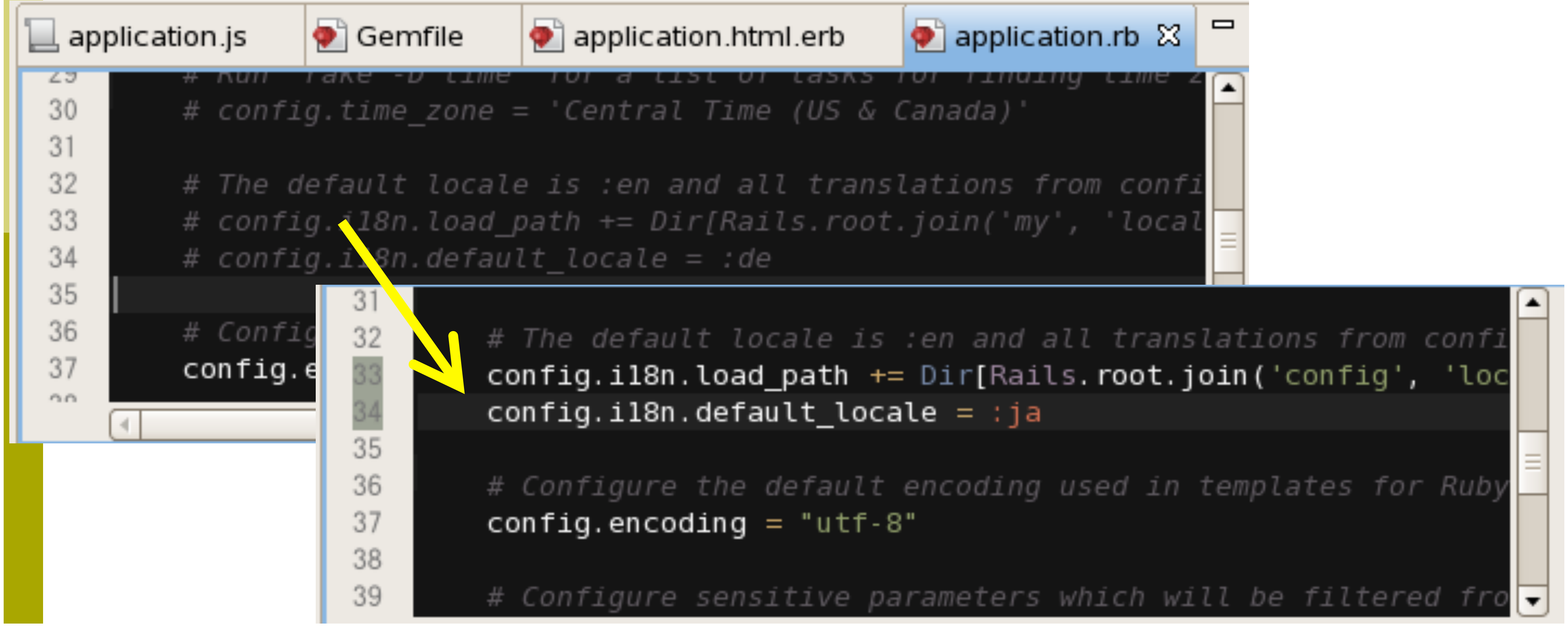
C. Additional Information

In HTML description, you can not use ruby command.

So, the part where the ruby language is not embedded with <%= (ruby expression) %>, we newly add the tag of <%= %> to enclose the ruby expression, and then use (t ‘symbol’) method call.

A. (1) I18n.load_path Addition

We activate the ‘locale’ descriptions by uncommenting several lines in Config/ application.rb file.



```
    # Run `rake -D time` for a list of tasks for finding time z
    # config.time_zone = 'Central Time (US & Canada)'

    # The default locale is :en and all translations from confi
    # config.i18n.load_path += Dir[Rails.root.join('my', 'local
    # config.i18n.default_locale = :de

    # Config
    config.e
```

```

    # The default locale is :en and all translations from confi
    config.i18n.load_path += Dir[Rails.root.join('config', 'loc
    config.i18n.default_locale = :ja

    # Configure the default encoding used in templates for Ruby
    config.encoding = "utf-8"

    # Configure sensitive parameters which will be filtered fro
```

A. (1) I18n.load_path Explanation

- Edit

  config\application.rb

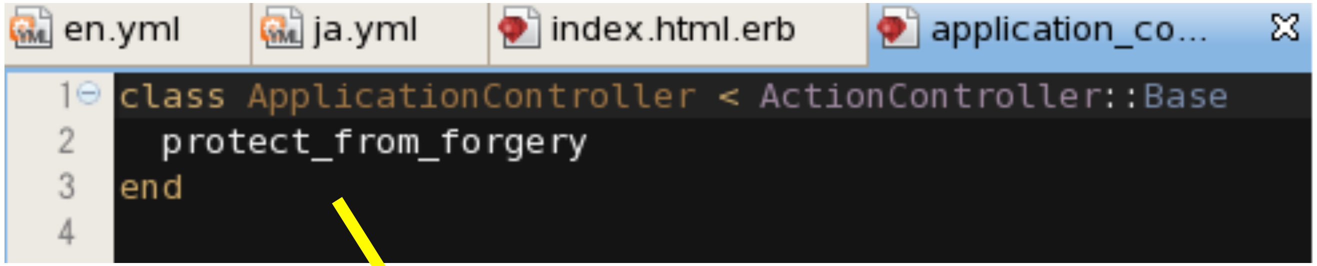
- From line 33 to 34

```
config.i18n.load_path += Dir[Rails.root.join('config',
   'locales', '*.{rb,yml}').to_s]
config.i18n.default_locale = :ja
```

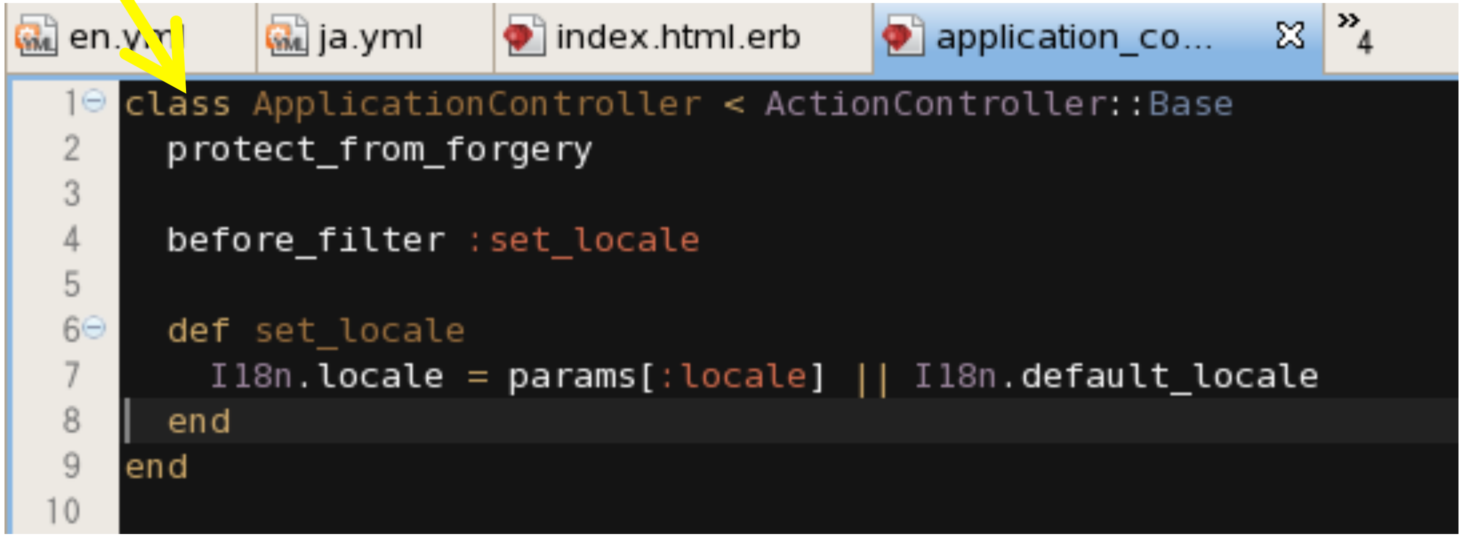
- Uncomment the lines, replace ‘my’ with ‘config’, and change the default locale.

A. (2) Judgment of locale selection by Controller

Modify the application_controller.rb。



```ruby
class ApplicationController < ActionController::Base
  protect_from_forgery
end

```



```ruby
class ApplicationController < ActionController::Base
  protect_from_forgery

  before_filter :set_locale

  def set_locale
    I18n.locale = params[:locale] || I18n.default_locale
  end
end

```

A. (2) Switch locales

- Currently, only default locale is selected, so when the clients specify their preferable locale, let the system choose the locale.

- Edit

app\controllers\application_controller.rb

A. (2) application_controller.rb

```
class ApplicationController < ActionController::Base

  protect_from_forgery

  before_filter :set_locale

  def set_locale
    I18n.locale = params[:locale] || I18n.default_locale
  end

end
```

Test Run

- First you try the display with default locale
- URL should be

http://127.0.0.1:3000/memos?locale=ja

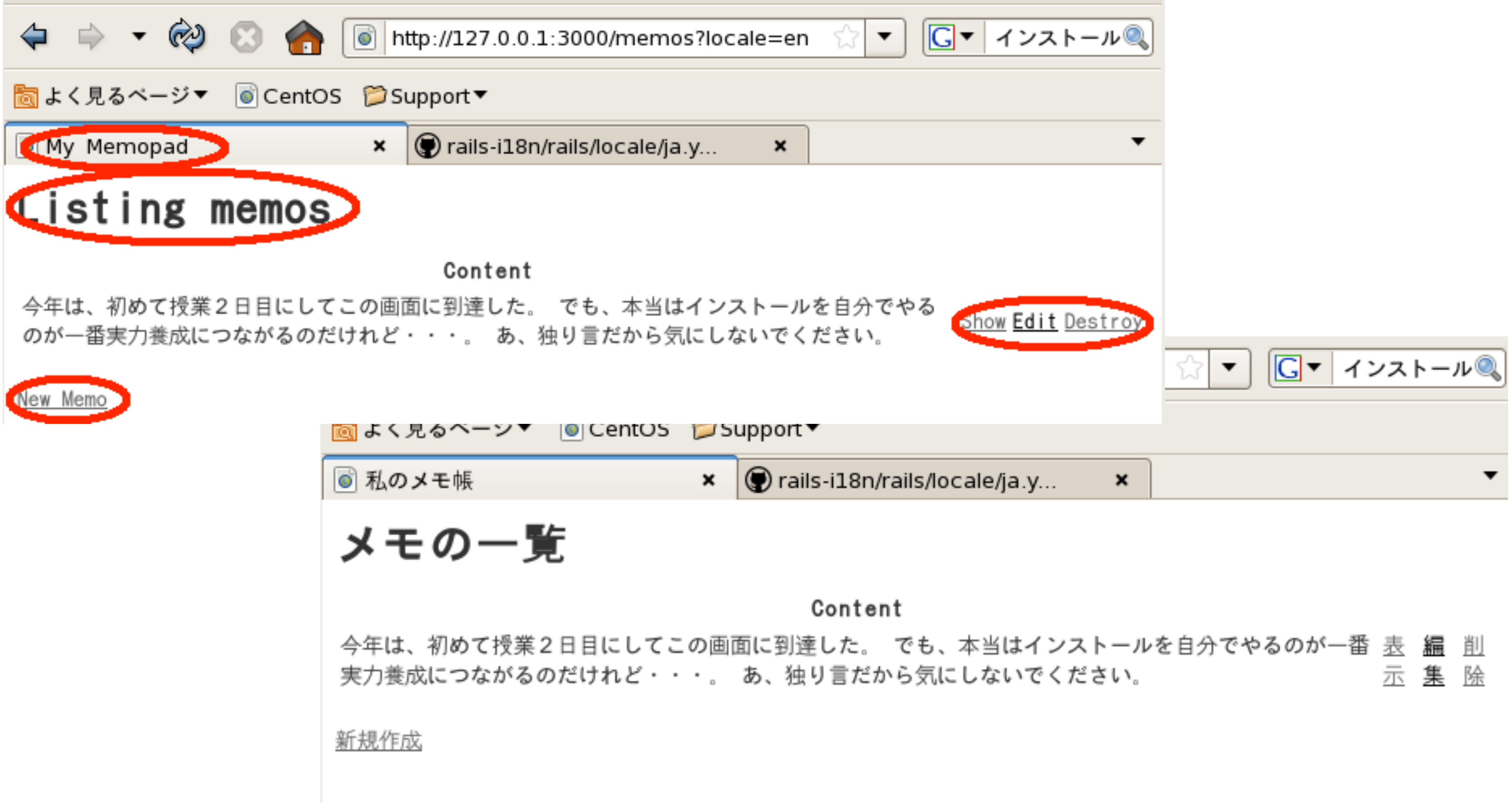
or

http://127.0.0.1:3000/memos?locale=en

Or you can put locale=XX at your own choice.

Final Test for today

- If you could switch the language, you had completed the mission of today!



http://127.0.0.1:3000/memos?locale=en

My Memopad

Listing memos

Content

今年は、初めて授業２日目にしてこの画面に到達した。 でも、本当はインストールを自分でやるのが一番実力養成につながるのだけれど・・・。 あ、独り言だから気にしないでください。 Show Edit Destroy

New Memo

私のメモ帳

メモの一覧

Content

今年は、初めて授業２日目にしてこの画面に到達した。 でも、本当はインストールを自分でやるのが一番実力養成につながるのだけれど・・・。 あ、独り言だから気にしないでください。 表示 編集 削除

新規作成

Day 2 Report: “Project Generation”

The report theme is the “project generation and Internationalization.”

Write (generate) the WEB pages which we can switch Japanese language and English, show the both screens, URLs, and your wallpaper of your desktop, together with the source code at the modified part.

If your native language is not Japanese, use your own most convenient language instead of Japanese.

Absence Report of Today

Completely the same with the regular reports. If you submit the regular report, you are automatically counted as present.

The Preview of next week.

Learn MVC Model

MVC: Model, View, and Controller

Dismantle today's application to investigate the generate components.