Thymeleaf with Spring Boot

What is Thymeleaf?

Thymeleaf

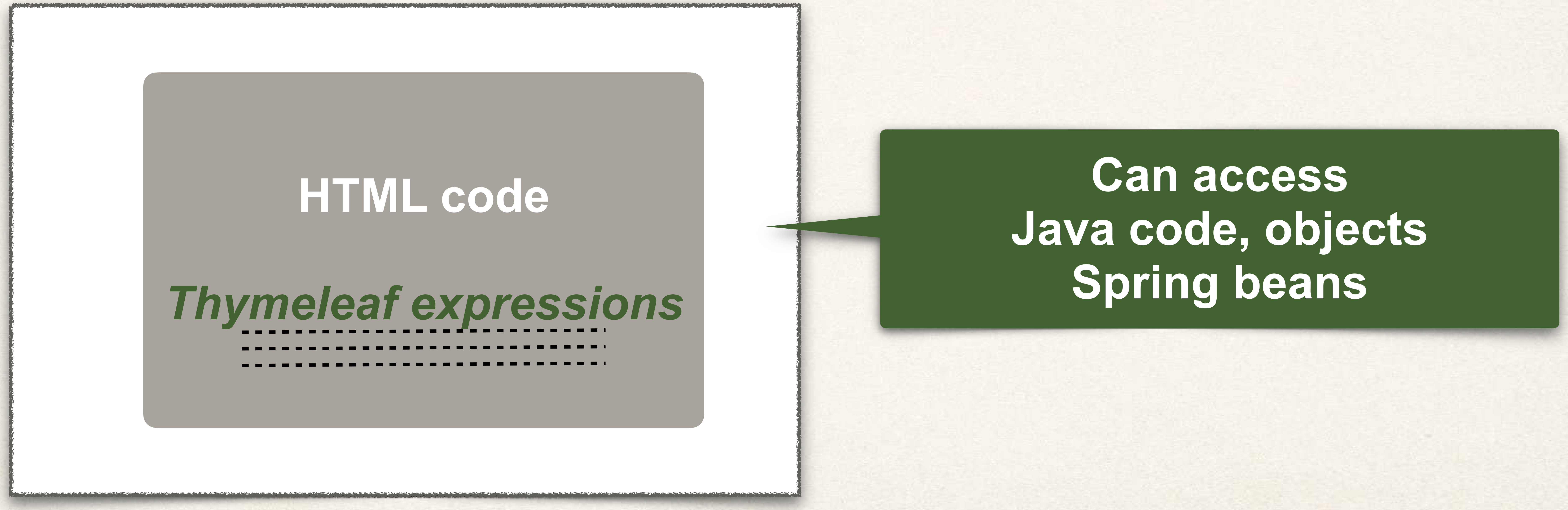
www.thymeleaf.org

Separate project
Unrelated to spring.io

- Thymeleaf is a Java templating engine
- Commonly used to generate the HTML views for web apps
- However, it is a general purpose templating engine
  - Can use Thymeleaf outside of web apps (more on this later)

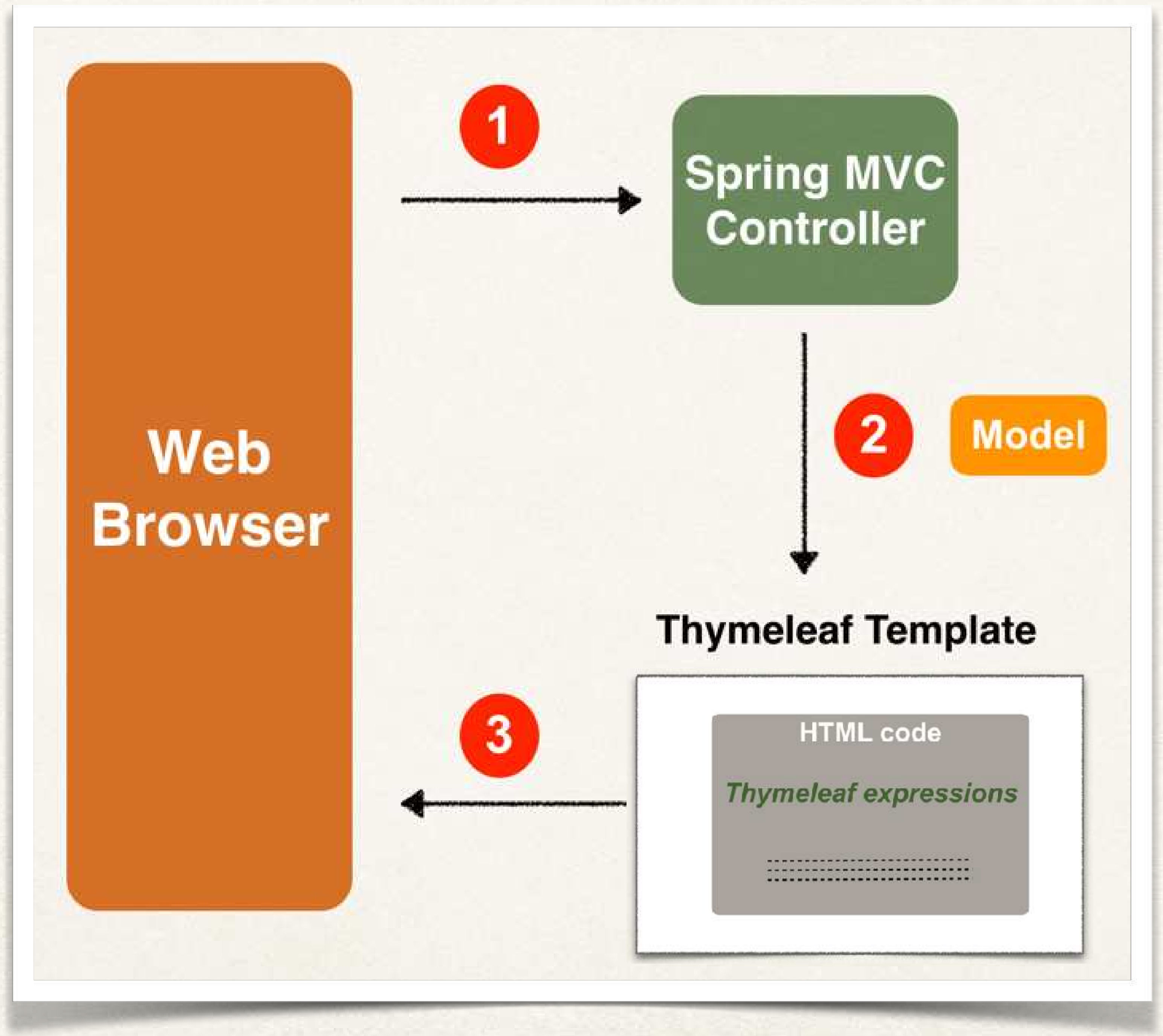
What is a Thymeleaf template?

- Can be an HTML page with some Thymeleaf expressions
- Include dynamic content from Thymeleaf expressions

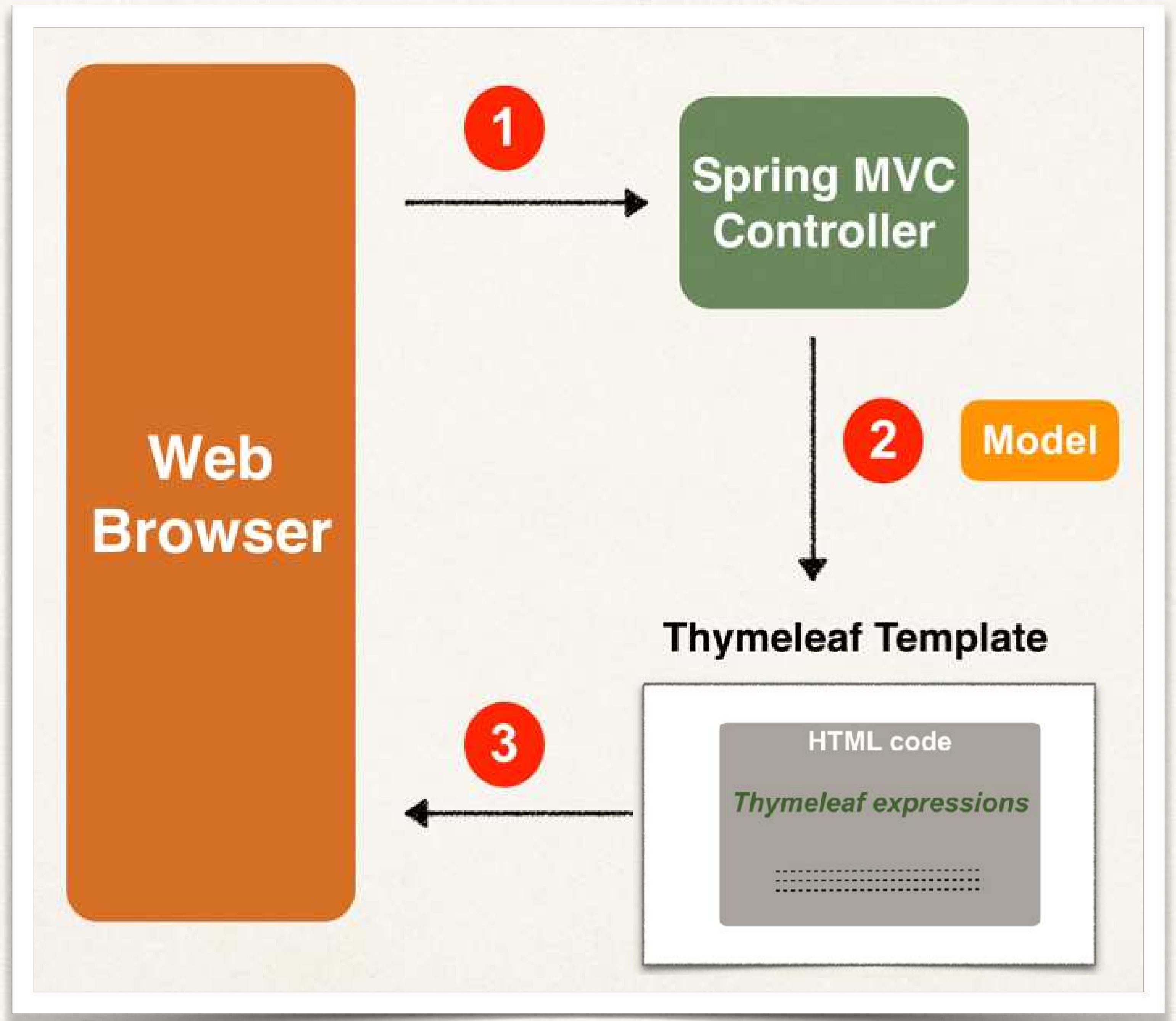


Where is the Thymeleaf template processed?

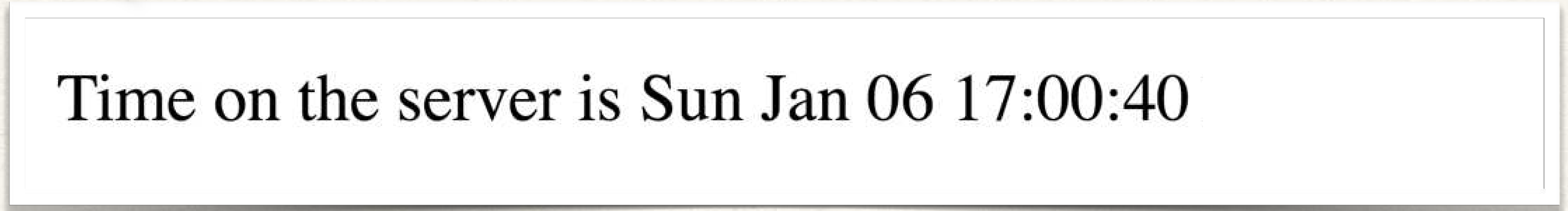
- In a web app, Thymeleaf is processed on the server
- Results included in HTML returned to browser



Thymeleaf Demo



Output


Time on the server is Sun Jan 06 17:00:40

Development Process

Step-By-Step

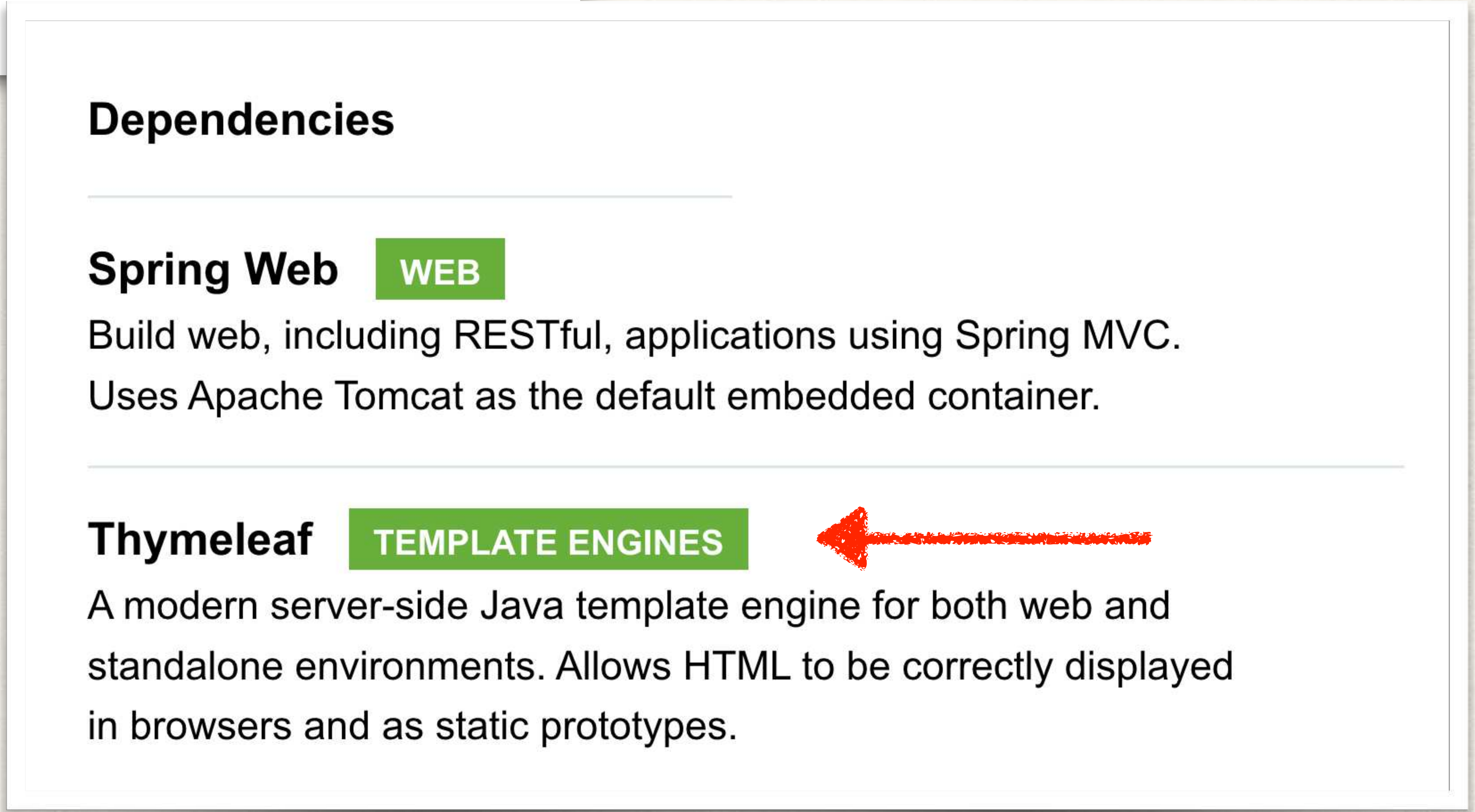
1. Add Thymeleaf to Maven POM file

2. Develop Spring MVC Controller

3. Create Thymeleaf template

Step 1: Add Thymeleaf to Maven pom file

```
<dependency>
  <groupId>org.springframework.boot</groupId>
  <artifactId>spring-boot-starter-thymeleaf</artifactId>
</dependency>
```



Dependencies

Spring Web WEB

Build web, including RESTful, applications using Spring MVC. Uses Apache Tomcat as the default embedded container.

Thymeleaf TEMPLATE ENGINES

A modern server-side Java template engine for both web and standalone environments. Allows HTML to be correctly displayed in browsers and as static prototypes.

Based on this,
Spring Boot will auto configure to use Thymeleaf templates

Step 2: Develop Spring MVC Controller

File: DemoController.java

```
@Controller
public class DemoController {

  @GetMapping("/")
  public String sayHello(Model theModel) {

    theModel.addAttribute("theDate", new java.util.Date());

    return "helloworld";
  }
}
```

```
src/main/resources/templates/helloworld.html
```

Where to place Thymeleaf template?

- In Spring Boot, your Thymeleaf template files go in
  - **src/main/resources/templates**

- For web apps, Thymeleaf templates have a **.html** extension

Step 3: Create Thymeleaf template

Thymeleaf accesses "theDate" from the Spring MVC Model

File: DemoController.java

```
@Controller
public class DemoController {

   @GetMapping("/")
   public String sayHello(Model theModel) {

                   Attribute("theDate", new java.util.Date());

                   world";

}
```

To use Thymeleaf expressions

File: src/main/resources/templates/helloworld.html

```
<!DOCTYPE HTML>
<html xmlns:th="http://www.thymeleaf.org">
<head> … </head>

<body>
    <p th:text="'Time on the server is ' + ${theDate}" />
</body>

</html>
```

Thymeleaf expression

1

2

```
Time on the server is Sun Jan 06 17:00:40
```

Step 3: Create Thymeleaf template

Thymeleaf accesses "theDate" from the Spring MVC Model

File: DemoController.java

```java
@Controller
public class DemoController {

    @GetMapping("/")
    public String sayHello(Model theModel) {

        theModel.addAttribute("theDate", new java.util.Date());

        return "helloworld";
    }
}
```

1

File: src/main/resources/templates/helloworld.html

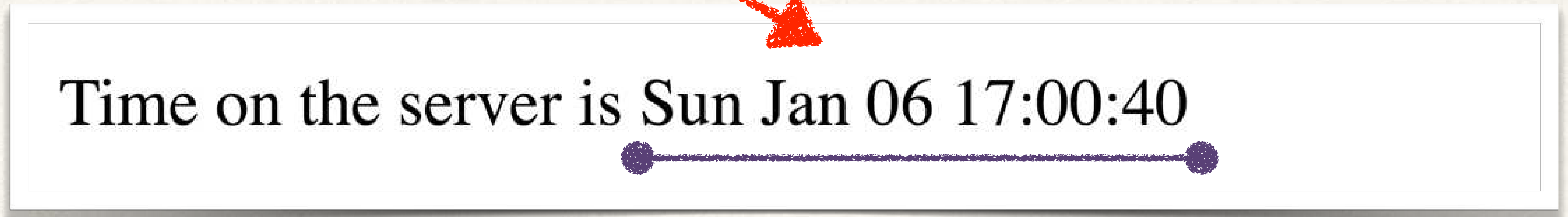
```html
<!DOCTYPE HTML>
<html xmlns:th="http://www.thymeleaf.org">
<head> … </head>

<body>
    <p th:text="'Time on the server is ' + ${theDate}" />
</body>

</html>
```

Thymeleaf expression

2


Time on the server is Sun Jan 06 17:00:40

Additional Features

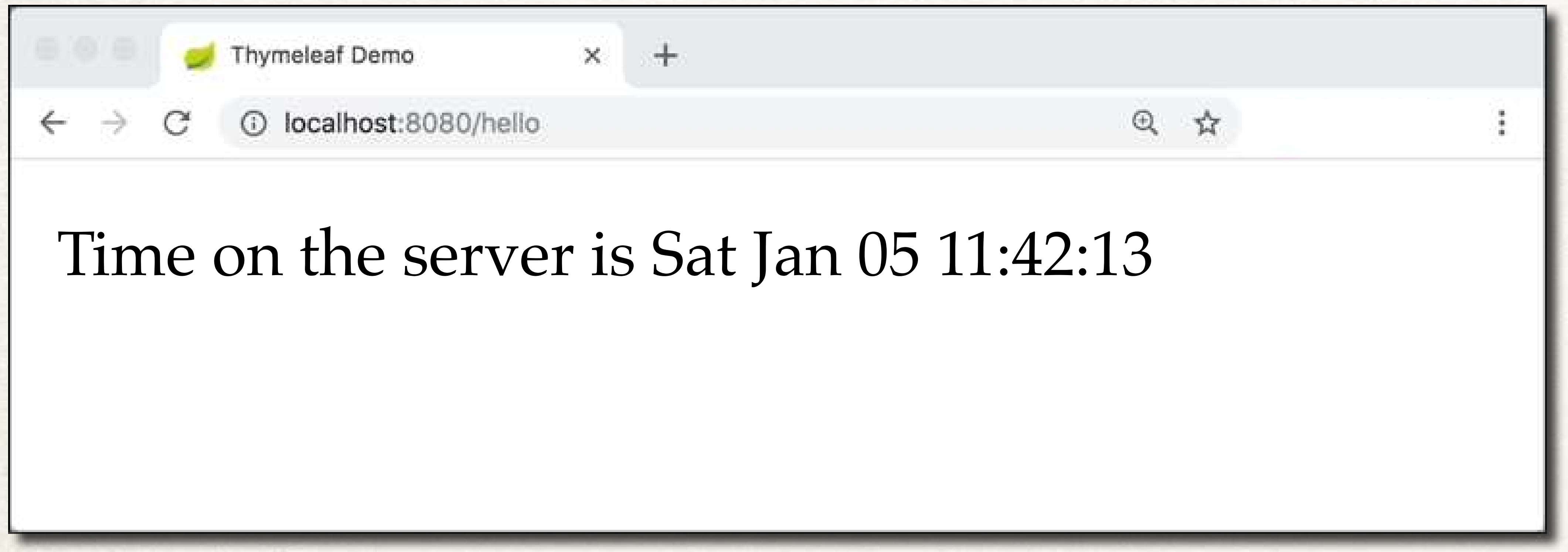
- Looping and conditionals
- CSS and JavaScript integration
- Template layouts and fragments

www.thymeleaf.org

CSS and Thymeleaf

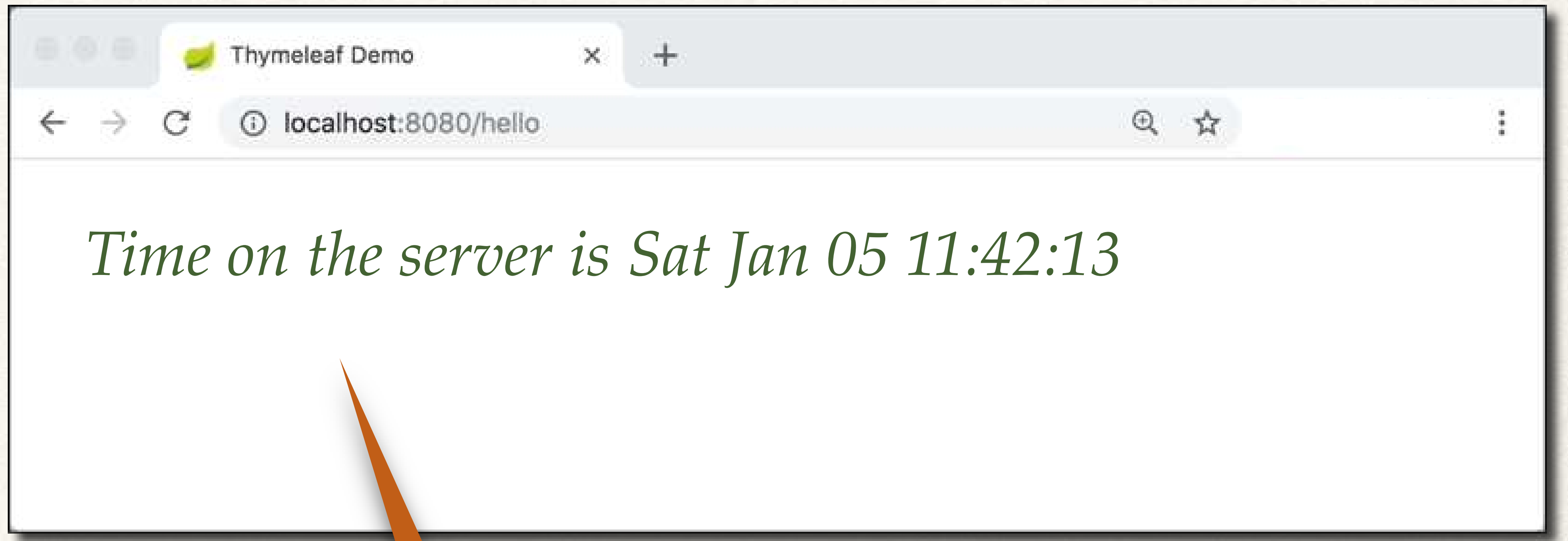
Let's Apply CSS Styles to our Page

Before



Time on the server is Sat Jan 05 11:42:13

After



Time on the server is Sat Jan 05 11:42:13

```
font-style: italic;
color: green;
```

Using CSS with Thymleaf Templates

- You have the option of using
  - Local CSS files as part of your project
  - Referencing remote CSS files
- We'll cover both options in this video

Development Process

Step-By-Step

1. Create CSS file

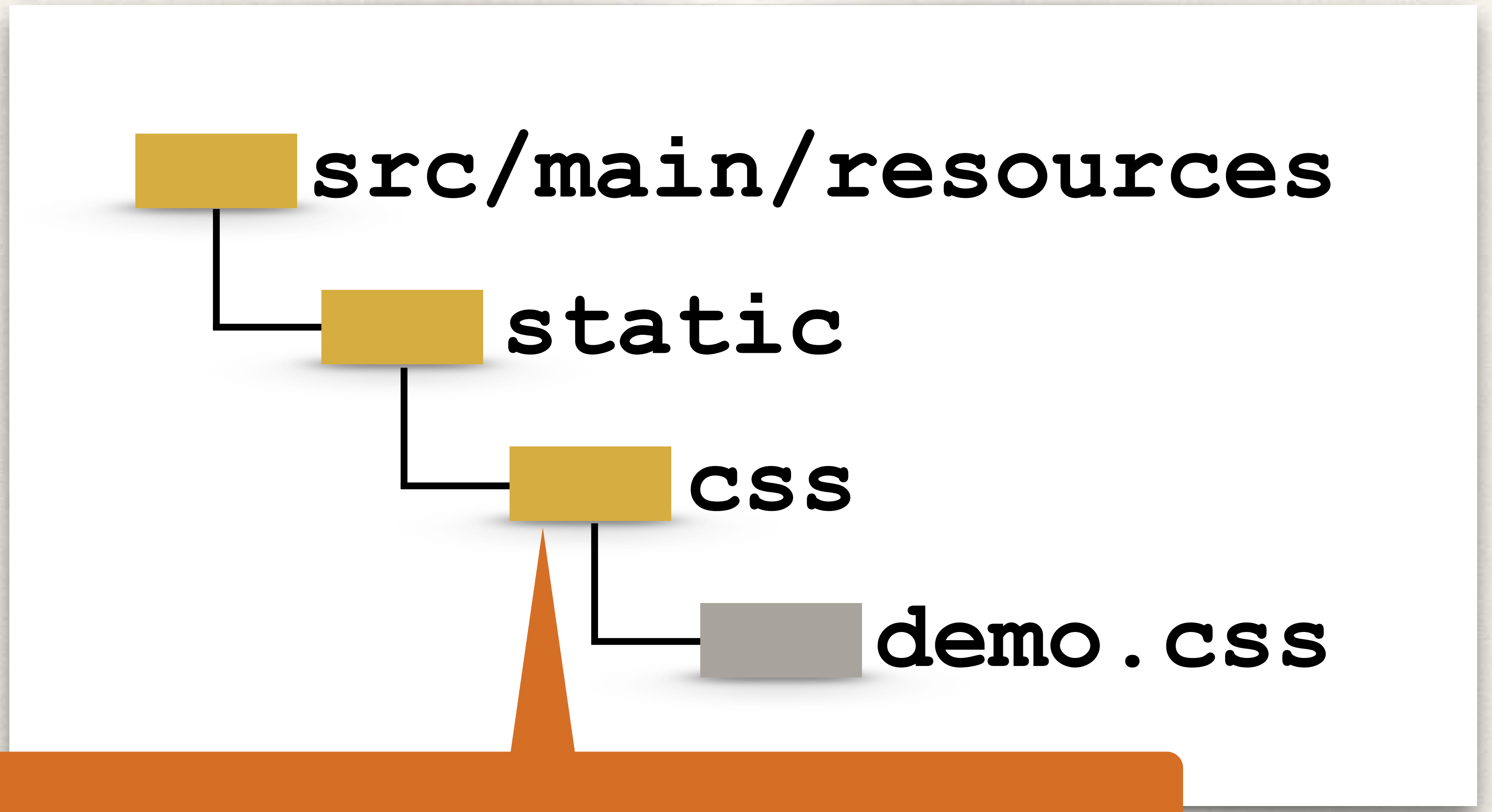
2. Reference CSS in Thymeleaf template

3. Apply CSS style

Step 1: Create CSS file

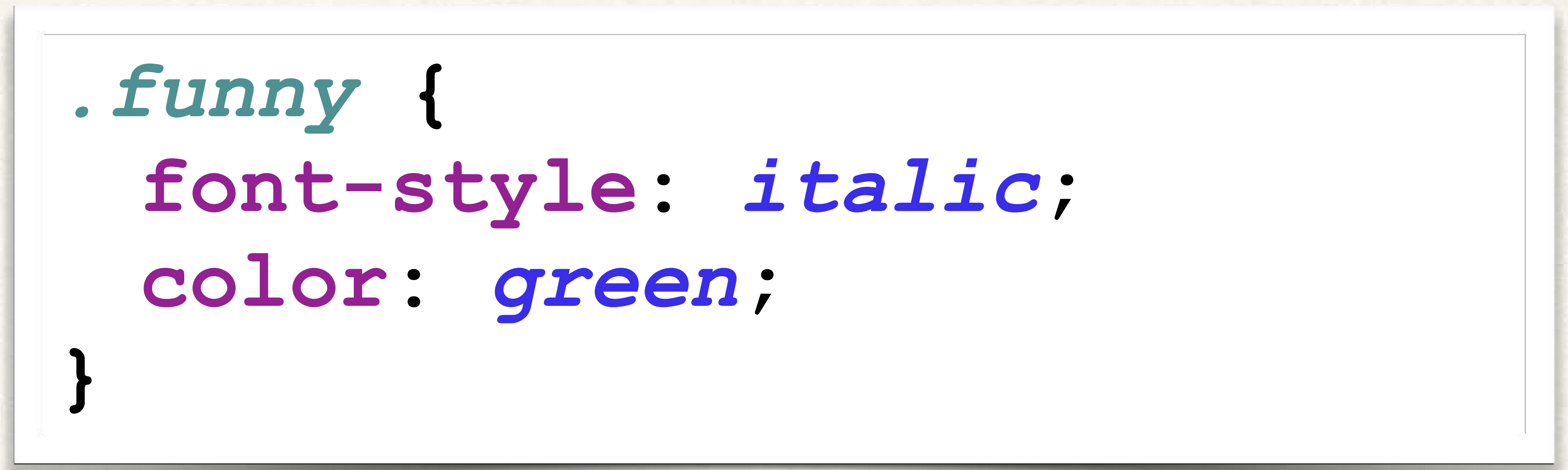
- Spring Boot will look for static resources in the directory
  - **`src/main/resources/static`**

You can create your own custom sub-directories
`static/css`
`static/images`
`static/js`
etc …



Can be any sub-directory name

File: demo.css



```
.funny {
  font-style: italic;
  color: green;
}
```

Step 2: Reference CSS in Thymeleaf template

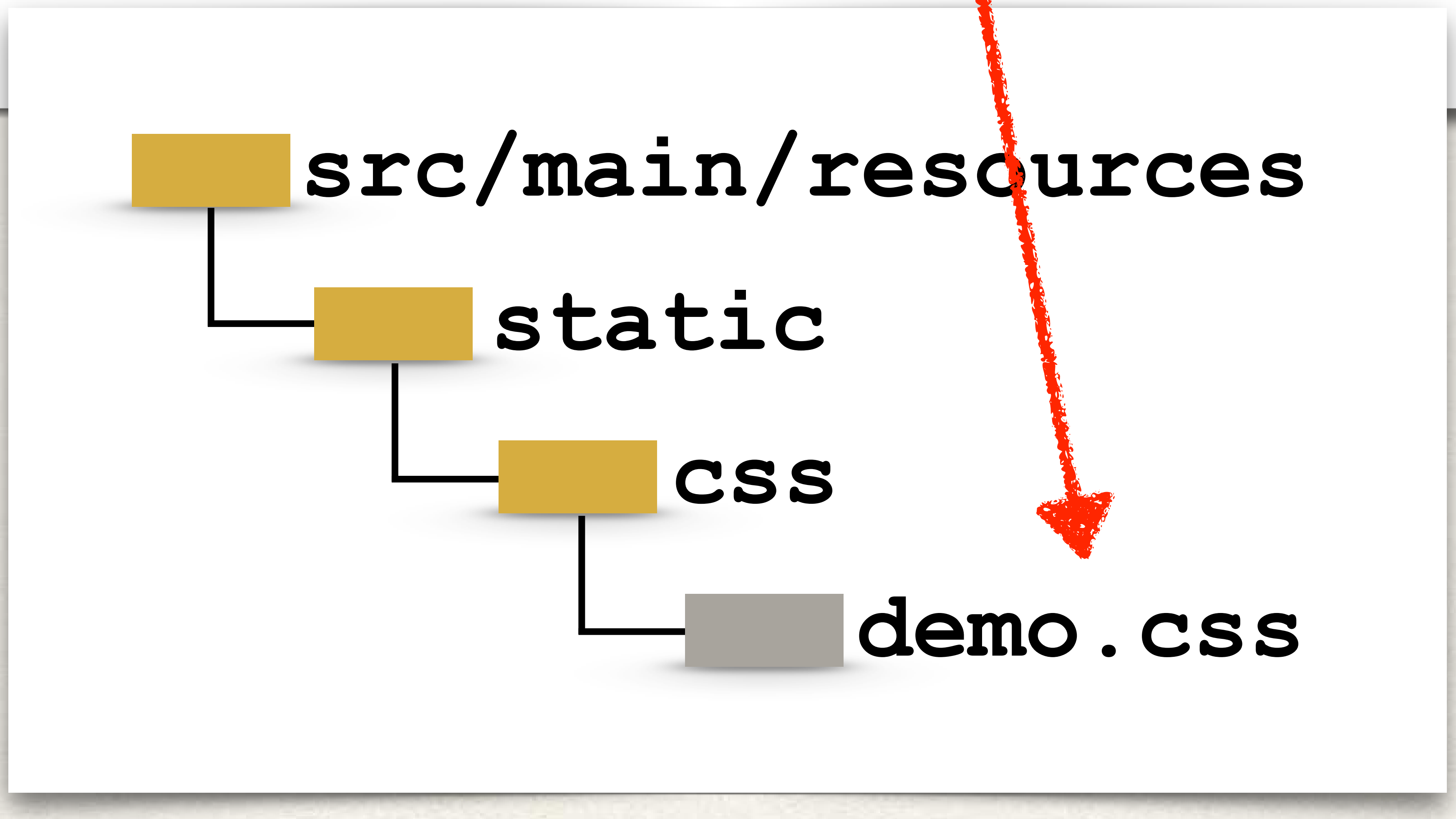
File: helloworld.html

```
<head>
  <title>Thymeleaf Demo</title>

  <!-- reference CSS file -->
  <link rel="stylesheet" th:href="@{/css/demo.css}" />

</head>
```

@ symbol
Reference context path of your application
(app root)



Step 3: Apply CSS

File: helloworld.html

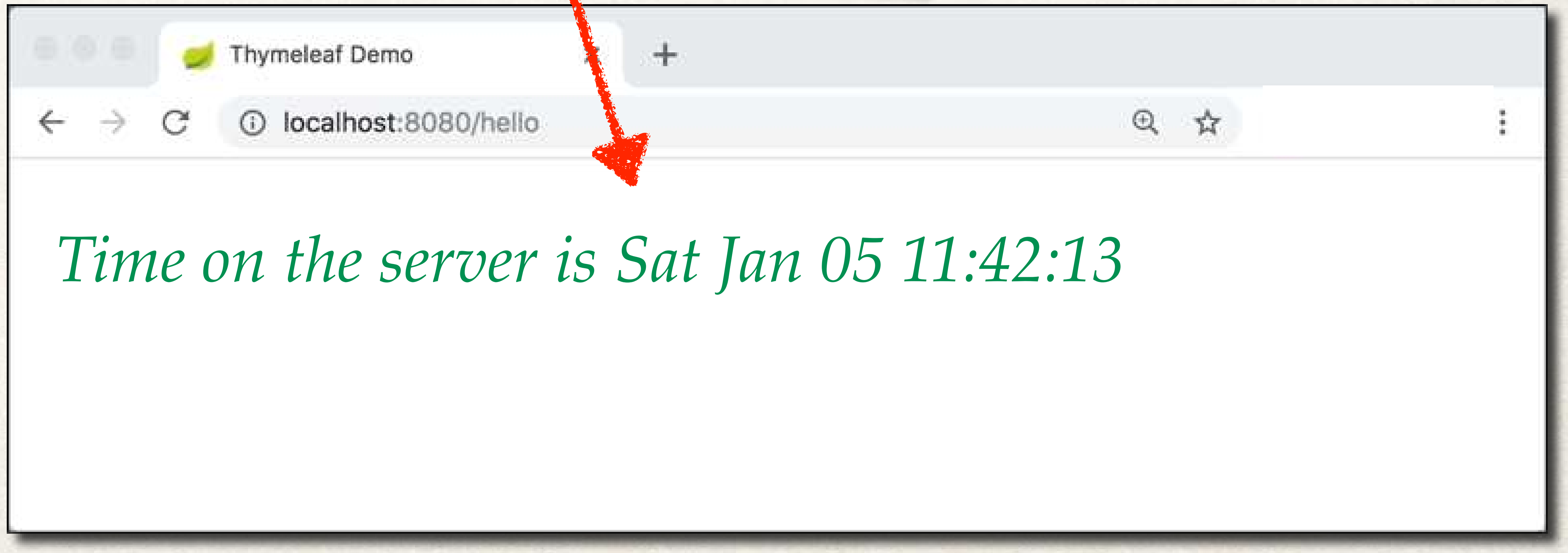
```
<head>
  <title>Thymeleaf Demo</title>

  <!-- reference CSS file -->
  <link rel="stylesheet" th:href="@{/css/demo.css}" />
</head>

<body>
  <p th:text="'Time on the server is ' + ${theDate}" class="funny" />
</body>
```

File: demo.css

```
.funny {
  font-style: italic;
  color: green;
}
```



Time on the server is Sat Jan 05 11:42:13

Other search directories

Spring Boot will search following directories for static resources:

`/src/main/resources`

1. **`/META-INF/resources`**
2. **`/resources`**
3. **`/static`**
4. **`/public`**

Search order: top-down

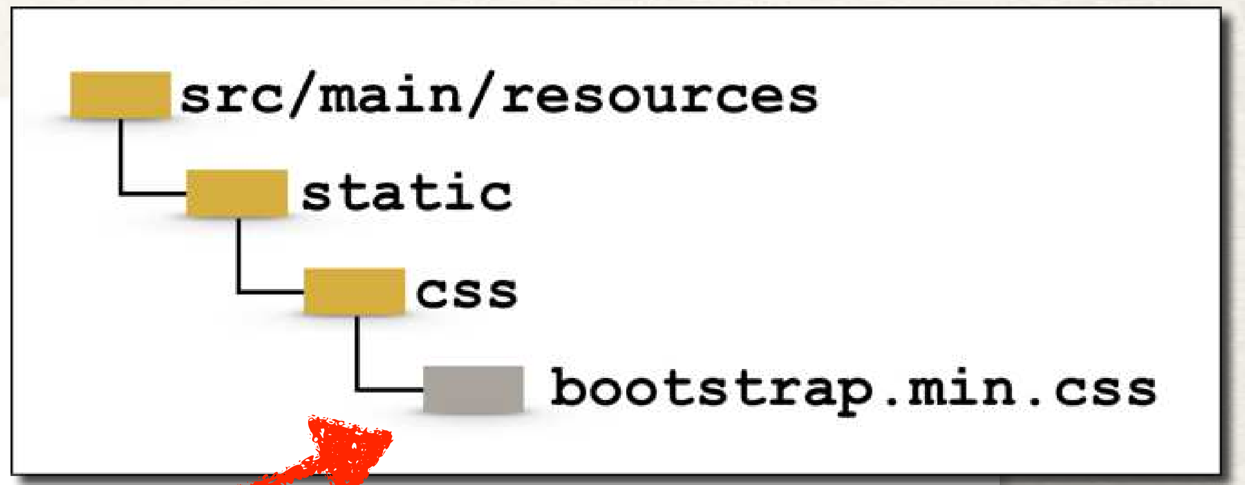
3rd Party CSS Libraries - Bootstrap

- Local Installation
- Download Bootstrap file(s) and add to **/static/css** directory

```
<head>
  …  …

  <!-- reference CSS file -->
  <link rel="stylesheet" th:href="@{/css/bootstrap.min.css}" />

</head>
```



```
src/main/resources
└ static
  └ css
    └ bootstrap.min.css
```

3rd Party CSS Libraries - Bootstrap

- Remote Files

```
<head>
  … …

  <!-- reference CSS file -->
  <link rel="stylesheet"
       href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.3/dist/css/bootstrap.min.css" />

  … …
</head>
```