WEEK 4

Kavya V.R

St. Joseph’s Institute of Technology

Superset ID: 6377320

Spring-Boot

Exercise 1: Demonstrate creation of Spring Boot Application and explain benefits

Created using Spring Initializr https://start.spring.io

Group: com.cognizant | Artifact: spring-learn Dependencies: Spring Web, DevTools

Main Class: SpringLearnApplication.java

Benefits: Embedded Tomcat, minimal XML config, fast dev, no boilerplate

Exercise 2: Demonstrate loading bean from spring configuration file (country.xml)

Created country.xml in src/main/resources

Defined <bean> with id="country" and properties code, name

Used ClassPathXmlApplicationContext to load XML and get bean

Printed using toString()

Directory Structure:

src/main/java/com/cognizant/springlearn/...

src/main/resources/country.xml, application.properties

1. Country.java

```
package com.cognizant.springlearn.model;
public class Country {
    private String code;
    private String name;
    public Country() {
        System.out.println("DEBUG: Inside Country Constructor");
    }
    public String getCode() {
        System.out.println("DEBUG: getCode() called");
return code;
    }
    public void setCode(String code) {
        System.out.println("DEBUG: setCode() called");
        this.code = code;
    }
    public String getName() {
        System.out.println("DEBUG: getName() called");
        return name;
    }
    public void setName(String name) {
        System.out.println("DEBUG: setName() called");
        this.name = name;
    }
    @Override
    public String toString() {
        return "Country{" +
                "code='" + code + '\'' +
                ", name='" + name + '\'' +
                '}';
    }
}
```

2. country.xml (placed inside src/main/resources)

```
<?xml version="1.0" encoding="UTF-8"?>
<beans xmlns="http://www.springframework.org/schema/beans"
       xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
       xsi:schemaLocation="http://www.springframework.org/schema/beans
       http://www.springframework.org/schema/beans/spring-beans.xsd">
    <bean id="country" class="com.cognizant.springlearn.model.Country">
        <property name="code" value="IN"/>
        <property name="name" value="India"/>
    </bean>
</beans>
```

3. SpringLearnApplication.java

```
package com.cognizant.springlearn;
import com.cognizant.springlearn.model.Country;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;
import org.springframework.context.ApplicationContext;
import org.springframework.context.support.ClassPathXmlApplicationContext;
@SpringBootApplication
public class SpringLearnApplication {
    private static final Logger LOGGER =
LoggerFactory.getLogger(SpringLearnApplication.class);
    public static void main(String[] args) {
        SpringApplication.run(SpringLearnApplication.class, args);
        displayCountry();
    }
    public static void displayCountry() {
        ApplicationContext context = new ClassPathXmlApplicationContext("country.xml");
        Country country = context.getBean("country", Country.class);
        LOGGER.debug("Country : {}", country.toString());
    }
}
```

Exercise:3 Write REST service that returns Hello World

Created HelloController.java

Mapped GET /hello to sayHello() method

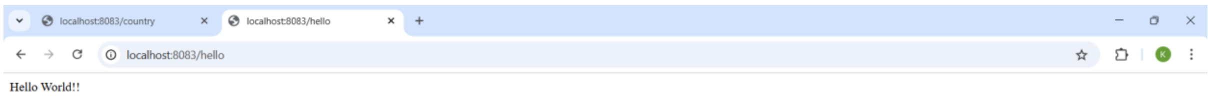
Returns "Hello World!!"

Tested via browser & Postman

4. HelloController.java

```java
package com.cognizant.springlearn.controller;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.RestController;
@RestController
public class HelloController {
    private static final Logger LOGGER = LoggerFactory.getLogger(HelloController.class);
    @GetMapping("/hello")
    public String sayHello() {
        LOGGER.info("Start sayHello()");
        LOGGER.info("End sayHello()");
        return "Hello World!!";
    }
}
```

Output:



```
Hello World!!
```

Exercise 4:Create REST API to return India country object from country.xml

Used ApplicationContext to load country.xml

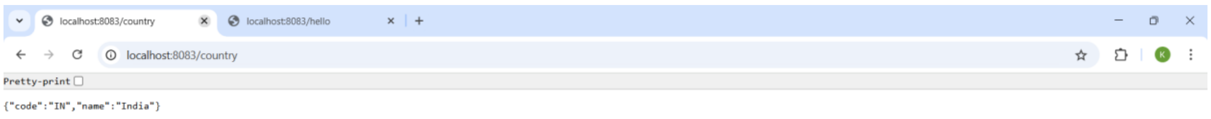
Retrieved country bean and returned in JSON

Code:

CountryController.java

```
package com.cognizant.springlearn.controller;
import com.cognizant.springlearn.model.Country;
import com.cognizant.springlearn.service.CountryService;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.context.ApplicationContext;
import org.springframework.context.support.ClassPathXmlApplicationContext;
import org.springframework.web.bind.annotation.*;
import java.util.List;
@RestController
public class CountryController {
   @Autowired
   private CountryService countryService;
   @RequestMapping("/country")
   public Country getCountryIndia() {
      ApplicationContext context = new ClassPathXmlApplicationContext("country.xml");
      return context.getBean("country", Country.class);
   }
   @GetMapping("/countries/{code}")
   public Country getCountry(@PathVariable String code) throws Exception {
      return countryService.getCountry(code);
   }
}
```

Output:



```
{"code":"IN","name":"India"}
```

Exercise 5:Implement getCountry service with dynamic code (case-insensitive)

countryService.getCountry(code)

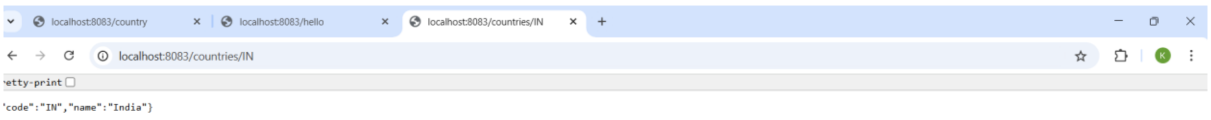
Filters country list based on input code ignoring case

Code:

6. CountryService.java

```
package com.cognizant.springlearn.service;
import com.cognizant.springlearn.model.Country;
import org.springframework.context.ApplicationContext;
import org.springframework.context.support.ClassPathXmlApplicationContext;
import org.springframework.stereotype.Service;
import java.util.ArrayList;
import java.util.List;
@Service
public class CountryService {
    public Country getCountry(String code) throws Exception {
        ApplicationContext context = new ClassPathXmlApplicationContext("country.xml");
        List<Country> countries = new ArrayList<>();
        countries.add(context.getBean("country", Country.class)); // Add more beans if defined
        return countries.stream()
                .filter(country -> country.getCode().equalsIgnoreCase(code))
                .findFirst()
                .orElseThrow(() -> new Exception("Country Not Found"));
    }
}
```

Output:



```
localhost:8083/countries/IN
etty-print
'code":"IN","name":"India"}
```

7. application.properties

```
server.port=8083
logging.level.root=DEBUG
```

8. pom.xml - dependencies section

```
<!-- Spring Web -->
<dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-web</artifactId>
</dependency>
<!-- Logging -->
```

```
<dependency>
   <groupId>org.springframework.boot</groupId>
   <artifactId>spring-boot-starter-logging</artifactId>
</dependency>
<!-- Spring Boot DevTools -->
<dependency>
   <groupId>org.springframework.boot</groupId>
   <artifactId>spring-boot-devtools</artifactId>
   <scope>runtime</scope>
</dependency>
<!-- Spring Context for XML config -->
<dependency>
   <groupId>org.springframework</groupId>
   <artifactId>spring-context</artifactId>
</dependency>
```