

Web Development

Produced
by

Eamonn de Leastar (edeleastar@wit.ie)

Department of Computing, Maths & Physics
Waterford Institute of Technology

<http://www.wit.ie>

<http://elearning.wit.ie>



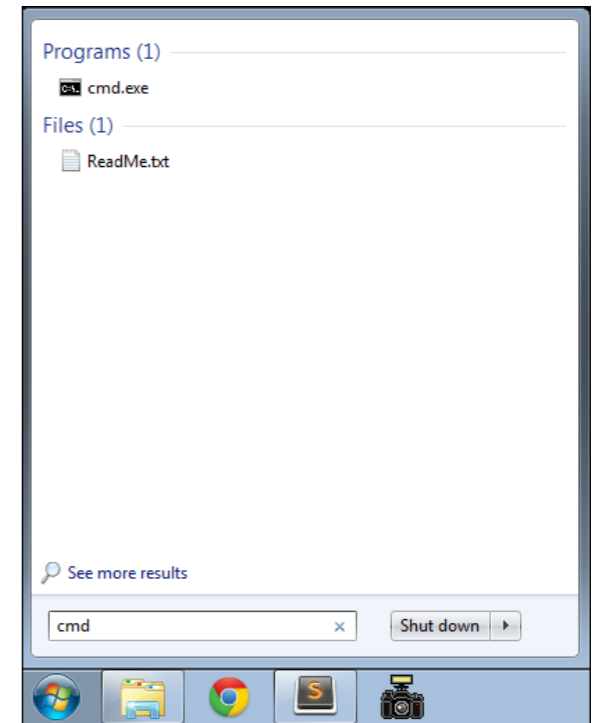
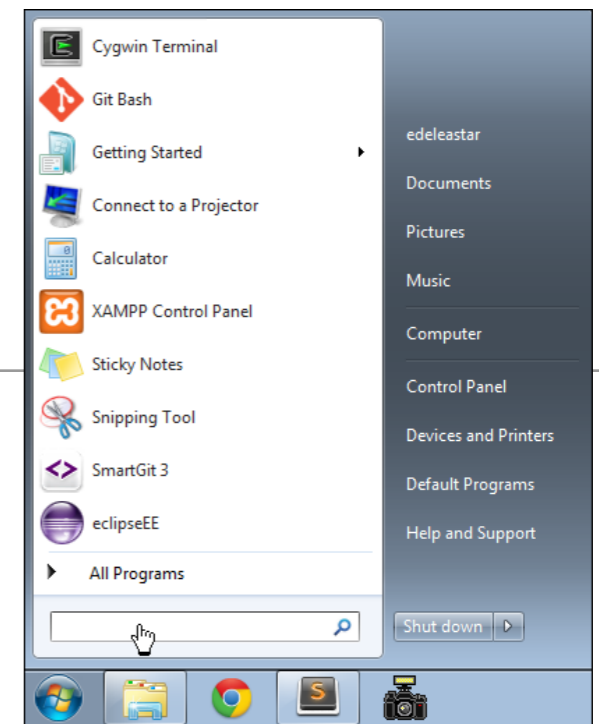
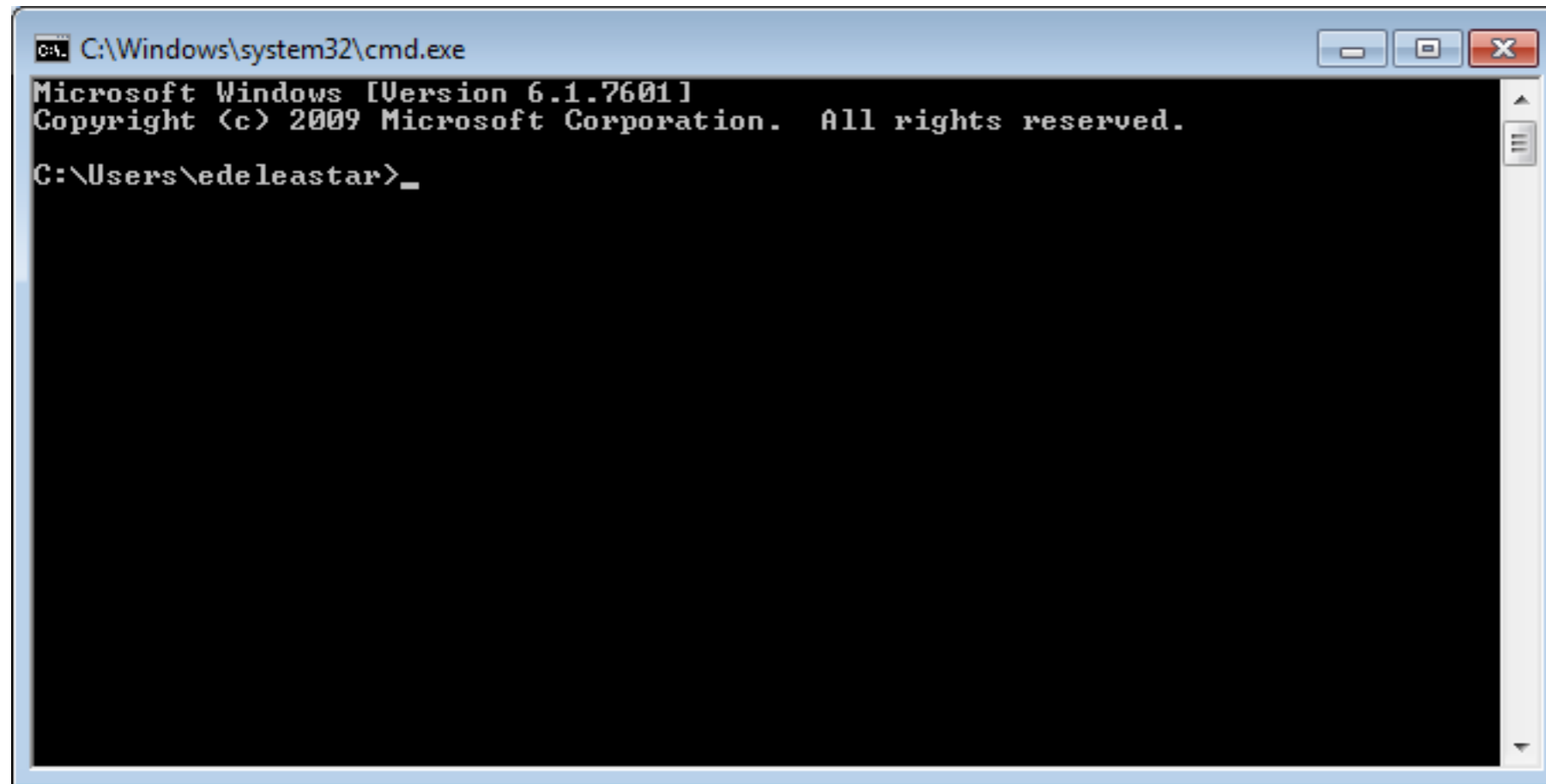
Waterford Institute of Technology
INSTITIÚID TEICNEOLAÍOCHTA PHORT LÁIRCE



Getting Started with Play

Web Development

DOS Commands



- This is the Command Line Interface for Windows (CLI)
- In Mac/Linux it is called "Terminal"
- Learning to use the CLI is an **essential** skill for a programmer

Example DOS Commands

- **dir**
 - list all files in a directory
- **cd ..**
 - change to a parent directory
- **cd <directory name>**
 - change to a specific directory
- **mkdir <directory name>**
 - create a directory
- **rmdir <directory name>**
 - delete a directory
- On Mac/Linux:
 - use **ls** instead of **dir**
- These commands always have a 'current directory' in mind
- A directory is another name for a folder.
- On Windows, the current directory appears in the 'prompt'



```
C:\workspace>_
```

- In Mac/Linux, type '**pwd**' to find out the current directory.
- On Windows, '\' or '/' can be used to separate directory names
- On Mac/Linux, only '/' is accepted
- So --> always is '/' to avoid confusion

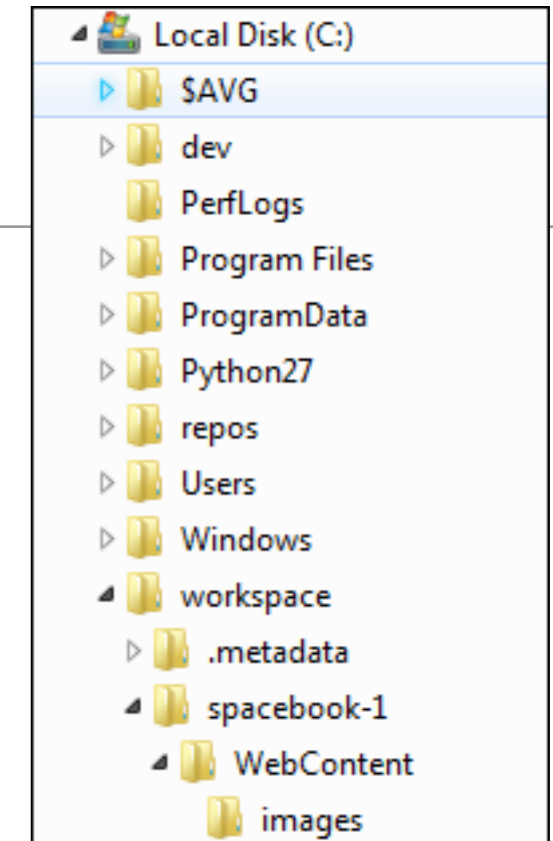
```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\edeleastar>cd ..
C:\Users>cd ..
C:\>cd workspace
C:\workspace>dir
Volume in drive C has no label.
Volume Serial Number is 6C80-5ECD

Directory of C:\workspace

23/09/2012  15:59    <DIR>          .
23/09/2012  15:59    <DIR>          ..
23/09/2012  15:58    <DIR>          .metadata
23/09/2012  15:59    <DIR>          spacebook-1
                0 File(s)      0 bytes
                4 Dir(s)   8,778,682,368 bytes free

C:\workspace>_
```



`C:\Users\edeleastar>cd ..`

`C:\Users\>cd ..`

`C:\>cd workspace`

`C:\>workspace>dir`

...

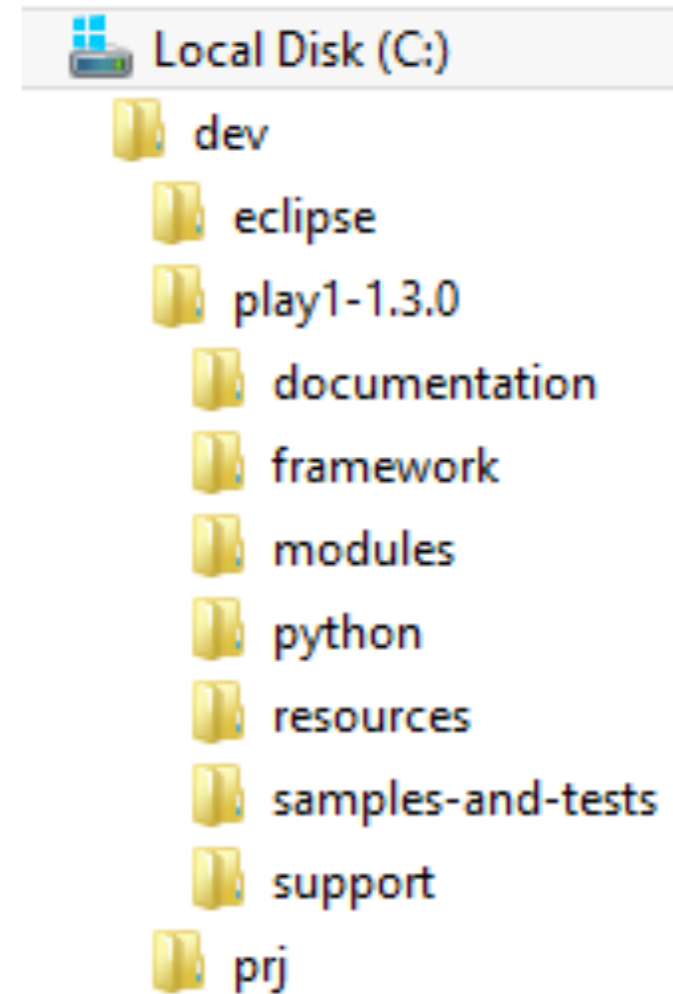
...

`C:\>`

- Never use spaces in directory or file names
- Never use upper case in directory or file names
- If you wish to use readable multiple words for a directory or file name, separate the words with '-'. e.g.
 - web-development
 - java-projects

Installing Play

- Play must be downloaded and installed on your PC
 - www.playframework.org
 - Use version 1.2.5
- Installing Play on your PC is just expanding the zip archive into a folder:
- User this folder structure:



Verifying Play

- Play applications are created and tuned using the CLI (i.e. DOS on windows)
 - You must be able to navigate your folder structure using the CLI
 - If you are having difficulty - fix this immediately (i.e. learn basics of DOS)!
- To verify play, just type **play** on command line
 - This works if play is 'on the path'
- If no response (error), then type
 - **c:\dev\play1-1.3.0\play**
 - This is an 'explicit path' - ie. a fully qualified path to the play program

```
~
~  _ _ _ | | _ _ _ _ | |
~ | ' _ \ | / _ ' | | | |
~ | _ _ / | \ _ _ \ | \ ( )
~ | _ |           | _ /
~
~ play! 1.3.0, http://www.playframework.org
~
~ Usage: play cmd [app_path] [--options]
~
~ with,  new      Create a new application
~        run      Run the application in the current shell
~        help     Show play help
```

Creating a Play Application

Now create a new project by typing the following:

```
play new spacebook
```

You should get:

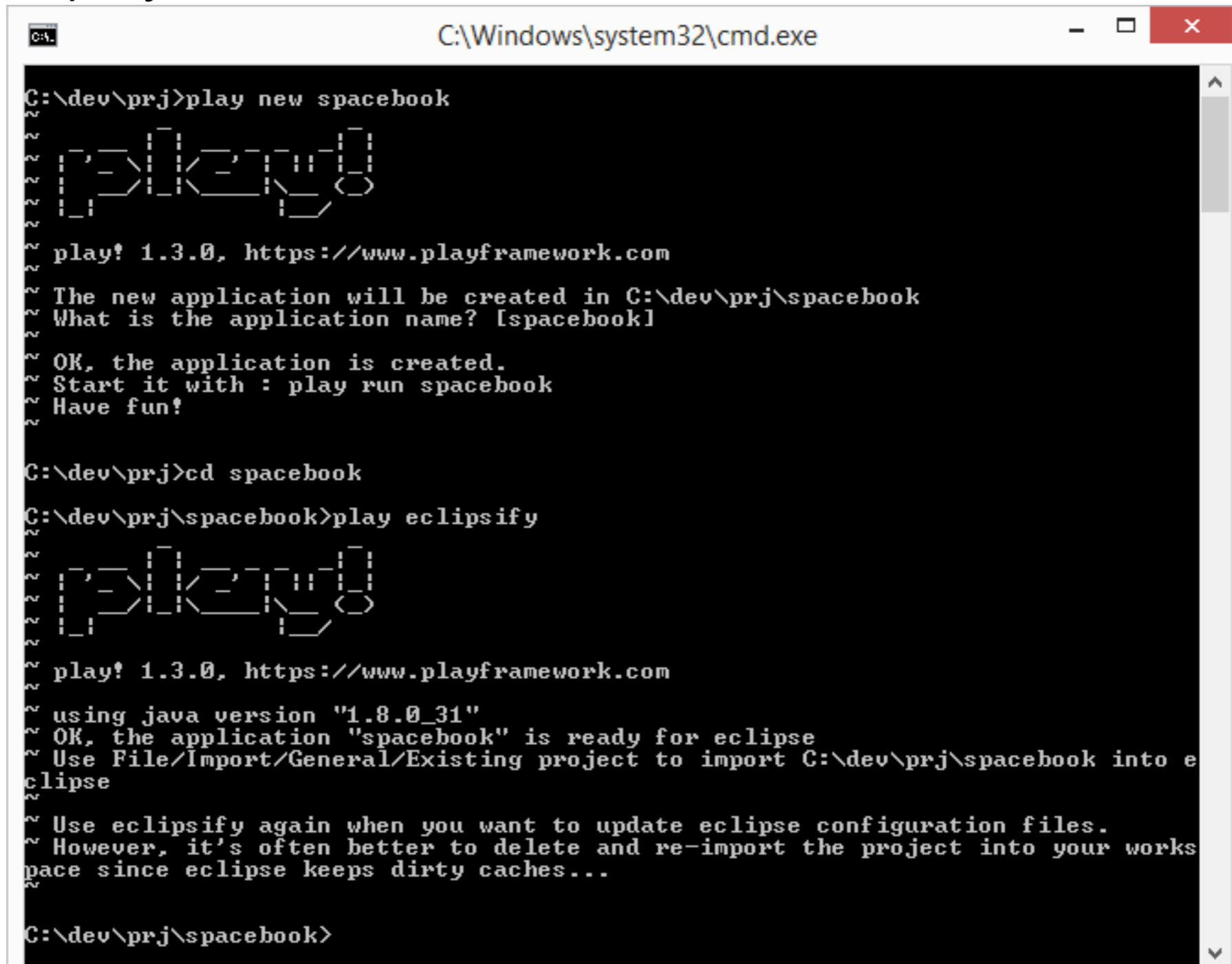
```
~
~  _ _ _ | | _ _ _ _ | |
~ | ' _ \ | / _ ' | | | |
~ | _ _ / | \ _ _ \ _ _ ( )
~ | _ |           | _ /
~
~
~ play! 1.3.0, http://www.playframework.org
~
~ The new application will be created in /Users/edelestar/Dropbox/webdev/2012/dev/projects/spacebook
~ What is the application name? [spacebook]
```

Press return when prompted for the name to accept the default (spacebook)

```
~
~ OK, the application is created.
~ Start it with : play run spacebook
~ Have fun!
~
```


Eclipsify

- In order to make the new project visible to Eclipse
 - “*play eclipsify*”



```
C:\Windows\system32\cmd.exe

C:\dev\prj>play new spacebook

  _____
 /_ _ _ _ _ \
| | | | | | |
|_|_|_|_|_|_|

play! 1.3.0, https://www.playframework.com

The new application will be created in C:\dev\prj\spacebook
What is the application name? [spacebook]

OK, the application is created.
Start it with : play run spacebook
Have fun!

C:\dev\prj>cd spacebook

C:\dev\prj\spacebook>play eclipsify

  _____
 /_ _ _ _ _ \
| | | | | | |
|_|_|_|_|_|_|

play! 1.3.0, https://www.playframework.com

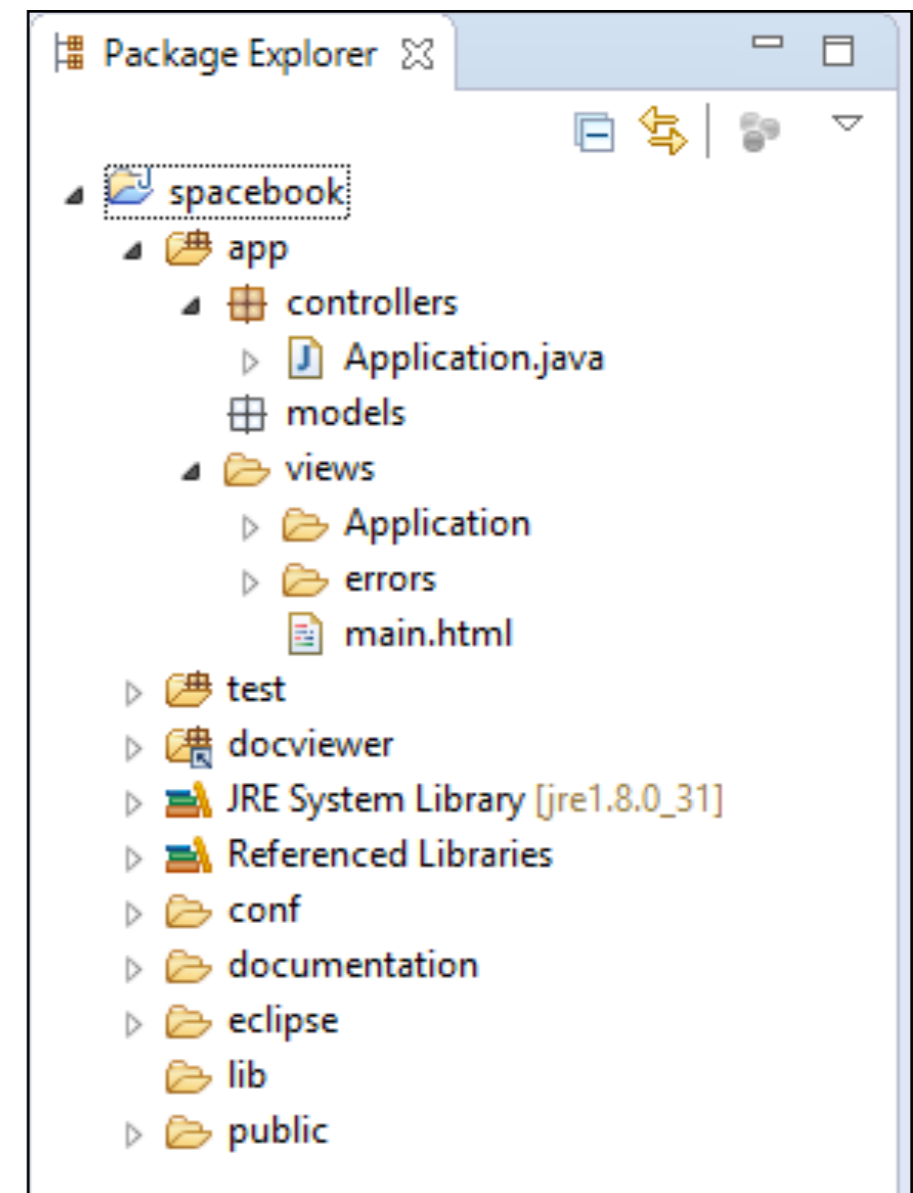
using java version "1.8.0_31"
OK, the application "spacebook" is ready for eclipse
Use File/Import/General/Existing project to import C:\dev\prj\spacebook into e
clipse

Use eclipsify again when you want to update eclipse configuration files.
However, it's often better to delete and re-import the project into your works
pace since eclipse keeps dirty caches...

C:\dev\prj\spacebook>
```

In Eclipse

- If we 'import' the newly created project into eclipse, we can now develop the application in the IDE (Eclipse is and IDE).
- The project may not look like this initially. →
- If it doesn't, then switch to the "Java Perspective" in Eclipse, and it should resemble the above.
- To switch perspectives - in eclipse select "Window->Open Perspective->Java"



Running the Play Application

- We have generated a “Web App” NOT at “Web Site”
- A Web App requires an ‘Application Server’ to run
- Play has one built-in, so running the server + the web app is a single command

Back in DOS, from inside the spacebook folder, type the following command:

```
play run
```

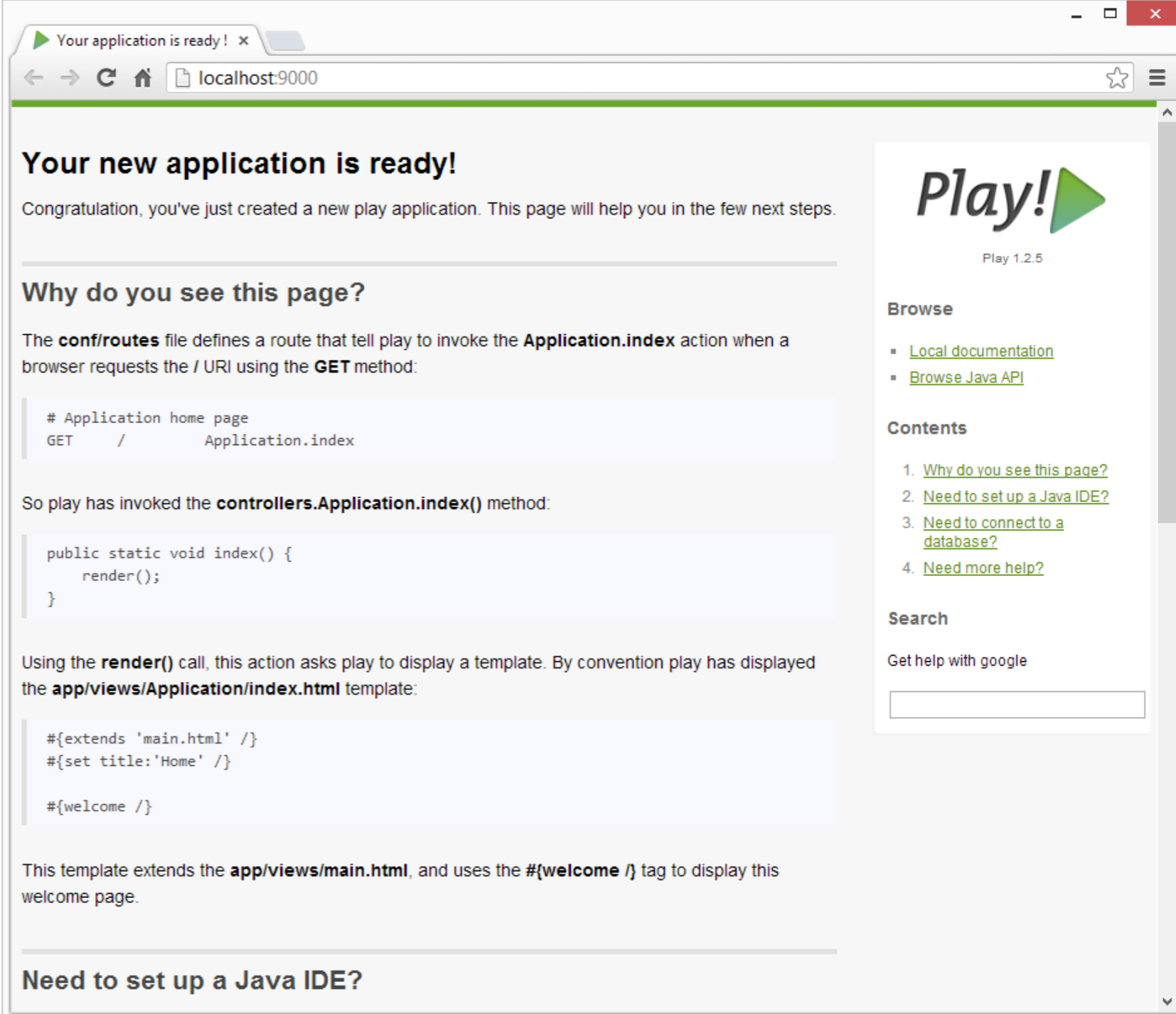
Play will respond with something like this:

```
~
~  _ _ _ | | _ _ _ _ | |
~ | ' _ \ | / _ ' | | | |
~ | _ _ / | \ _ _ \ _ _ ( _ )
~ | _ |           | _ /
~
~ play! 1.3.0, http://www.playframework.org
~
~ Ctrl+C to stop
~
Listening for transport dt_socket at address: 8000
16:30:33,586 INFO ~ Starting /Users/edelestar/Dropbox/webdev/2012/dev/projects/spacebook
16:30:34,646 WARN ~ You're running Play! in DEV mode
16:30:34,894 INFO ~ Listening for HTTP on port 9000 (Waiting a first request to start) ...
16:30:58,912 INFO ~ Application 'Spacebook' is now started !
```

The Skeleton App:

- The application is now 'hosted' on our local machine (localhost)
- To use it, we browse to:

<http://localhost:9000/>
- 9000 is a random 'port' number in which the app is being 'served'
- The 'default' app is documentation on play itself



Your application is ready! x

localhost:9000

Your new application is ready!

Congratulations, you've just created a new play application. This page will help you in the few next steps.

Why do you see this page?

The **conf/routes** file defines a route that tell play to invoke the **Application.index** action when a browser requests the / URI using the **GET** method:

```
# Application home page
GET    /      Application.index
```

So play has invoked the **controllers.Application.index()** method:

```
public static void index() {
    render();
}
```

Using the **render()** call, this action asks play to display a template. By convention play has displayed the **app/views/Application/index.html** template:

```
#{extends 'main.html' /}
#{set title:'Home' /}

#{welcome /}
```

This template extends the **app/views/main.html**, and uses the **#{welcome /}** tag to display this welcome page.

Need to set up a Java IDE?

Play!

Play 1.2.5

Browse

- [Local documentation](#)
- [Browse Java API](#)

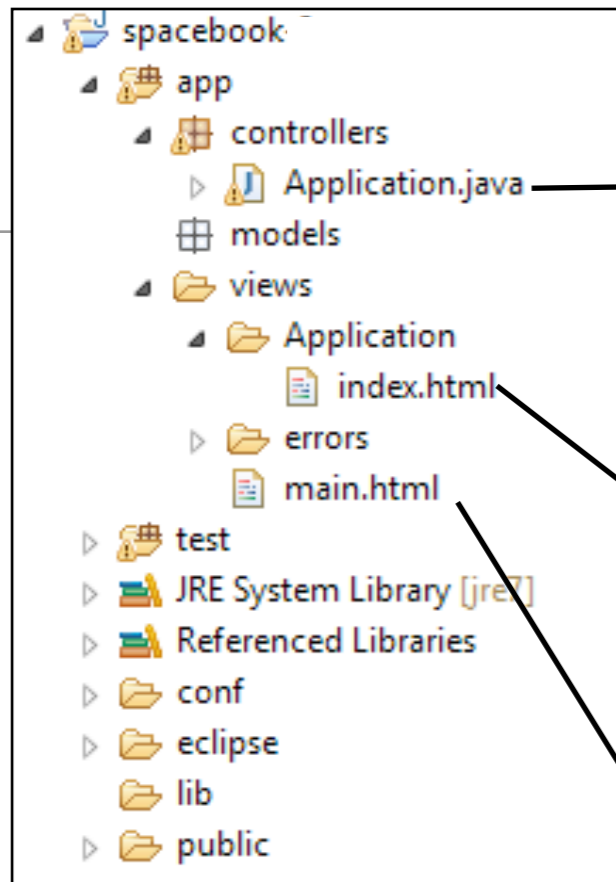
Contents

1. [Why do you see this page?](#)
2. [Need to set up a Java IDE?](#)
3. [Need to connect to a database?](#)
4. [Need more help?](#)

Search

Get help with google

The App Source



```
package controllers;

import play.*;
import play.mvc.*;
import java.util.*;
import models.*;

public class Application extends Controller
{
    public static void index()
    {
        render();
    }
}
```

```
#{extends 'main.html' /}
#{set title:'Home' /}

#{welcome /}
```

```
<!DOCTYPE html>

<html>
  <head>
    <title>#{get 'title' /}</title>
    <meta charset="${_response_encoding}">
    <link rel="stylesheet" media="screen" href="@{'/public/stylesheets/main.css'}">
    #{get 'moreStyles' /}
    <link rel="shortcut icon" type="image/png" href="@{'/public/images/favicon.png'}">
    <script src="@{'/public/javascripts/jquery-1.6.4.min.js'}" type="text/javascript" charset="${_response_encoding}"></script>
    #{get 'moreScripts' /}
  </head>
  <body>
    #{doLayout /}
  </body>
</html>
```

The App Source

• Controller

- A Java Class
- index() will be call when a 'request' for a page arrives

• View

- A Page Template
- Will be turned into a HTML page and send to the browser
- May contain html + also 'special' codes
- Multiple templates needed to generate a single html page

```
package controllers;

import play.*;
import play.mvc.*;
import java.util.*;
import models.*;

public class Application extends Controller
{
    public static void index()
    {
        render();
    }
}
```

```
#{extends 'main.html' /}
#{set title:'Home' /}

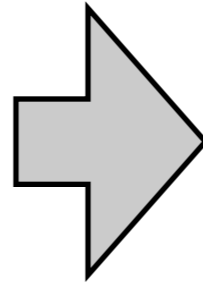
#{welcome /}
```

```
<!DOCTYPE html>

<html>
  <head>
    <title>Spacebook</title>
    <meta charset="utf-8">
    <link rel="stylesheet" media="screen" href="/public/stylesheets/main.css">
    <link rel="shortcut icon" type="image/png" href="/public/images/favicon.png">
    <script src="/public/javascripts/jquery-1.6.4.min.js" type="text/javascript" charset="utf-8"></script>
  </head>
  <body>
    <p>
      Welcome to Spacebook!
    </p>
  </body>
</html>
```

Changing the View

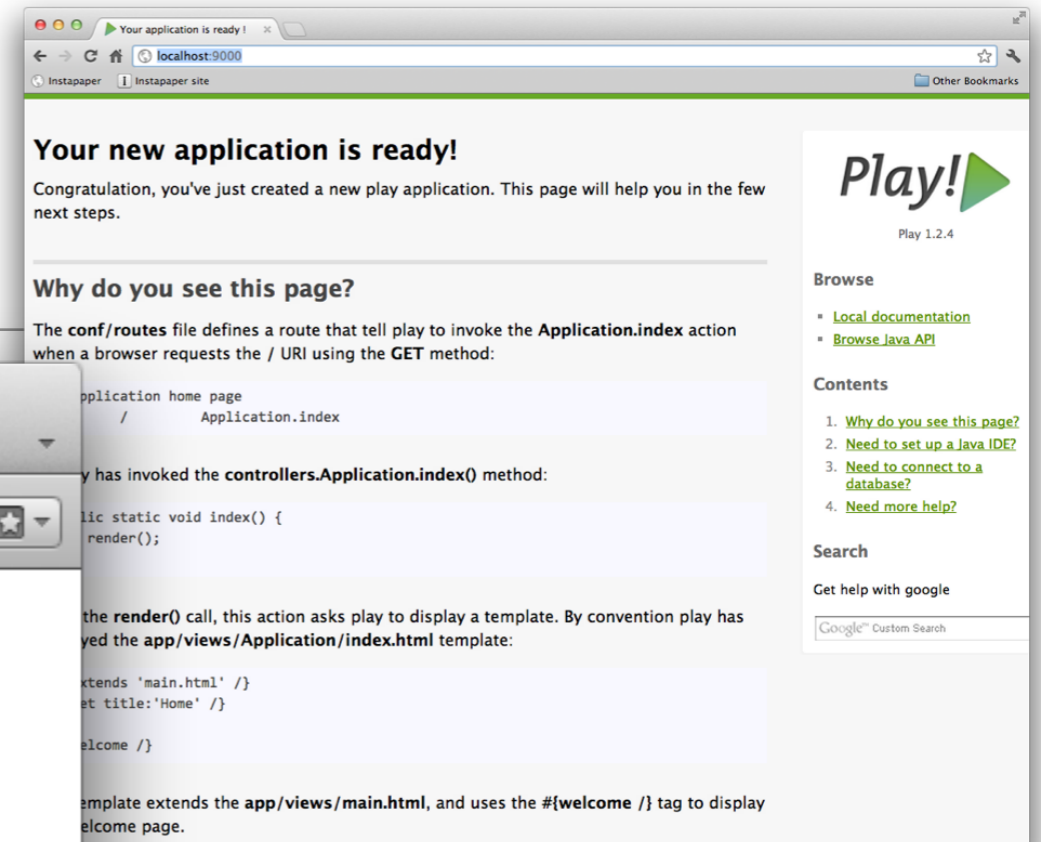
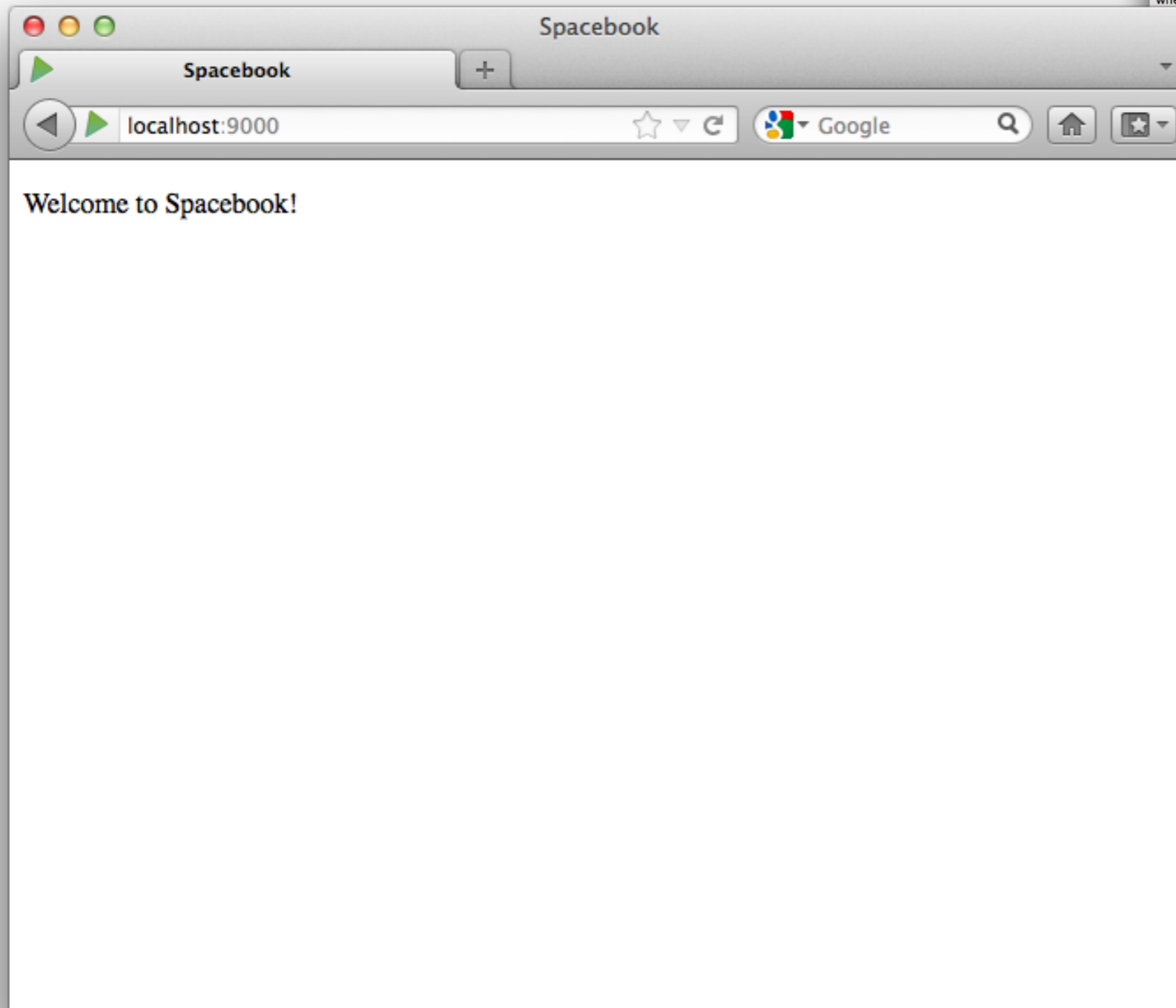
```
#{extends 'main.html' /}  
#{set title:'Home' /}  
  
#{welcome /}
```



```
#{extends 'main.html' /}  
#{set title:'Spacebook' /}  
  
<p>  
  Welcome to Spacebook!  
</p>
```

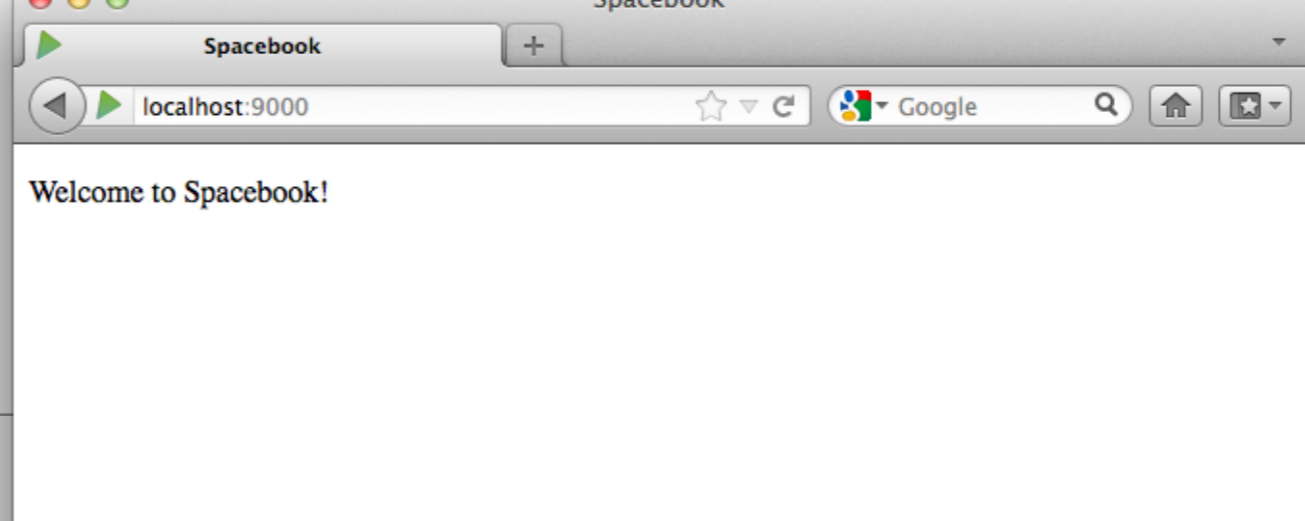
- `#{welcome /}` - a special code to display the play documentation page
- We replace this with an simple html paragraph

Test



- Just save the view and refresh the browser
- The app is always 'live'
- Any changes (as long as file is saved) are immediately visible

View/Source



```
<!DOCTYPE html>

<html>
  <head>
    <title>Spacebook</title>
    <meta charset="utf-8">
    <link rel="stylesheet" media="screen" href="/public/stylesheets/main.css">
    <link rel="shortcut icon" type="image/png" href="/public/images/favicon.png">
    <script src="/public/javascripts/jquery-1.6.4.min.js" type="text/javascript" charset="utf-8"></script>
  </head>
  <body>
    <p>
      Welcome to Spacebook!
    </p>
  </body>
</html>
```

- Browser **never** sees java or page templates with their ‘special’ codes
 - ->> just pure html always

How is the page built?

- From two 'templates'

views/main.html

```
<!DOCTYPE html>

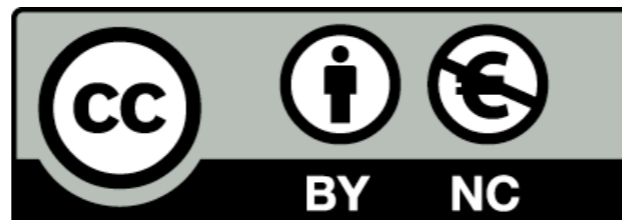
<html>
  <head>
    <title>#{get 'title' /}</title>
    <meta charset="#{_response_encoding}">
    <link rel="stylesheet" media="screen" href="@{'/public/stylesheets/main.css'}">
    #{get 'moreStyles' /}
    <link rel="shortcut icon" type="image/png" href="@{'/public/images/favicon.png'}">
    <script src="@{'/public/javascripts/jquery-1.6.4.min.js'}" type="text/javascript" charset="#{_response_encoding}"></script>
    #{get 'moreScripts' /}
  </head>
  <body>
    #{doLayout /}
  </body>
</html>
```

and

views/Application/index.html

```
#{extends 'main.html' /}
#{set title:'Spacebook' /}

<p>
  Welcome to Spacebook!
</p>
```



Except where otherwise noted, this content is licensed under a Creative Commons Attribution-NonCommercial 3.0 License.

For more information, please see <http://creativecommons.org/licenses/by-nc/3.0/>

