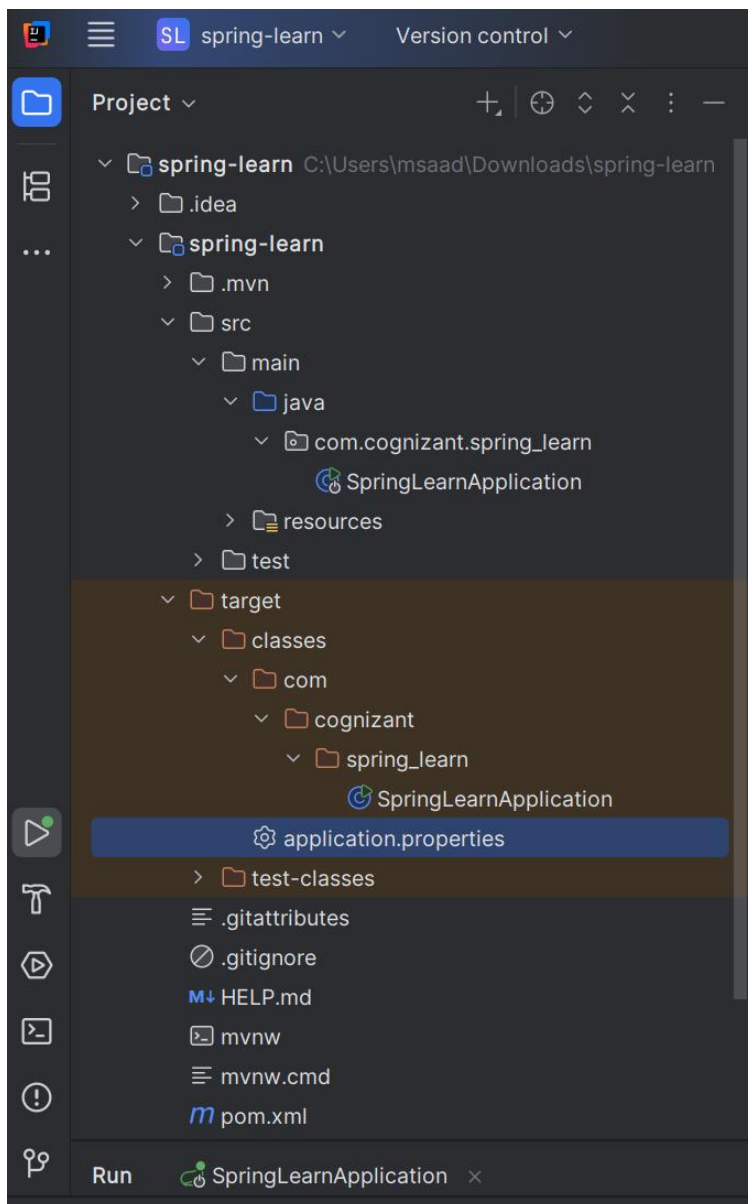


1. spring-rest-handson

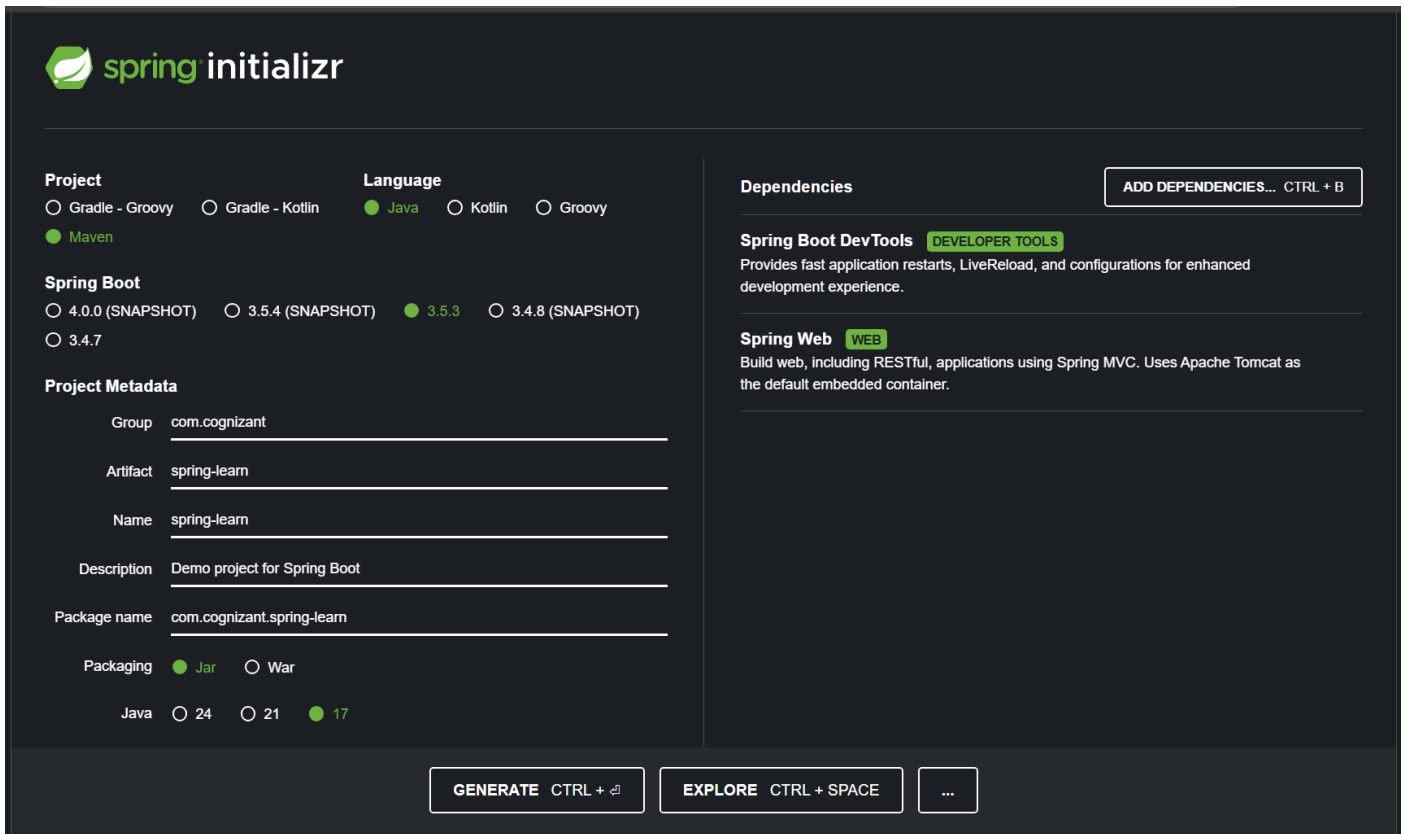
Hands on 1

Create a Spring Web Project using Maven

Folder Structure:



Spring Initializr:



The image shows the Spring Initializr web interface. It has a dark theme with green accents. The interface is divided into several sections:

- Project:** Includes radio buttons for **Gradle - Groovy**, **Gradle - Kotlin**, **Java** (selected), **Kotlin**, and **Groovy**. Below this is a radio button for **Maven** (selected).
- Spring Boot:** Includes radio buttons for **4.0.0 (SNAPSHOT)**, **3.5.4 (SNAPSHOT)**, **3.5.3** (selected), and **3.4.8 (SNAPSHOT)**. Below this is a radio button for **3.4.7**.
- Project Metadata:** A form with fields for:
 - Group:** com.cognizant
 - Artifact:** spring-learn
 - Name:** spring-learn
 - Description:** Demo project for Spring Boot
 - Package name:** com.cognizant.spring-learn
 - Packaging:** Radio buttons for **Jar** (selected) and **War**.
 - Java:** Radio buttons for **24**, **21**, and **17** (selected).
- Dependencies:** A section with a button **ADD DEPENDENCIES... CTRL + B**. It lists:
 - Spring Boot DevTools** with a **DEVELOPER TOOLS** tag. Description: Provides fast application restarts, LiveReload, and configurations for enhanced development experience.
 - Spring Web** with a **WEB** tag. Description: Build web, including RESTful, applications using Spring MVC. Uses Apache Tomcat as the default embedded container.

At the bottom, there are three buttons: **GENERATE CTRL + G**, **EXPLORE CTRL + SPACE**, and a **...** button.

Pom.xml:

```
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance"
    xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-
4.0.0.xsd">
    <modelVersion>4.0.0</modelVersion>
    <parent>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-parent</artifactId>
        <version>3.5.3</version>
        <relativePath/> <!-- lookup parent from repository -->
    </parent>
    <groupId>com.cognizant</groupId>
    <artifactId>spring-learn</artifactId>
    <version>0.0.1-SNAPSHOT</version>
    <name>spring-learn</name>
    <description>Demo project for Spring Boot</description>
    <url/>
    <licenses>
        <license/>
    </licenses>
    <developers>
```

```

    <developer/>
</developers>
<scm>
  <connection/>
  <developerConnection/>
  <tag/>
  <url/>
</scm>
<properties>
  <java.version>17</java.version>
</properties>
<dependencies>
  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-web</artifactId>
  </dependency>

  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-devtools</artifactId>
    <scope>runtime</scope>
    <optional>true</optional>
  </dependency>
  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-test</artifactId>
    <scope>test</scope>
  </dependency>
</dependencies>

<build>
  <plugins>
    <plugin>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-maven-plugin</artifactId>
    </plugin>
  </plugins>
</build>

</project>

```

SpringLearnApplication.java

```
package com.cognizant.spring_learn;
```

```
import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;
```

```
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
```

```
@SpringBootApplication
```

```
public class SpringLearnApplication {
```

```
    private static final Logger LOGGER = LoggerFactory.getLogger(SpringLearnApplication.class);
```

```
    public static void main(String[] args) {
```

```
        LOGGER.info("START");
```

```
        SpringApplication.run(SpringLearnApplication.class, args);
```

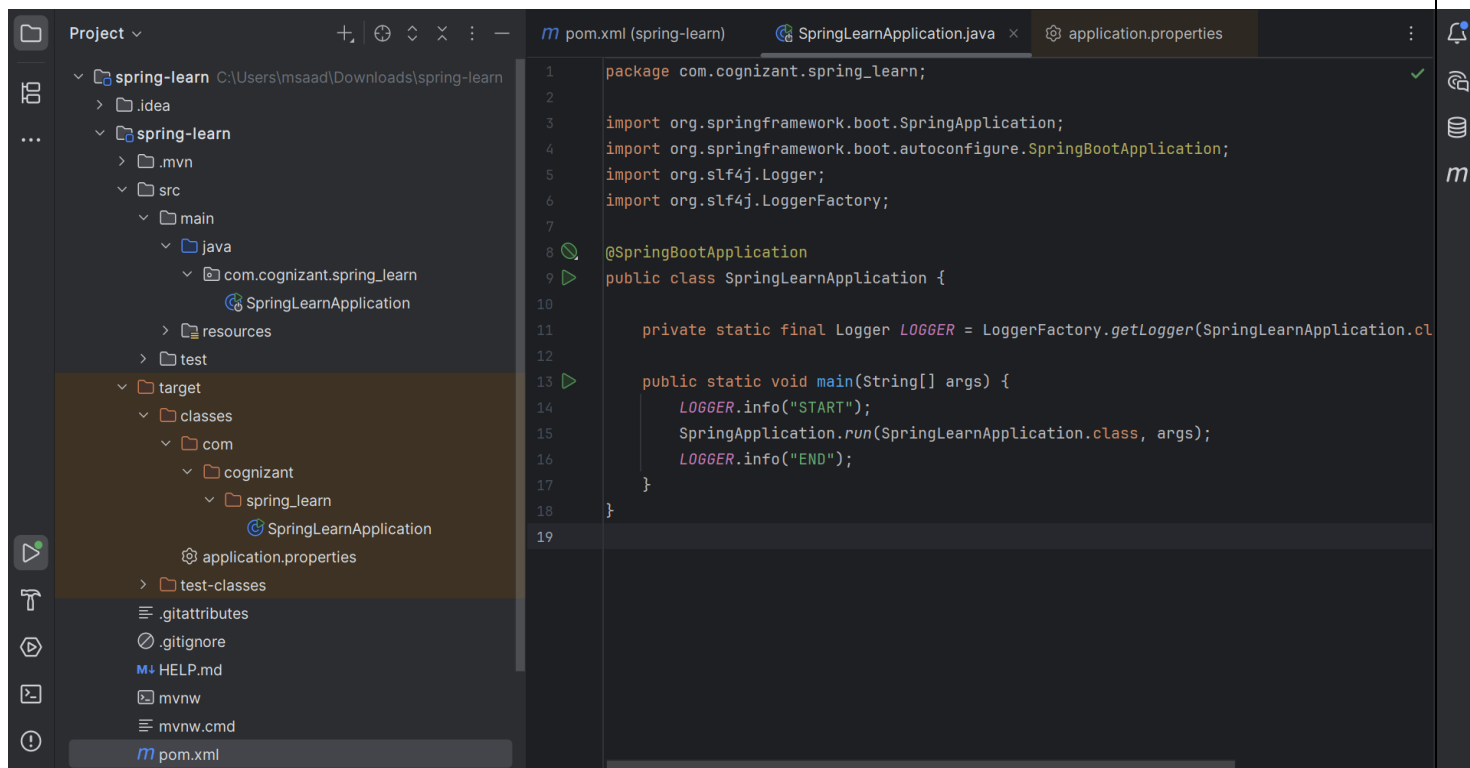
```
        LOGGER.info("END");
```

```
    }
```

```
}
```

application.properties :

```
spring.application.name=spring-learn
```



Output:

```

Run SpringLearnApplication x
Console Beans Health Mappings Environment
"C:\Program Files\Java\jdk-23\bin\java.exe" ...
13:01:08.159 [main] INFO com.cognizant.spring_learn.SpringLearnApplication -- START
13:01:08.263 [restartedMain] INFO com.cognizant.spring_learn.SpringLearnApplication -- START

  _ _ _ _ _
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:: Spring Boot ::                (v3.5.3)

2025-07-12T13:01:08.540+05:30 INFO 72392 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : Starting SpringLe
2025-07-12T13:01:08.541+05:30 INFO 72392 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : No active profile
2025-07-12T13:01:08.584+05:30 INFO 72392 --- [spring-learn] [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : Devtools property
2025-07-12T13:01:08.585+05:30 INFO 72392 --- [spring-learn] [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : For additional we
2025-07-12T13:01:09.086+05:30 INFO 72392 --- [spring-learn] [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialize
2025-07-12T13:01:09.103+05:30 INFO 72392 --- [spring-learn] [ restartedMain] o.apache.catalina.core.StandardService : Starting service
2025-07-12T13:01:09.103+05:30 INFO 72392 --- [spring-learn] [ restartedMain] o.apache.catalina.core.StandardEngine : Starting Servlet
2025-07-12T13:01:09.129+05:30 INFO 72392 --- [spring-learn] [ restartedMain] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Sprin
2025-07-12T13:01:09.129+05:30 INFO 72392 --- [spring-learn] [ restartedMain] w.s.c.ServletWebServerApplicationContext : Root WebApplicati
2025-07-12T13:01:09.351+05:30 INFO 72392 --- [spring-learn] [ restartedMain] o.s.b.d.a.OptionalLiveReloadServer : LiveReload server
2025-07-12T13:01:09.374+05:30 INFO 72392 --- [spring-learn] [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on
2025-07-12T13:01:09.379+05:30 INFO 72392 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : Started SpringLea
2025-07-12T13:01:09.381+05:30 INFO 72392 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : END
ng-learn > spring-learn > src > main > java > com > cognizant > spring_learn > SpringLearnApplication 19:1 LF UTF-8 Tab*

```

Hands on 4

Spring Core – Load Country from Spring Configuration XML

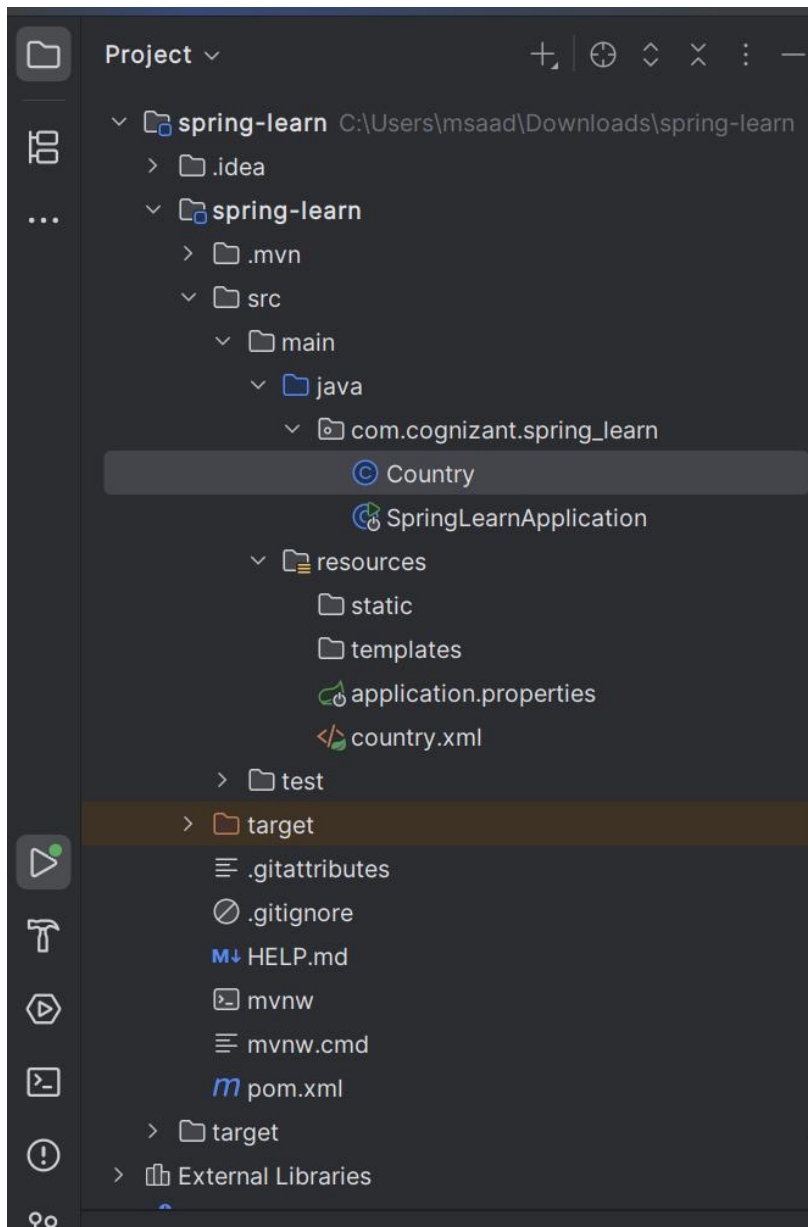
An airlines website is going to support booking on four countries. There will be a drop down on the home page of this website to select the respective country. It is also important to store the two-character ISO code of each country.

Code	Name
US	United States
DE	Germany
IN	India

JP	Japan
----	-------

Above data has to be stored in spring configuration file. Write a program to read this configuration file and display the details.

Folder Structure:



Country.java

```
package com.cognizant.spring_learn;
```

```
import org.slf4j.Logger;
```

```
import org.slf4j.LoggerFactory;
```

```

public class Country {
    private static final Logger LOGGER = LoggerFactory.getLogger(Country.class);

    private String code;
    private String name;

    public Country() {
        LOGGER.debug("Inside Country Constructor.");
    }

    public String getCode() {
        LOGGER.debug("Inside getCode()");
        return code;
    }

    public void setCode(String code) {
        LOGGER.debug("Inside setCode()");
        this.code = code;
    }

    public String getName() {
        LOGGER.debug("Inside getName()");
        return name;
    }

    public void setName(String name) {
        LOGGER.debug("Inside setName()");
        this.name = name;
    }

    @Override
    public String toString() {
        return "Country [code=" + code + ", name=" + name + "]";
    }
}

```

country.xml (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.spring_learn.Country">
        <property name="code" value="IN"/>
        <property name="name" value="India"/>
    </bean>

```

```
</beans>
```

application.properties (src/main/resources)

```
spring.application.name=spring-learn
logging.level.com.cognizant.spring_learn=DEBUG
```

SpringLearnApplication.java

```
package com.cognizant.spring_learn;

import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;
import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
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 void displayCountry() {
        LOGGER.info("START");
        ApplicationContext context = new ClassPathXmlApplicationContext("country.xml");
        Country country = context.getBean("country", Country.class);
        LOGGER.debug("Country : {}", country.toString());
        LOGGER.info("END");
    }

    public static void main(String[] args) {
        LOGGER.info("START");
        SpringApplication.run(SpringLearnApplication.class, args);

        SpringLearnApplication app = new SpringLearnApplication();
        app.displayCountry();

        LOGGER.info("END");
    }
}
```

pom.xml


```

<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-
4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <parent>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-parent</artifactId>
    <version>3.5.3</version>
    <relativePath/> <!-- lookup parent from repository -->
  </parent>
  <groupId>com.cognizant</groupId>
  <artifactId>spring-learn</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <name>spring-learn</name>
  <description>Demo project for Spring Boot</description>
  <url/>
  <licenses>
    <license/>
  </licenses>
  <developers>
    <developer/>
  </developers>
  <scm>
    <connection/>
    <developerConnection/>
    <tag/>
    <url/>
  </scm>
  <properties>
    <java.version>17</java.version>
  </properties>
  <dependencies>
    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-web</artifactId>
    </dependency>

    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-devtools</artifactId>
      <scope>runtime</scope>
      <optional>true</optional>
    </dependency>
    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-test</artifactId>
      <scope>test</scope>

```

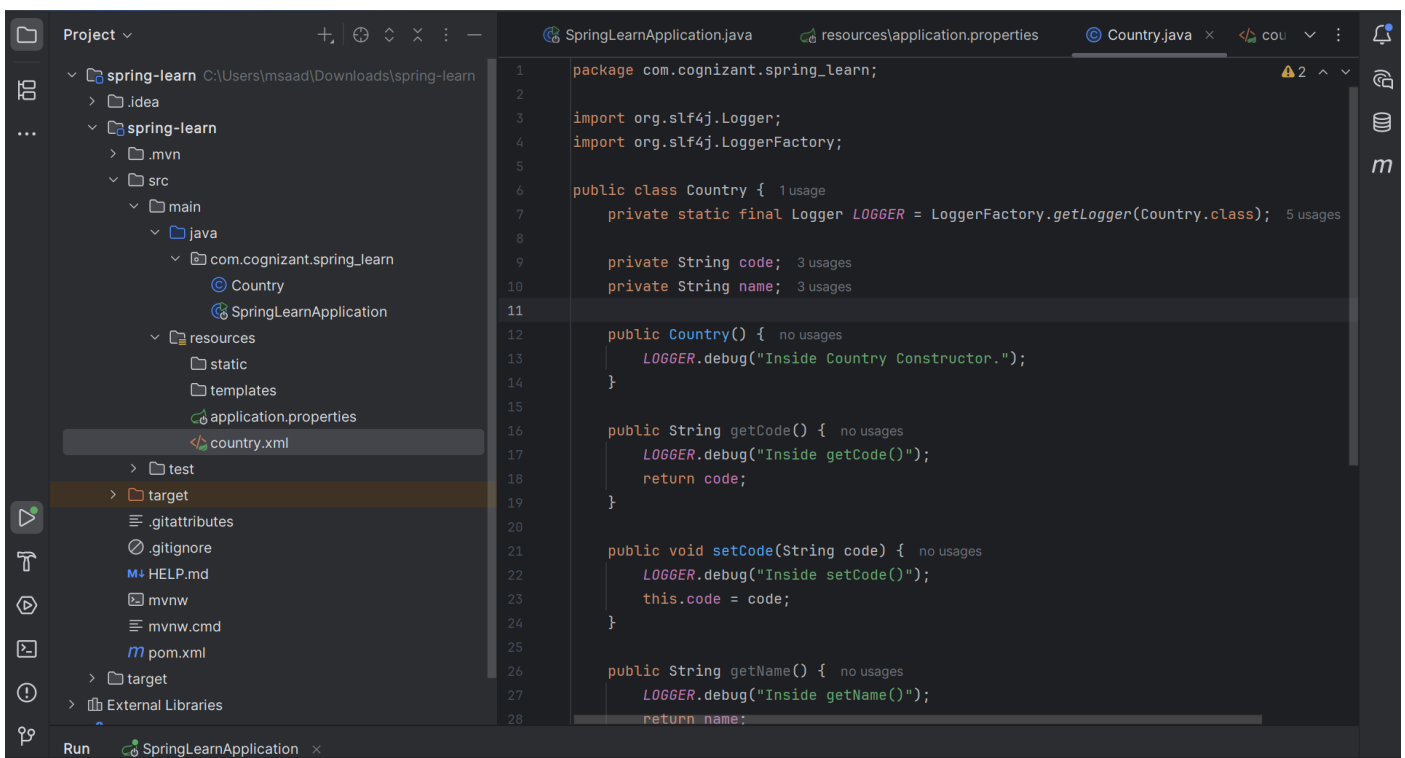
```

</dependency>
</dependencies>

<build>
  <plugins>
    <plugin>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-maven-plugin</artifactId>
    </plugin>
  </plugins>
</build>

</project>

```



Output:

```
"C:\Program Files\Java\jdk-23\bin\java.exe" ...
13:34:46.119 [main] INFO com.cognizant.spring_learn.SpringLearnApplication -- START
13:34:46.223 [restartedMain] INFO com.cognizant.spring_learn.SpringLearnApplication -- START
```

```

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```

```
:: Spring Boot ::                (v3.5.3)
```

```
:: Spring Boot ::                (v3.5.3)

2025-07-12T13:34:46.514+05:30 INFO 46940 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : Starting SpringLe
2025-07-12T13:34:46.515+05:30 DEBUG 46940 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : Running with Sprin
2025-07-12T13:34:46.516+05:30 INFO 46940 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : No active profile
2025-07-12T13:34:46.561+05:30 INFO 46940 --- [spring-learn] [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : Devtools property
2025-07-12T13:34:46.561+05:30 INFO 46940 --- [spring-learn] [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : For additional we
2025-07-12T13:34:47.074+05:30 INFO 46940 --- [spring-learn] [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialize
2025-07-12T13:34:47.086+05:30 INFO 46940 --- [spring-learn] [ restartedMain] o.apache.catalina.core.StandardService : Starting service
2025-07-12T13:34:47.086+05:30 INFO 46940 --- [spring-learn] [ restartedMain] o.apache.catalina.core.StandardEngine : Starting Servlet
2025-07-12T13:34:47.111+05:30 INFO 46940 --- [spring-learn] [ restartedMain] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Sprin
2025-07-12T13:34:47.111+05:30 INFO 46940 --- [spring-learn] [ restartedMain] w.s.c.ServletWebServerApplicationContext : Root WebApplicati
2025-07-12T13:34:47.372+05:30 INFO 46940 --- [spring-learn] [ restartedMain] o.s.b.d.a.OptionalLiveReloadServer : LiveReload server
2025-07-12T13:34:47.392+05:30 INFO 46940 --- [spring-learn] [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on
2025-07-12T13:34:47.397+05:30 INFO 46940 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : Started SpringLea
2025-07-12T13:34:47.400+05:30 INFO 46940 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : START
2025-07-12T13:34:47.478+05:30 DEBUG 46940 --- [spring-learn] [ restartedMain] com.cognizant.spring_learn.Country : Inside Country Co
2025-07-12T13:34:47.478+05:30 DEBUG 46940 --- [spring-learn] [ restartedMain] com.cognizant.spring_learn.Country : Inside setCode()
2025-07-12T13:34:47.478+05:30 DEBUG 46940 --- [spring-learn] [ restartedMain] com.cognizant.spring_learn.Country : Inside setName()
2025-07-12T13:34:47.480+05:30 DEBUG 46940 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : Country : Country
2025-07-12T13:34:47.481+05:30 INFO 46940 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : END
2025-07-12T13:34:47.481+05:30 INFO 46940 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : END
```

```

n] c.c.spring_learn.SpringLearnApplication : Starting SpringLearnApplication using Java 23.0.1 with PID 46940 (C:\Users\msaad\Downloads\sp
n] c.c.spring_learn.SpringLearnApplication : Running with Spring Boot v3.5.3, Spring v6.2.8
n] c.c.spring_learn.SpringLearnApplication : No active profile set, falling back to 1 default profile: "default"
n] .e.DevToolsPropertyDefaultsPostProcessor : Devtools property defaults active! Set 'spring.devtools.add-properties' to 'false' to disable
n] .e.DevToolsPropertyDefaultsPostProcessor : For additional web related logging consider setting the 'logging.level.web' property to 'DEBU
n] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port 8080 (http)
n] o.apache.catalina.core.StandardService : Starting service [Tomcat]
n] o.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/10.1.42]
n] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
n] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 550 ms
n] o.s.b.d.a.OptionalLiveReloadServer : LiveReload server is running on port 35729
n] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 8080 (http) with context path '/'
n] c.c.spring_learn.SpringLearnApplication : Started SpringLearnApplication in 1.172 seconds (process running for 1.579)
n] c.c.spring_learn.SpringLearnApplication : START
n] com.cognizant.spring_learn.Country : Inside Country Constructor.
n] com.cognizant.spring_learn.Country : Inside setCode()
n] com.cognizant.spring_learn.Country : Inside setName()
n] c.c.spring_learn.SpringLearnApplication : Country : Country [code=IN, name=India]
n] c.c.spring_learn.SpringLearnApplication : END
n] c.c.spring_learn.SpringLearnApplication : END

```

Thank You
