

삼성 청년 SW 아카데미

Front-End Programming

학습목표

- 웹프로젝트의 CRUD를 구성한다.
- REST 설계하는 기법을 익힌다.

스프링 프레임워크란?

자바 엔터프라이즈 개발을 위한 오픈소스 경량 애플리케이션 프레임워크다.
공통 프로그래밍 모델 및 Configuration 모델을 제공한다.



프레임워크가 애플리케이션 수준의 인프라 구조를 제공
개발자가 귀찮은 일에 신경 쓰지 않고 비즈니스 로직 개발에 전념

JAVA 온라인 라이브 강의

웹 프로젝트 3 레이어(tier)

Confidential

Presentation
Layer

UI담당 구성요소

Business Logic
Layer

서비스계층
고객 요구사항반영

Data Access
Layer

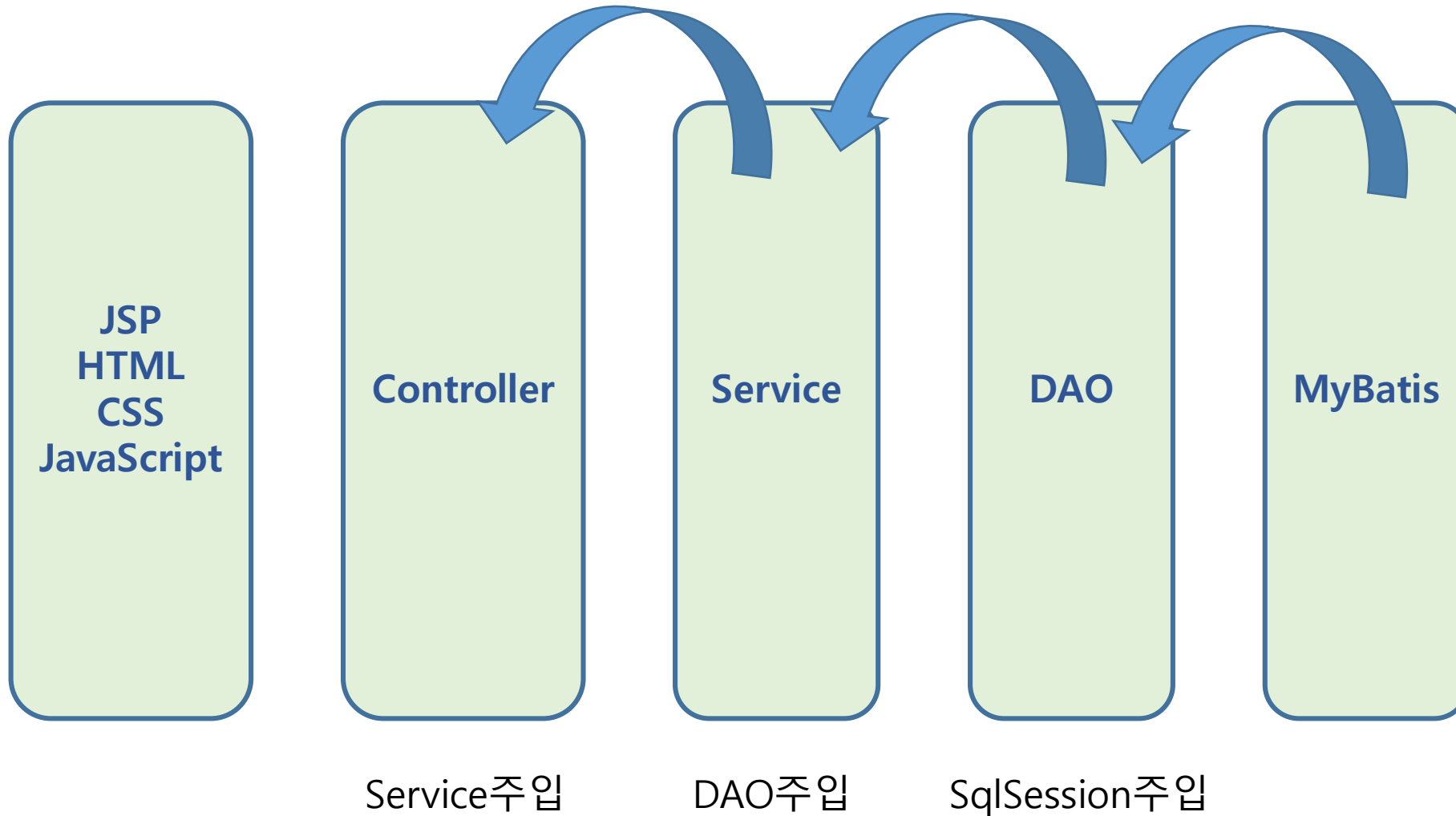
Persistence계층
데이터처리



JAVA 온라인 라이브 강의

세분화된 프로젝트 구성

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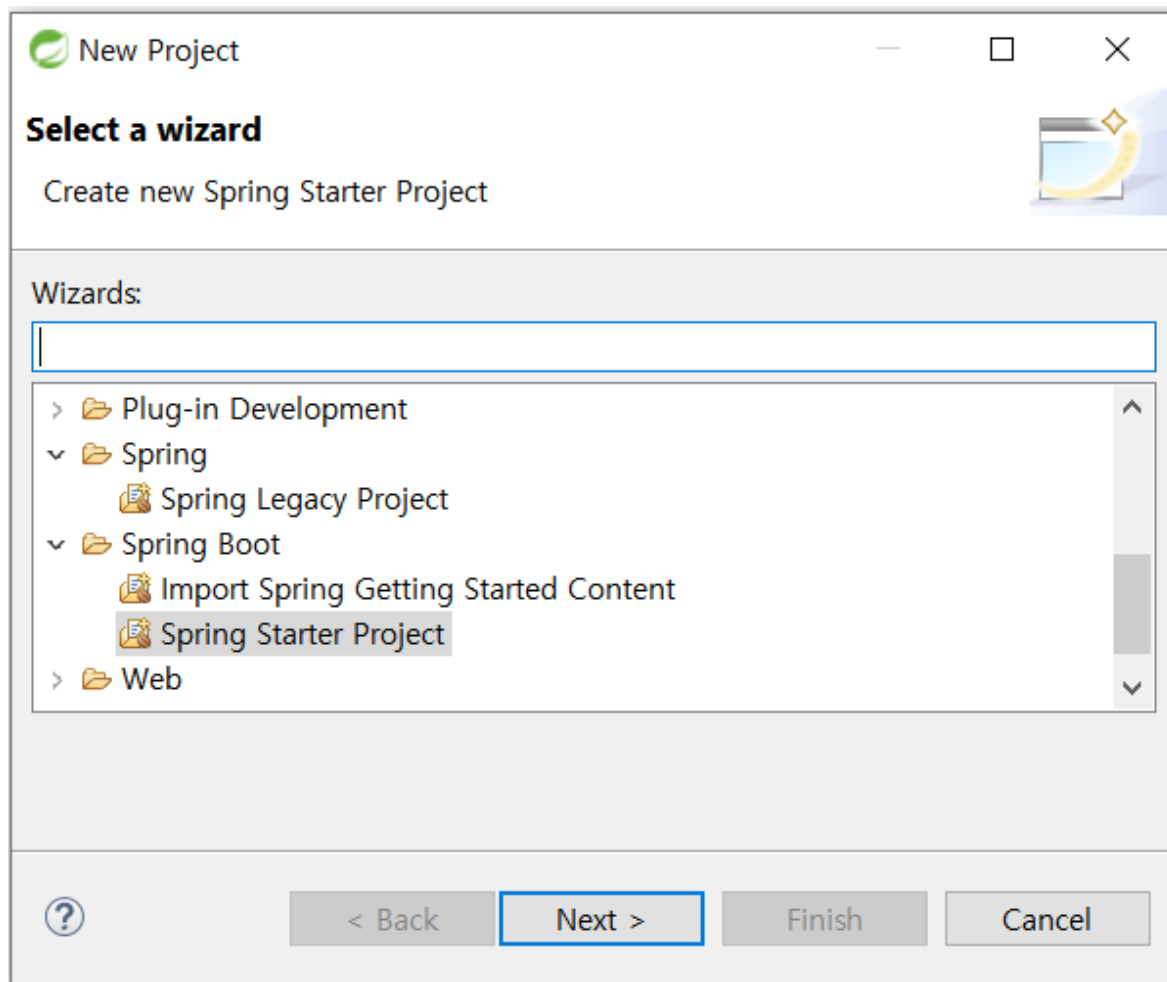
SpringFramework 특성

- 자바 웹 애플리케이션 개발을 위한 오픈소스 프레임워크
- EJB보다 가볍고 배우기도 쉬우며 경량 컨테이너의 기능을 수행
- 제어 역행(IoC, Inversion of Control) 기술을 이용해 애플리케이션 간의 느슨한 결합을 제어함.
- 의존성 주입(DI, Dependency Injection) 기능을 지원함
- 관점 지향(AOP, Aspect-Oriented Programming) 기능을 이용해 자원 관리
- 영속성과 관련된 다양한 서비스를 지원함
- 수많은 라이브러리와 연동 기능을 지원





SpringBoot 장점

- 스프링 부트는 반복되는 개발환경 구축을 위한 코드작성등의 노력을 줄여주고 쉽고 빠르게 프로젝트를 설정할 수 있도록 도와준다.
- 매우 빠르게 모든 스프링 개발에 관한 경험에 광범위한 접근을 제공
- 프로젝트 환경 구축에서 큰 영역을 차지하는 비기능적인 기능들을 기본적으로 제공 (내장형 서버, 시큐리티, 측정, 상태 점검, 외부 설정)



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 **New Spring Starter Project** 

Service URL:

Name:

☒ Use default location

Location:

Type: Packaging:

Java Version: Language:

Group:

Artifact:

Version:

Description:

Package:

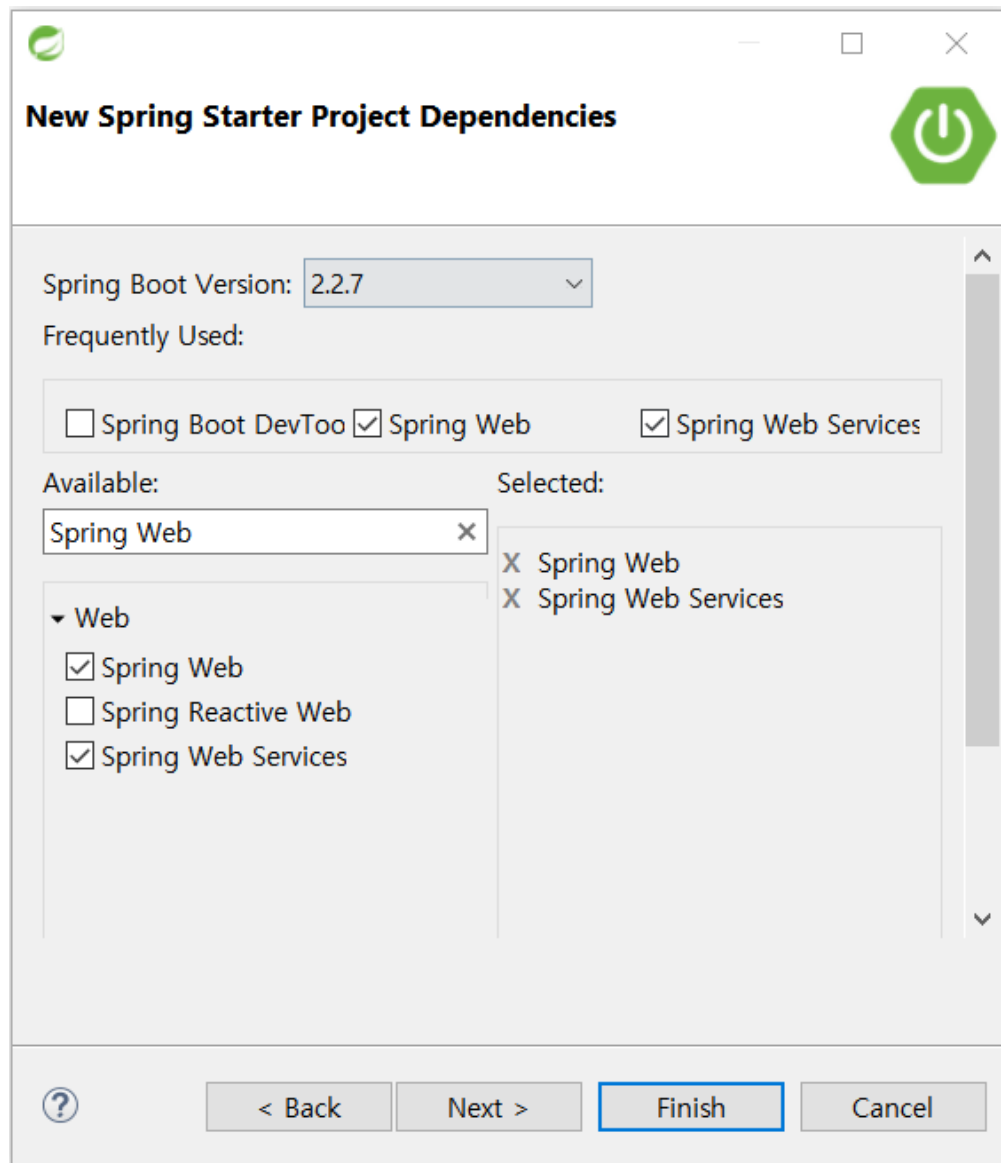
Working sets

☐ Add project to working sets

Working sets:

JAVA 온라인 라이브 강의

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The image shows a 'New Spring Starter Project Dependencies' dialog box. At the top, it has a title bar with a green icon and a power button icon. Below the title bar, the text 'New Spring Starter Project Dependencies' is displayed. The main area contains a 'Spring Boot Version' dropdown set to '2.2.7'. Under 'Frequently Used:', there are three checkboxes: 'Spring Boot DevToo' (unchecked), 'Spring Web' (checked), and 'Spring Web Services' (checked). Below this, there are two columns: 'Available:' and 'Selected:'. The 'Available:' column has a search box containing 'Spring Web' and a list of options under a 'Web' header: 'Spring Web' (checked), 'Spring Reactive Web' (unchecked), and 'Spring Web Services' (checked). The 'Selected:' column lists 'Spring Web' and 'Spring Web Services', both with an 'X' icon. At the bottom, there are four buttons: a help button (question mark), '< Back', 'Next >', and 'Finish' (highlighted with a blue border), and a 'Cancel' button.

Spring Boot Version: 2.2.7

Frequently Used:

☐ Spring Boot DevToo ☒ Spring Web ☒ Spring Web Services

Available: Selected:

Spring Web X

Web X

☒ Spring Web

☐ Spring Reactive Web

☒ Spring Web Services

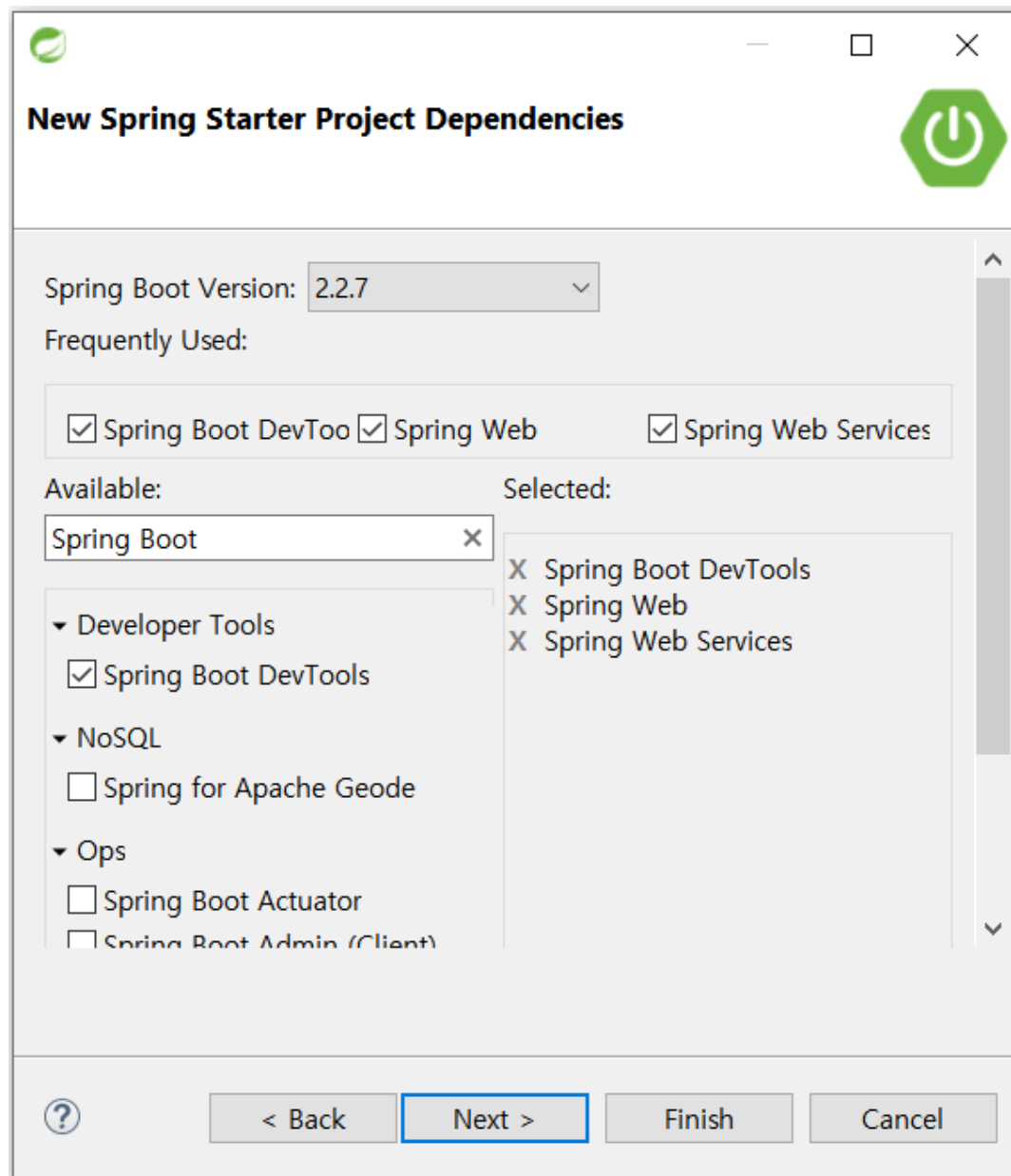
X Spring Web

X Spring Web Services

? < Back Next > Finish Cancel

JAVA 온라인 라이브 강의

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The image shows a 'New Spring Starter Project Dependencies' dialog box. At the top, it has a title bar with a green icon, a minus button, a maximize button, and a close button. Below the title bar, the title 'New Spring Starter Project Dependencies' is displayed next to a green power button icon. The main content area is divided into two sections: 'Frequently Used:' and 'Available:'. The 'Frequently Used:' section has three checkboxes: 'Spring Boot DevToo' (checked), 'Spring Web' (checked), and 'Spring Web Services' (checked). The 'Available:' section has a search bar containing 'Spring Boot' and a list of categories: 'Developer Tools' (checked), 'NoSQL' (unchecked), and 'Ops' (unchecked). Under 'Developer Tools', 'Spring Boot DevTools' is checked. Under 'NoSQL', 'Spring for Apache Geode' is unchecked. Under 'Ops', 'Spring Boot Actuator' and 'Spring Boot Admin (Client)' are unchecked. To the right of the 'Available:' section is a 'Selected:' list containing 'Spring Boot DevTools', 'Spring Web', and 'Spring Web Services', each with an 'X' icon. At the bottom, there are four buttons: a help button (question mark), '< Back', 'Next >' (highlighted with a blue border), 'Finish', and 'Cancel'.

New Spring Starter Project Dependencies

Spring Boot Version: 2.2.7

Frequently Used:

☒ Spring Boot DevToo ☒ Spring Web ☒ Spring Web Services

Available:

Spring Boot

▼ Developer Tools

☒ Spring Boot DevTools

▼ NoSQL

☐ Spring for Apache Geode

▼ Ops

☐ Spring Boot Actuator

☐ Spring Boot Admin (Client)

Selected:

X Spring Boot DevTools

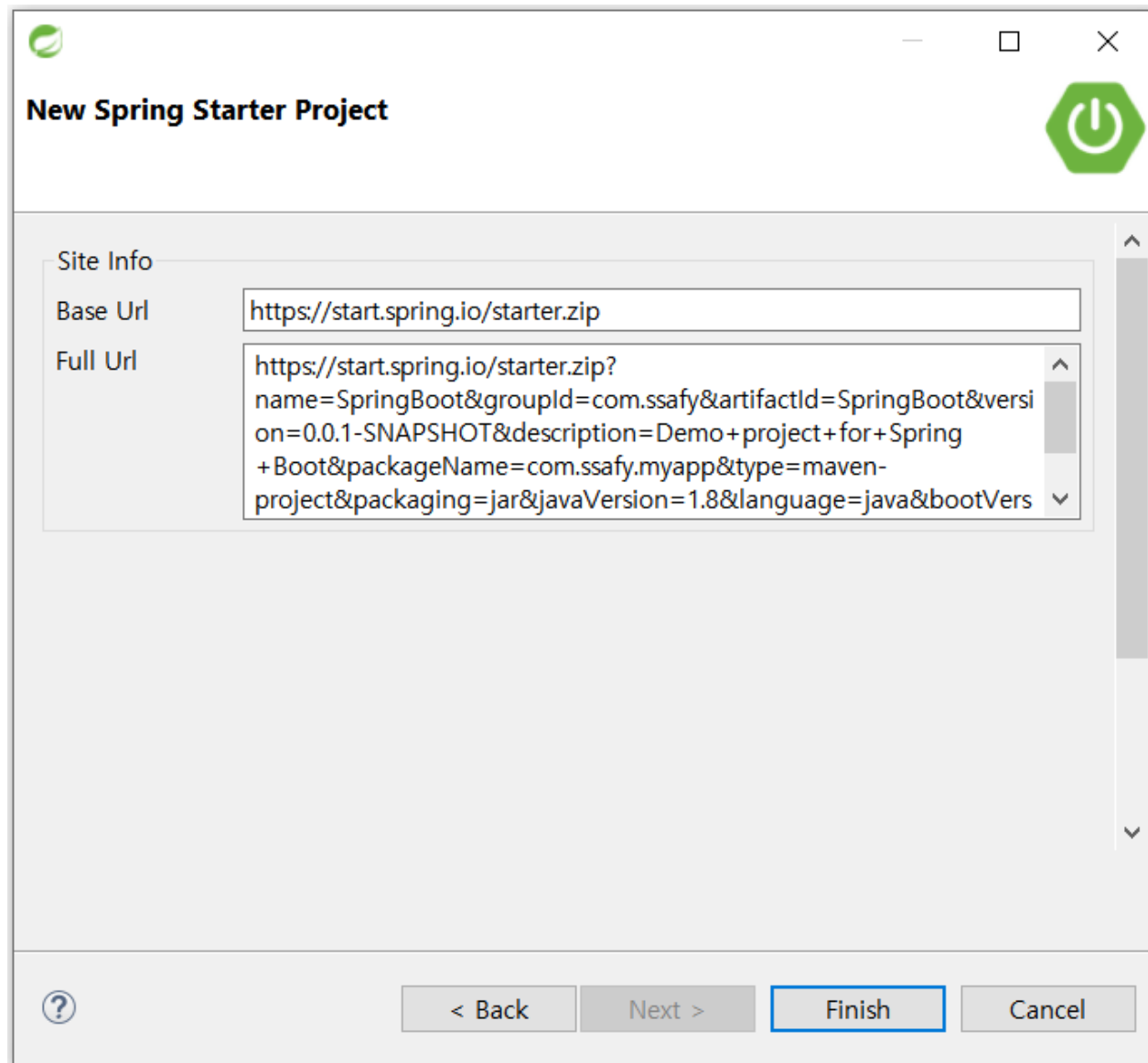
X Spring Web

X Spring Web Services

? < Back Next > Finish Cancel

JAVA 온라인 라이브 강의

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The image shows a 'New Spring Starter Project' dialog box. It has a title bar with a green icon, a minus button, a maximize button, and a close button. Below the title bar is a green power button icon. The main area is divided into two sections: 'Site Info' and 'Full Url'. The 'Site Info' section has a 'Base Url' field with the value 'https://start.spring.io/starter.zip'. The 'Full Url' section has a text area with the value 'https://start.spring.io/starter.zip?name=SpringBoot&groupId=com.ssafy&artifactId=SpringBoot&version=0.0.1-SNAPSHOT&description=Demo+project+for+Spring+Boot&packageName=com.ssafy.myapp&type=maven-project&packaging=jar&javaVersion=1.8&language=java&bootVers'. At the bottom, there is a question mark icon, a '< Back' button, a 'Next >' button, a 'Finish' button (highlighted with a blue border), and a 'Cancel' button.














New Spring Starter Project


















Site Info



















Base Url:




















Full Url:

? < Back Next > Finish Cancel

- ▼  SpringBoot [boot] [devtools]
 - >  Spring Elements
 - >  src/main/java
 - >  src/main/resources
 - >  src/test/java
 - >  JRE System Library [JavaSE-1.8]
 - >  Maven Dependencies
 - >  src
 - >  target
 -  HELP.md
 -  mvnw
 -  mvnw.cmd
 -  pom.xml

















- ▼  SpringBoot [boot] [devtools]
 - >  Spring Elements
 - >  src/main/java
 - >  src/main/resources
 - >  src/test/java
 - >  JRE System Library [JavaSE-1.8]
 - >  Maven Dependencies
- ▼  src
 - ▼  main
 - >  java
 - >  resources
 - >  test
- >  target
-  HELP.md
-  mvnw
-  mvnw.cmd
-  pom.xml



- ▼  SpringBoot [boot] [devtools]
 - >  Spring Elements
 - >  src/main/java
 - >  src/main/resources
 - >  src/test/java
 - >  JRE System Library [JavaSE-1.8]
 - >  Maven Dependencies
- ▼  src
 - ▼  main
 - >  java
 - >  resources
 -  webapp
 - >  test
- >  target
-  HELP.md
-  mvnw
-  mvnw.cmd
-  pom.xml

- ▼  SpringBoot [boot] [devtools]
 - >  Spring Elements
 - >  src/main/java
 - >  src/main/resources
 - >  src/test/java
 - >  JRE System Library [JavaSE-1.8]
 - >  Maven Dependencies
- ▼  src
 - ▼  main
 - >  java
 - >  resources
 - ▼  webapp
 -  hello.html
 - >  test
- >  target
-  HELP.md
-  mvnw
-  mvnw.cmd
-  pom.xml

hello.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <meta charset="UTF-8">
5 <title>Insert title here</title>
6 </head>
7 <body>
8     안녕, SSAFY3기♡♡♡!!
9 </body>
10 </html>
```

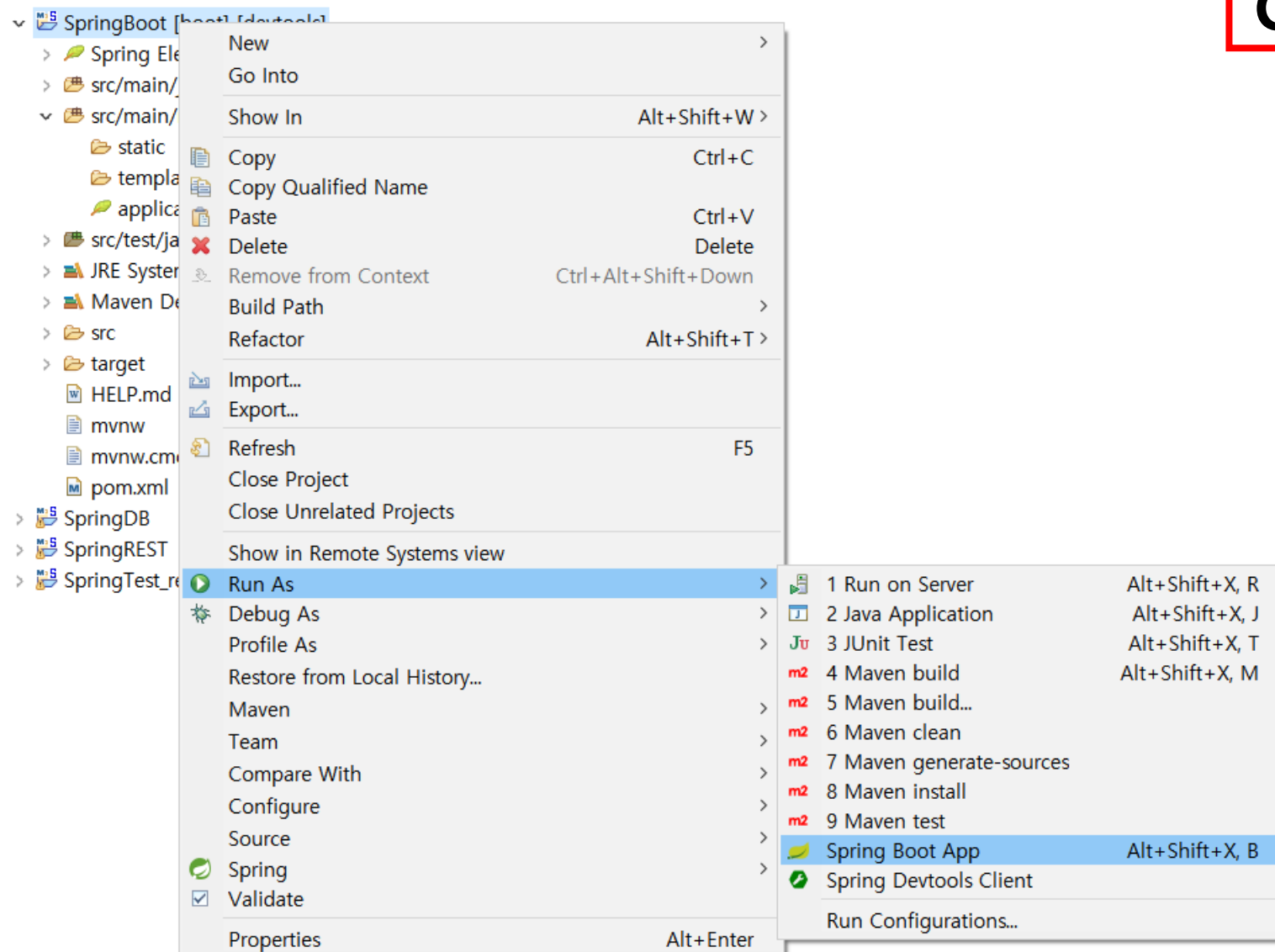
- ▼  SpringBoot [boot] [devtools]
 - >  Spring Elements
 - >  src/main/java
 - ▼  src/main/resources
 -  static
 -  templates
 -  application.properties
 - >  src/test/java
 - >  JRE System Library [JavaSE-1.8]
 - >  Maven Dependencies
 - >  src
 - >  target
 -  HELP.md
 -  mvnw
 -  mvnw.cmd
 -  pom.xml



















 application.properties 

```
1 # Web ContextRootPath and PortNumber Settings
2 server.servlet.context-path=/ssafy
3 server.port=8080
4
```

JAVA 온라인 라이브 강의

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- ▼  SpringBoot [boot] [devtools]
 - >  Spring Elements
 - ▼  src/main/java
 - ▼  com.ssafy.myapp
 - >  Application.java
 - ▼  src/main/resources
 -  static
 -  templates
 -  application.properties
 - >  src/test/java
 - >  JRE System Library [JavaSE-1.8]
 - >  Maven Dependencies
 - >  src
 - >  target
 -  HELP.md
 -  mvnw
 -  mvnw.cmd
 -  pom.xml

```
Application.java
1 package com.ssafy.myapp;
2
3 import org.springframework.boot.SpringApplication;
4
5
6 @SpringBootApplication
7 public class Application {
8
9     public static void main(String[] args) {
10         SpringApplication.run(Application.class, args);
11     }
12
13 }
14
```

JAVA 온라인 라이브 강의

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The screenshot shows an IDE's console window with the following tabs: Markers, Properties, Servers, Snippets, Progress, Console, and JUnit. The title bar indicates the application is "SpringBoot - Application [Spring Boot App]" running from "C:\Program Files\Java\jdk1.8.0_221\bin\javaw.exe" at "2020. 5. 26. 오전 5:42:33".

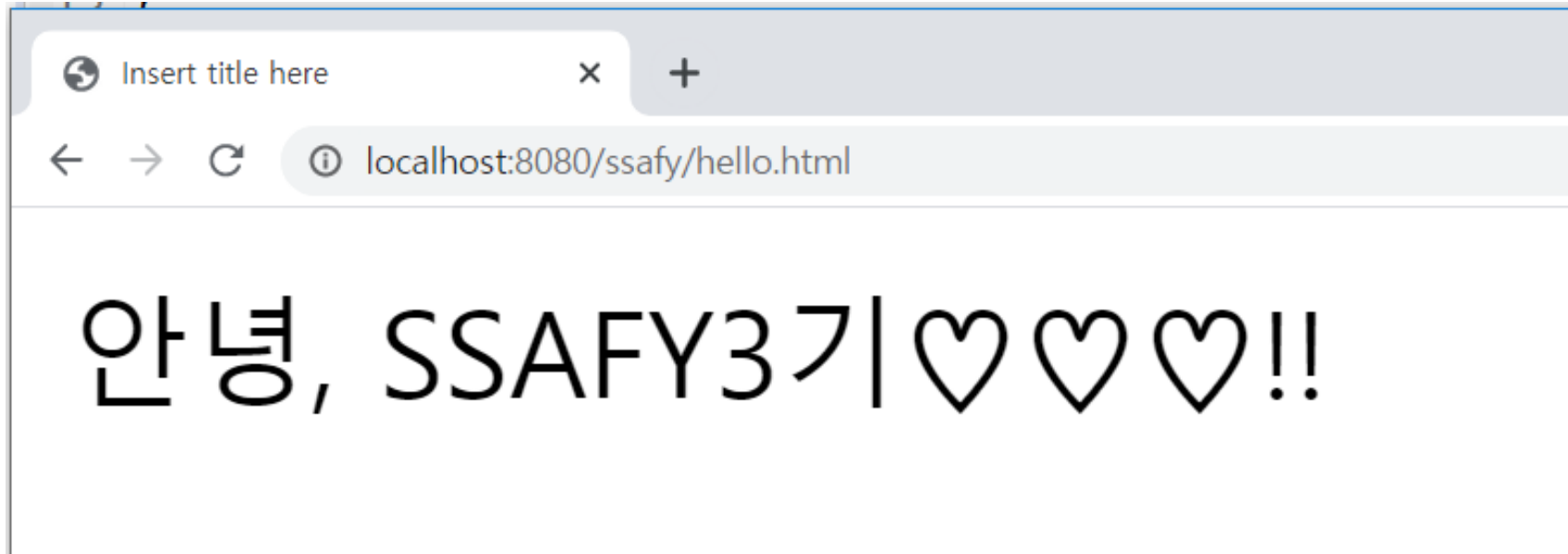
The console output displays the Spring Boot logo, which is a stylized ASCII art representation of a cat's face. Below the logo, the text ":: Spring Boot ::" is shown in green, followed by "(v2.2.7.RELEASE)" in black.








Below the logo, there are several log entries:

```

2020-05-26 05:42:34.812 INFO 35728 --- [ restartedMain] com.ssafy.myapp.Application : Star
2020-05-26 05:42:34.813 INFO 35728 --- [ restartedMain] com.ssafy.myapp.Application : No a
2020-05-26 05:42:34.848 INFO 35728 --- [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : Devt
2020-05-26 05:42:34.848 INFO 35728 --- [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : For
2020-05-26 05:42:35.238 INFO 35728 --- [ restartedMain] trationDelegate$BeanPostProcessorChecker : Bea

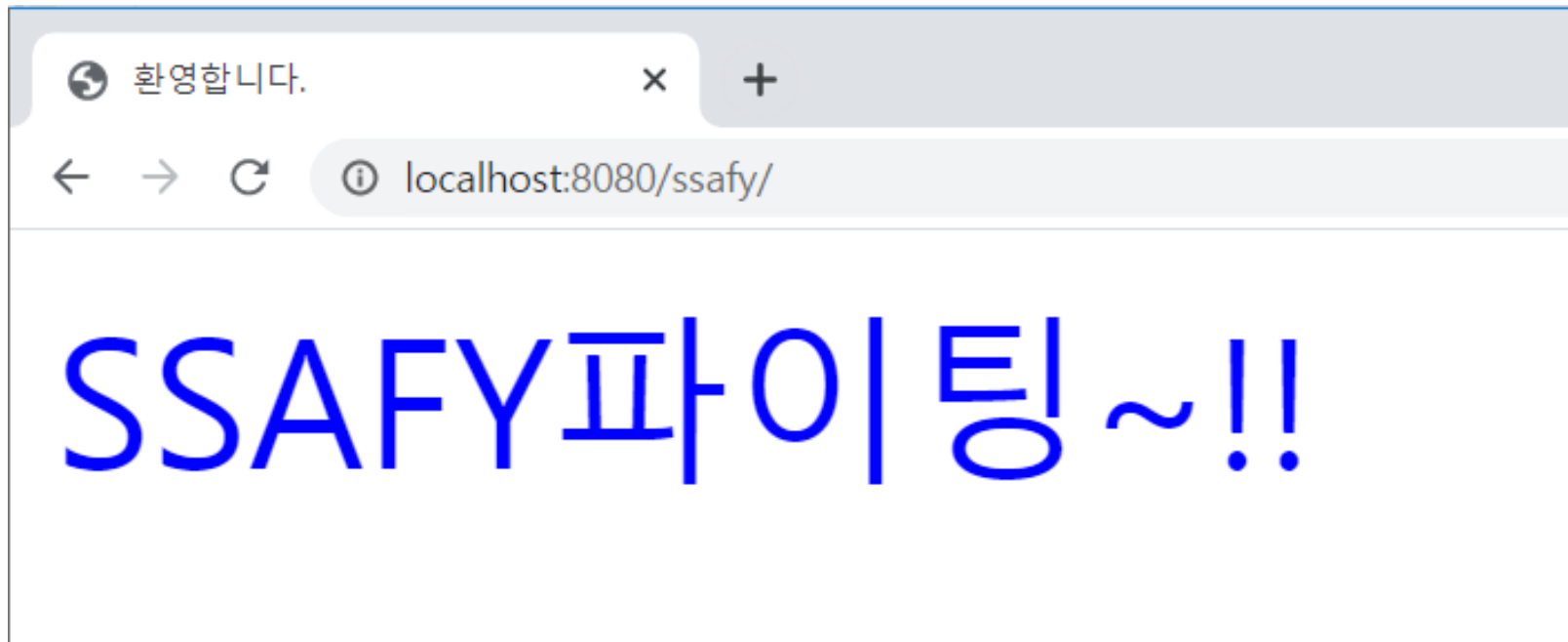
```













- ▼  src
 - ▼  main
 - >  java
 - >  resources
 - ▼  webapp
 -  hello.html
 -  index.html

index.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <meta charset="UTF-8">
5 <title>환영합니다.</title>
6 </head>
7 <body>
8     <font color="blue" size="6">SSAFY파이팅~!!</font>
9 </body>
10 </html>
```




- ▼  src
 - ▼  main
 - >  java
 - >  resources
 - ▼  webapp
 - ▼  WEB-INF
 - ▼  views
 -  hello.jsp
 -  hello.html
 -  index.html

hello.jsp






```
1 <%@ page language="java" contentType="text/html; charset=UTF-8"
2     pageEncoding="UTF-8"%>
3 <!DOCTYPE html>
4 <html>
5 <head>
6 <meta charset="UTF-8">
7 <title>jsp테스트</title>
8 </head>
9 <body>
10     JSP페이지 안녕 - ${msg }
11 </body>
12 </html>
```

```
<dependency>
  <groupId>org.springframework.boot</groupId>
  <artifactId>spring-boot-starter-test</artifactId>
  <scope>test</scope>
  <exclusions>
    <exclusion>
      <groupId>org.junit.vintage</groupId>
      <artifactId>junit-vintage-engine</artifactId>
    </exclusion>
  </exclusions>
</dependency>

<!-- jsp 설정 -->
<dependency>
  <groupId>javax.servlet</groupId>
  <artifactId>jstl</artifactId>
</dependency>
<dependency>
  <groupId>org.apache.tomcat.embed</groupId>
  <artifactId>tomcat-embed-jasper</artifactId>
</dependency>
```

 application.properties ✕

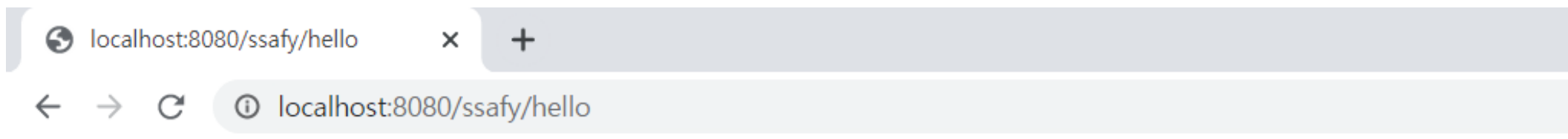
```
1 # Web ContextRootPath and PortNumber Settings
2 server.servlet.context-path=/ssafy
3 server.port=8080
4
5 # JSP Path (ViewResolver)
6 spring.mvc.view.prefix=/WEB-INF/views/
7 spring.mvc.view.suffix=.jsp
```

- ▼  src/main/java
 - ▼  com.ssafy.myapp
 - >  Application.java
 - ▼  com.ssafy.myapp.controller
 - >  MyController.java

MyController.java ✕

```
1 package com.ssafy.myapp.controller;  
2  
3 public class MyController {  
4  
5 }
```

```
MyController.java
1 package com.ssafy.myapp.controller;
2
3 import org.springframework.stereotype.Controller;
4
5
6 @Controller
7 public class MyController {
8
9     @GetMapping("/hello")
10    public String hello() {
11        return "hello";
12    }
13 }
```



Whitelabel Error Page

This application has no explicit mapping for /error, so you are seeing this as a fallback.

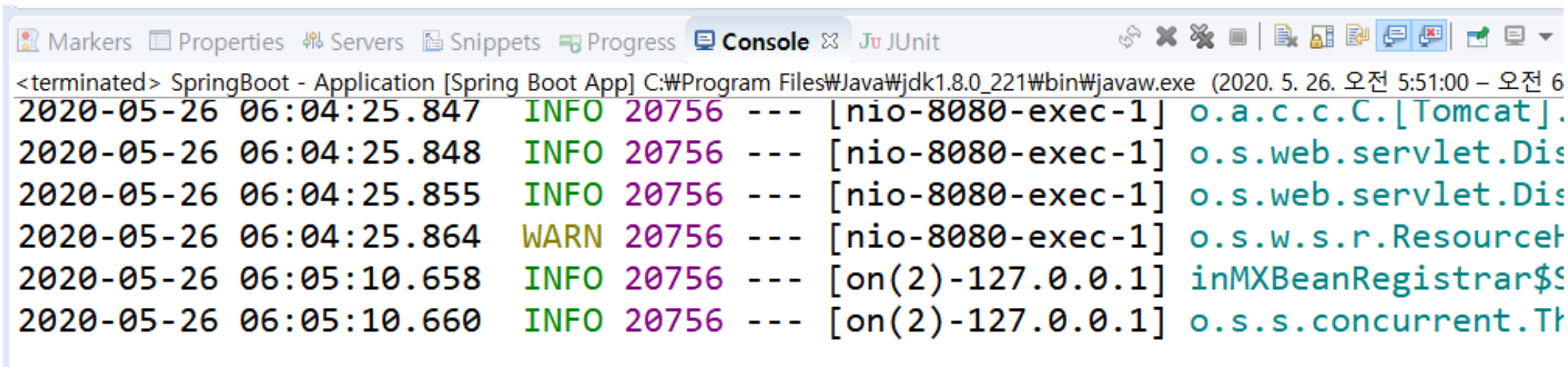
Tue May 26 06:04:25 KST 2020

There was an unexpected error (type=Not Found, status=404).

No message available

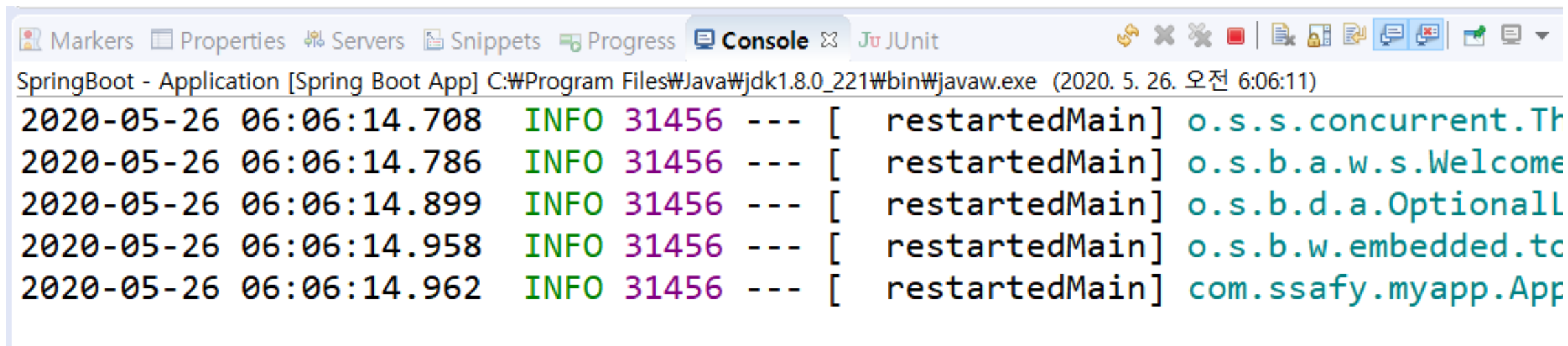
JAVA 온라인 라이브 강의

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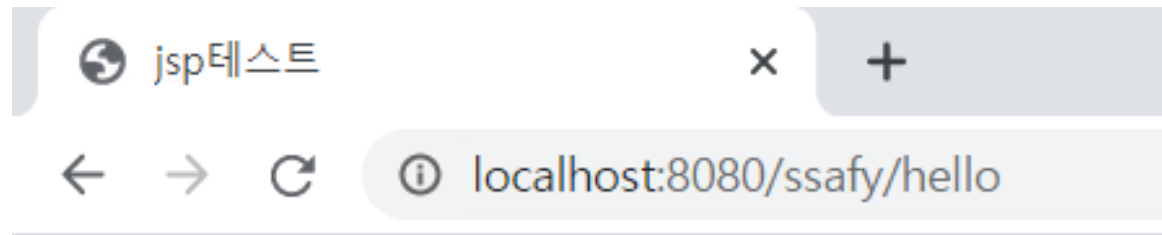
The screenshot shows an IDE console window with the following tabs: Markers, Properties, Servers, Snippets, Progress, Console, and JUnit. The console output is as follows:

```
<terminated> SpringBoot - Application [Spring Boot App] C:\Program Files\Java\jdk1.8.0_221\bin\javaw.exe (2020. 5. 26. 오전 5:51:00 - 오전 6:00:00)
2020-05-26 06:04:25.847 INFO 20756 --- [nio-8080-exec-1] o.a.c.c.C.[Tomcat].
2020-05-26 06:04:25.848 INFO 20756 --- [nio-8080-exec-1] o.s.web.servlet.Dis
2020-05-26 06:04:25.855 INFO 20756 --- [nio-8080-exec-1] o.s.web.servlet.Dis
2020-05-26 06:04:25.864 WARN 20756 --- [nio-8080-exec-1] o.s.w.s.r.Resourceh
2020-05-26 06:05:10.658 INFO 20756 --- [on(2)-127.0.0.1] inMXBeanRegistrar$S
2020-05-26 06:05:10.660 INFO 20756 --- [on(2)-127.0.0.1] o.s.s.concurrent.Th
```



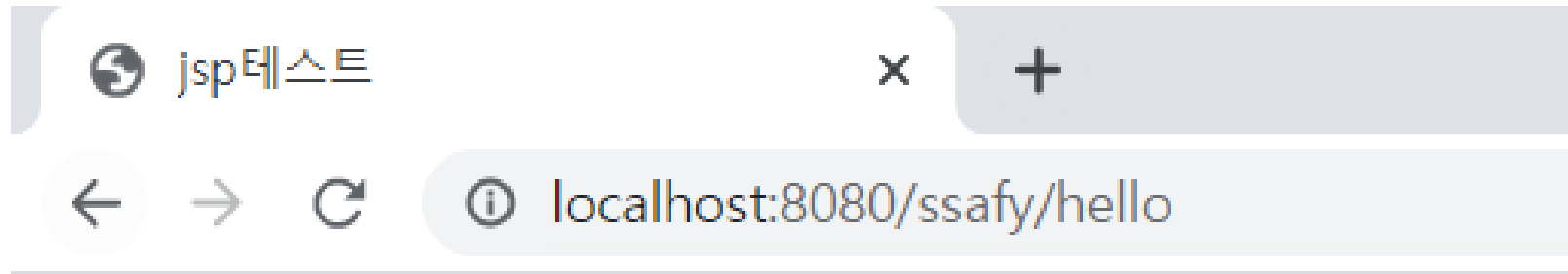
The screenshot shows an IDE's console window with the following tabs: Markers, Properties, Servers, Snippets, Progress, Console, and JUnit. The console title is "SpringBoot - Application [Spring Boot App] C:\Program Files\Java\jdk1.8.0_221\bin\javaw.exe (2020. 5. 26. 오전 6:06:11)". The log output consists of five lines, all with the log level "INFO" and PID "31456". Each line shows a "restartedMain" message followed by a class name in a teal color.

```
2020-05-26 06:06:14.708 INFO 31456 --- [ restartedMain] o.s.s.concurrent.Th
2020-05-26 06:06:14.786 INFO 31456 --- [ restartedMain] o.s.b.a.w.s.Welcome
2020-05-26 06:06:14.899 INFO 31456 --- [ restartedMain] o.s.b.d.a.Optionall
2020-05-26 06:06:14.958 INFO 31456 --- [ restartedMain] o.s.b.w.embedded.tc
2020-05-26 06:06:14.962 INFO 31456 --- [ restartedMain] com.ssafy.myapp.App
```



JSP페이지 안녕 -

```
MyController.java
1 package com.ssafy.myapp.controller;
2
3 import org.springframework.stereotype.Controller;
4 import org.springframework.ui.Model;
5 import org.springframework.web.bind.annotation.GetMapping;
6
7 @Controller
8 public class MyController {
9
10     @GetMapping("/hello")
11     public String hello(Model model) {
12         model.addAttribute("msg", "<font color=red>SSAFY님 부자되세요~!!</font>");
13         return "hello";
14     }
15 }
```



JSP페이지 안녕 - SSAFY님 부자되세요~!!










```
<!-- DB 설정 -->
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-jdbc</artifactId>
</dependency>
<dependency>
    <groupId>mysql</groupId>
    <artifactId>mysql-connector-java</artifactId>
    <version>8.0.13</version>
</dependency>
<dependency>
    <groupId>org.mybatis.spring.boot</groupId>
    <artifactId>mybatis-spring-boot-starter</artifactId>
    <version>1.3.0</version>
</dependency>
```

JAVA 온라인 라이브 강의

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```
application.properties  mybatis-config.xml  emp.xml  person.xml  MyController.java  FrameworkServlet.class  EmpServiceImpl.java
1# Web ContextRootPath and PortNumber Settings
2server.servlet.context-path=/ssafy
3server.port=8080
4
5# JSP Path (ViewResolver)
6spring.mvc.view.prefix=/WEB-INF/views/
7spring.mvc.view.suffix=.jsp
8
9# DataBase
10spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver
11spring.datasource.url=jdbc:mysql://127.0.0.1:3306/ssafydb?serverTimezone=UTC&useUnicode=yes&characterEncoding=UTF-8
12spring.datasource.username=ssafy
13spring.datasource.password=ssafy
```












```
#mapper location settings  
mybatis.config-location=classpath:config/mybatis-config.xml
```

- ▼  src/main/resources
 - ▼  config
 -  mybatis-config.xml
 - ▼  mappers
 -  emp.xml
 -  static
 -  templates
 -  application.properties

mybatis-config.xml

```
1 <?xml version="1.0" encoding="UTF-8" ?>
2 <!DOCTYPE configuration PUBLIC "-//mybatis.org//DTD Config 3.0//EN"
3     "http://mybatis.org/dtd/mybatis-3-config.dtd">
4 <configuration>
5     <mappers>
6         <mapper resource="mappers/emp.xml" />
7     </mappers>
8 </configuration>
9
```

```
mybatis-config.xml  emp.xml ✕
1 <?xml version="1.0" encoding="UTF-8"?>
2 <!-- mappers/emp.xml -->
3 <!DOCTYPE mapper PUBLIC "-//mybatis.org//DTD Mapper 3.0//EN"
4     "http://mybatis.org/dtd/mybatis-3-mapper.dtd">
5 <mapper namespace="emp"> <!-- mybatis는 namespace필수!! -->
6   <select id="selectName" resultType="String">
7     select name from emp
8   </select>
9 </mapper>
10
```

- ▼  src/main/java
 - ▼  com.ssafy.myapp
 - >  Application.java
 - ▼  com.ssafy.myapp.controller
 - >  MyController.java
 - ▼  com.ssafy.myapp.dao
 - >  EmpDAO.java
 - >  EmpDAOImpl.java
 - ▼  com.ssafy.myapp.service
 - >  EmpService.java
 - >  EmpServiceImpl.java

```
EmpDAOImpl.java ✕
1 package com.ssafy.myapp.dao;
2
3 import java.util.List;
4
5
6
7
8 @Repository
9 public class EmpDAOImpl implements EmpDAO{
10
11     SqlSession sqlSession;
12
13     @Override
14     public List<String> selectAll() {
15         return sqlSession.selectList("emp.selectName");
16     }
17
18 }
```

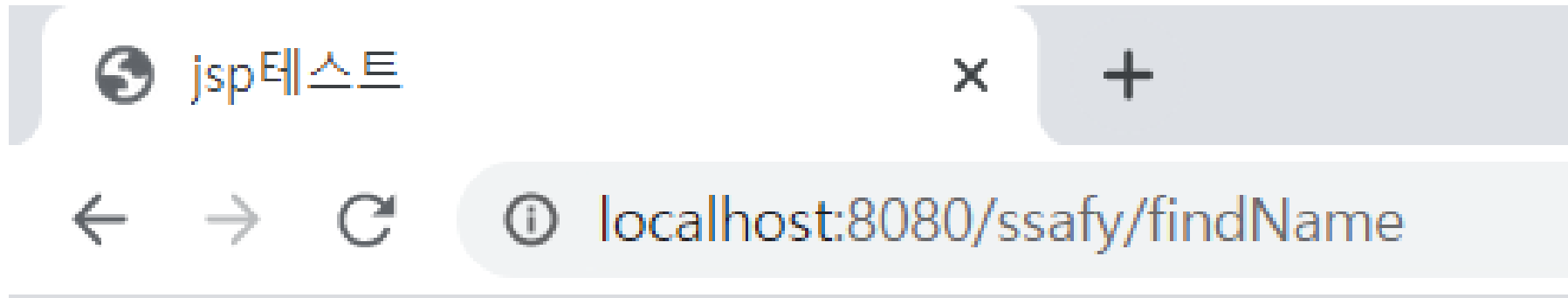


```
EmpServiceImpl.java
1 package com.ssafy.myapp.service;
2
3 import java.util.List;
9
10 @Service
11 public class EmpServiceImpl implements EmpService{
12
13     @Autowired
14     EmpDAO dao;
15
16     @Override
17     public List<String> findName() {
18         return dao.selectAll();
19     }
20 }
```

```
@Controller
public class MyController {

    @Autowired
    EmpService service;

    @GetMapping(value="/findName")
    public String findAllEmployees(Model model) throws Exception{
        model.addAttribute("msg",service.findName());
        return "hello";
    }
}
```



JSP페이지 안녕 - [홍길동, 이순신]

입력폼

[\[목록보기\]](#)

이름	<input type="text"/>
나이	<input type="text"/>
직업	<input type="text"/>
<input type="button" value="입력"/> <input type="button" value="취소"/>	

CRUD:리스트

사람정보 쓰기

번호	이름	나이	직업
3	김주원	17	학생
2	길라임	16	학생
1	홍길동	15	학생

수정폼

[\[목록보기\]](#)

이름	<input type="text" value="홍길동"/>
나이	<input type="text" value="13"/>
직업	<input type="text" value="학생"/>
<input type="button" value="입력"/> <input type="button" value="취소"/>	

내일 방송에서 만나요!

삼성 청년 SW 아카데미