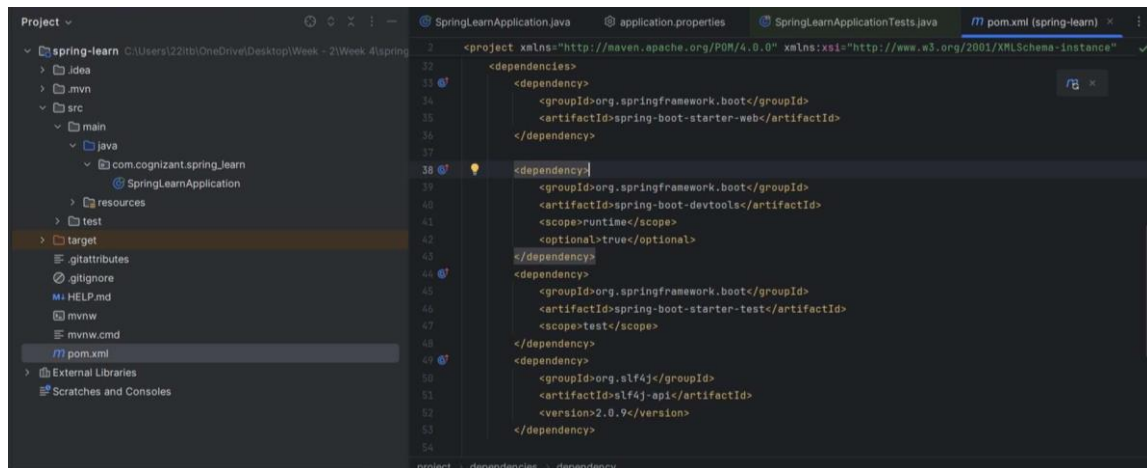


Week - 4

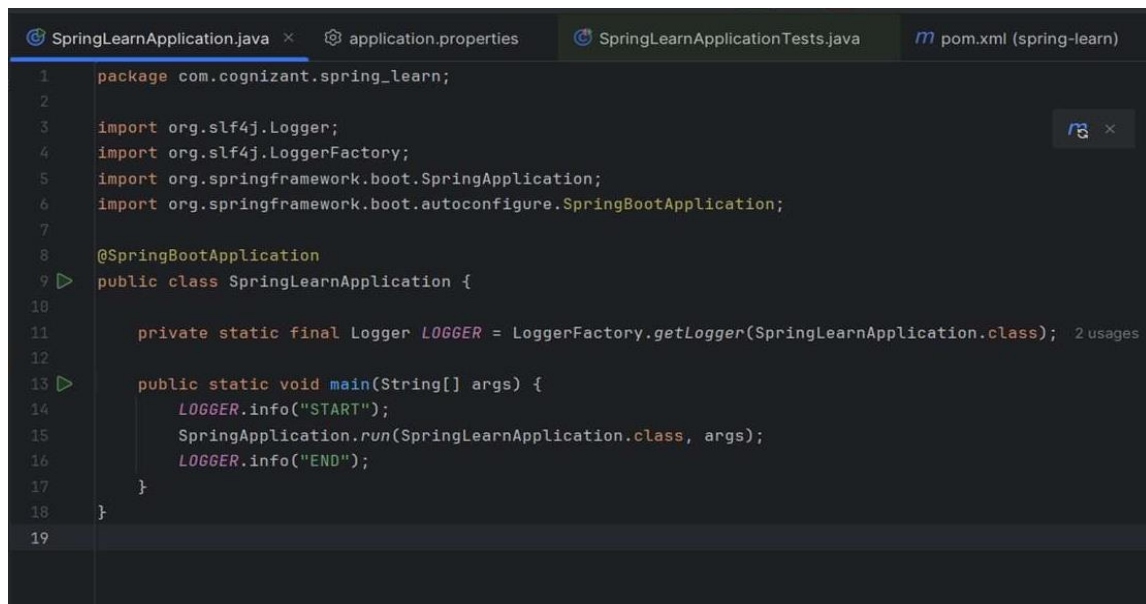
Hands on 1

Create a Spring Web Project using Maven

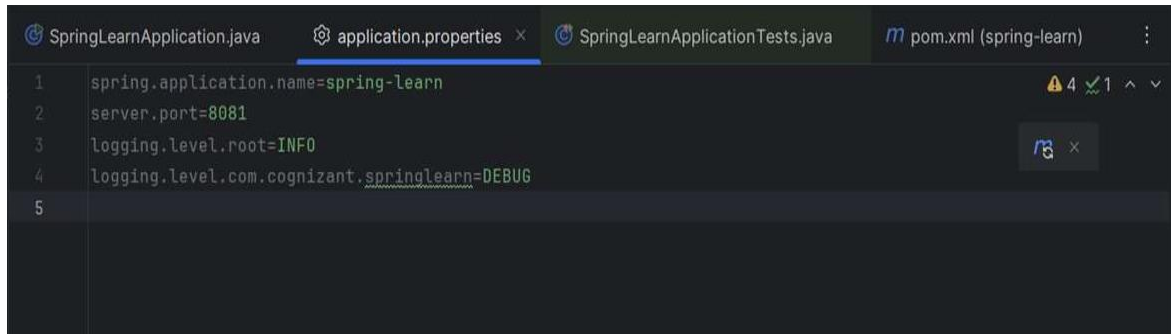
Pom.xml



SpringApplication.java



Application.property



The screenshot shows the 'application.properties' file in an IDE. The tabs at the top are 'SpringLearnApplication.java', 'application.properties', 'SpringLearnApplicationTests.java', and 'pom.xml (spring-learn)'. The 'application.properties' tab is active, showing the following content:

```
1 spring.application.name=spring-learn
2 server.port=8081
3 logging.level.root=INFO
4 logging.level.com.cognizant.springlearn=DEBUG
5
```

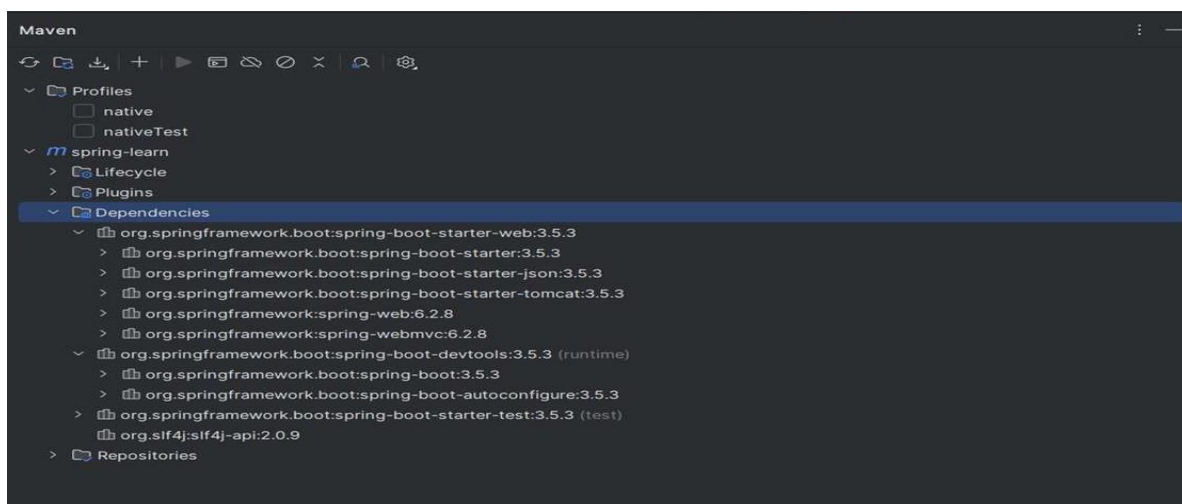
SpringApplicationTest.java



The screenshot shows the 'SpringLearnApplicationTests.java' file in an IDE. The tabs at the top are 'SpringLearnApplication.java', 'application.properties', 'SpringLearnApplicationTests.java', and 'pom.xml (spring-learn)'. The 'SpringLearnApplicationTests.java' tab is active, showing the following content:

```
1 package com.cognizant.spring_learn;
2
3 import org.junit.jupiter.api.Test;
4 import org.springframework.boot.test.context.SpringBootTest;
5
6 @SpringBootTest
7 class SpringLearnApplicationTests {
8
9     @Test
10     void contextLoads() {
11     }
12
13 }
14
```

Dependency Hierarchy Tree Structure



The screenshot shows the 'Maven' view in an IDE, displaying the 'Dependencies' section for the 'spring-learn' project. The tree structure is as follows:

- Profiles
 - native
 - nativeTest
- spring-learn
 - Lifecycle
 - Plugins
 - Dependencies
 - org.springframework.boot:spring-boot-starter-web:3.5.3
 - org.springframework.boot:spring-boot-starter:3.5.3
 - org.springframework.boot:spring-boot-starter-json:3.5.3
 - org.springframework.boot:spring-boot-starter-tomcat:3.5.3
 - org.springframework:spring-web:6.2.8
 - org.springframework:spring-webmvc:6.2.8
 - org.springframework.boot:spring-boot-devtools:3.5.3 (runtime)
 - org.springframework.boot:spring-boot:3.5.3
 - org.springframework.boot:spring-boot-autoconfigure:3.5.3
 - org.springframework.boot:spring-boot-starter-test:3.5.3 (test)
 - org.slf4j:slf4j-api:2.0.9
 - Repositories

```
Project ▾
Terminal Local × Command Prompt × + ▾
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons-codec/commons-codec/1.17.1/commons-codec-1.17.1.jar (373 kB at 157 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/springframework/boot/spring-boot-loader-tools/3.5.3/spring-boot-loader-tools-3.5.3.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/springframework/boot/spring-boot-loader-tools/5.5.3/spring-boot-loader-tools-5.5.3.jar (486 kB at 43 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-shade-plugin/3.6.0/maven-shade-plugin-3.6.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-shade-plugin/3.6.0/maven-shade-plugin-3.6.0.jar (150 kB at 11 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm/9.7/asm-9.7.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm/9.7/asm-9.7.jar (125 kB at 6.5 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-commons/9.7/asm-commons-9.7.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-commons/9.7/asm-commons-9.7.jar (73 kB at 3.5 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-tree/9.7/asm-tree-9.7.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/ow2/asm/asm-tree/9.7/asm-tree-9.7.jar (52 kB at 2.3 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/xfmr/jdependency/2.10/jdependency-2.10.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/httpcomponents/client5/httpclient5/5.5/httpclient5-5.5.jar (955 kB at 39 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-compress/1.27.1/commons-compress-1.27.1.jar (1.1 MB at 45 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/xfmr/jdependency/2.10/jdependency-2.10.jar (416 kB at 11 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/net/java/dev/jna/jna-platform/5.17.0/jna-platform-5.17.0.jar (1.4 MB at 29 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/net/java/dev/jna/jna/5.17.0/jna-5.17.0.jar (2.0 MB at 29 kB/s)
[INFO] Replacing main artifact C:\Users\221tb\OneDrive\Desktop\Week - 2\Week 4\spring-learn\target\spring-learn-0.0.1-SNAPSHOT.jar with repackaged archive, adding nested dependencies in BOOT-INF/.
[INFO] The original artifact has been renamed to C:\Users\221tb\OneDrive\Desktop\Week - 2\Week 4\spring-learn\target\spring-learn-0.0.1-SNAPSHOT.jar.original
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 01:58 min
[INFO] Finished at: 2025-07-12T18:39:28+05:30
[INFO]
C:\Users\221tb\OneDrive\Desktop\Week - 2\Week 4\spring-learn\
```

[illegible]

```
Project v
Run SpringLearnApplication x
Structure Alt+7
:: Spring Boot :: (v3.5.3)

2025-07-12T18:39:47.898+05:30 INFO 21240 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : Starting SpringLearnApplication using Java 22.0.1
with PID 21240 (C:\Users\22itb\OneDrive\Desktop\Week - 2\Week 4\spring-learn\target\classes started by 22itb in C:\Users\22itb\OneDrive\Desktop\Week - 2\Week
4\spring-learn)
2025-07-12T18:39:47.903+05:30 INFO 21240 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : No active profile set, falling back to 1 default
profile: "default"
2025-07-12T18:39:48.021+05:30 INFO 21240 --- [spring-learn] [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : DevTools property defaults active! Set 'spring
.devtools.add-properties' to 'false' to disable
2025-07-12T18:39:48.021+05:30 INFO 21240 --- [spring-learn] [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : For additional web related logging consider
setting the 'logging.level.web' property to 'DEBUG'
2025-07-12T18:39:50.027+05:30 INFO 21240 --- [spring-learn] [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port 8081 (http)
2025-07-12T18:39:50.054+05:30 INFO 21240 --- [spring-learn] [ restartedMain] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2025-07-12T18:39:50.054+05:30 INFO 21240 --- [spring-learn] [ restartedMain] o.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/10.1.42]
2025-07-12T18:39:50.126+05:30 INFO 21240 --- [spring-learn] [ restartedMain] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2025-07-12T18:39:50.128+05:30 INFO 21240 --- [spring-learn] [ restartedMain] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization
completed in 2104 ms
2025-07-12T18:39:50.792+05:30 INFO 21240 --- [spring-learn] [ restartedMain] o.s.b.d.a.OptionalLiveReloadServer : LiveReload server is running on port 35729
2025-07-12T18:39:50.871+05:30 INFO 21240 --- [spring-learn] [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 8081 (http) with context
path '/'
2025-07-12T18:39:50.889+05:30 INFO 21240 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : Started SpringLearnApplication in 4.107 seconds
(process running for 4.979)
2025-07-12T18:39:50.896+05:30 INFO 21240 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : END
```

Spring Core – Load Country from Spring Configuration XML

Country.java

```
SpringLearnApplication.java  Country.java  </> country.xml  application.properties  SpringLearnApplication.java

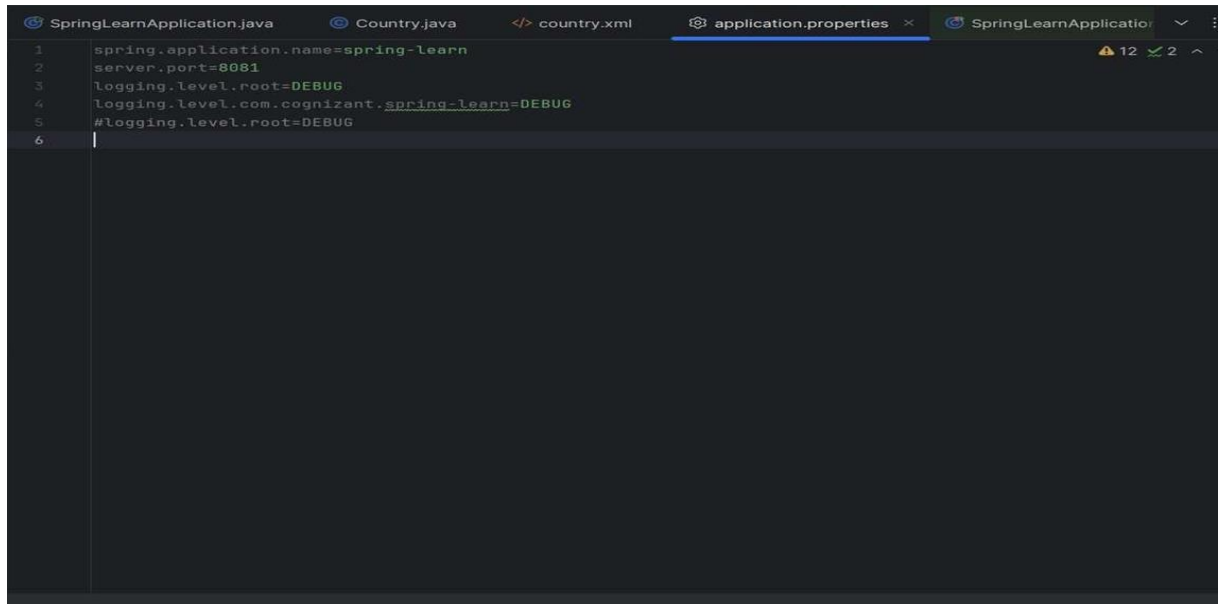
1  package com.cognizant.spring_learn;
2  import org.slf4j.Logger;
3  import org.slf4j.LoggerFactory;
4  public class Country { 4 usages
5      private static final Logger LOGGER = LoggerFactory.getLogger(Country.class); 5 usages
6      private String code; 3 usages
7      private String name; 3 usages
8      public Country() { no usages
9          LOGGER.debug("Inside Country Constructor.");
10     }
11     public String getCode() { no usages
12         LOGGER.debug("Inside getCode.");
13         return code;
14     }
15     public void setCode(String code) { no usages
16         LOGGER.debug("Inside setCode.");
17         this.code = code;
18     }
19     public String getName() { no usages
20         LOGGER.debug("Inside getName.");
21         return name;
22     }
23     public void setName(String name) { no usages
24         LOGGER.debug("Inside setName.");
25         this.name = name;
26     }
27     @Override
28     public String toString() {
29         return "Country [code=" + code + ", name=" + name + "]";
30     }
31 }
```

SpringLearnApplication.java

```
SpringLearnApplication.java  Country.java  </> country.xml  application.properties  SpringLearnApplication.java

1  import org.slf4j.Logger;
2  import org.slf4j.LoggerFactory;
3  import org.springframework.boot.SpringApplication;
4  import org.springframework.boot.autoconfigure.SpringBootApplication;
5  import org.springframework.context.ApplicationContext;
6  import org.springframework.context.support.ClassPathXmlApplicationContext;
7
8  @SpringBootApplication
9  public class SpringLearnApplication {
10
11     private static final Logger LOGGER = LoggerFactory.getLogger(SpringLearnApplication.class); 1 usage
12
13     public static void main(String[] args) {
14         SpringApplication.run(SpringLearnApplication.class, args);
15         displayCountry();
16     }
17
18     public static void displayCountry() { 1 usage
19         System.out.println(">>> Inside displayCountry()");
20         ApplicationContext context = new ClassPathXmlApplicationContext("country.xml");
21         Country country = context.getBean("country", Country.class);
22         LOGGER.debug("Country : {}", country.toString());
23     }
24 }
25
26
27
```

Application.property



The screenshot shows an IDE window with several tabs: 'SpringLearnApplication.java', 'Country.java', 'country.xml', 'application.properties', and 'SpringLearnApplication...'. The 'application.properties' tab is active and displays the following configuration:

```
1 spring.application.name=spring-learn
2 server.port=8081
3 logging.level.root=DEBUG
4 logging.level.com.cognizant.spring-learn=DEBUG
5 #logging.level.root=DEBUG
6
```

The code is written in a dark-themed editor. The first line sets the application name to 'spring-learn'. The second line sets the server port to 8081. The third line sets the root logging level to DEBUG. The fourth line sets the logging level for the package 'com.cognizant.spring-learn' to DEBUG. The fifth line is a commented-out line that would set the root logging level to DEBUG. The sixth line is empty.

Country.xml

```
SpringLearnApplication.java  Country.java  </> country.xml x  application.properties  SpringLearnApplication: v
1  <?xml version="1.0" encoding="UTF-8"?>
2  <beans xmlns="http://www.springframework.org/schema/beans"
3      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4      xsi:schemaLocation="
5          http://www.springframework.org/schema/beans
6          https://www.springframework.org/schema/beans/spring-beans.xsd">
7
8      <bean id="country" class="com.cognizant.spring_learn.Country">
9          <property name="code" value="IN"/>
10         <property name="name" value="India"/>
11     </bean>
12 </beans>
13
```

Pom.xml

```
try.java  </> country.xml  application.properties  SpringLearnApplicationTests.java  pom.xml (spring-learn) x v
1  <?xml version="1.0" encoding="UTF-8"?>
2  <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3      xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
4      <modelVersion>4.0.0</modelVersion>
5      <groupId>com.cognizant</groupId>
6      <artifactId>spring-learn</artifactId>
7      <version>0.0.1</version>
8      <packaging>jar</packaging>
9      <name>Spring Learn</name>
10     <description>Spring Learn</description>
11     <dependencies>
12         <dependency>
13             <groupId>org.springframework.boot</groupId>
14             <artifactId>spring-boot-starter</artifactId>
15             <scope>runtime</scope>
16             <optional>true</optional>
17         </dependency>
18         <dependency>
19             <groupId>org.springframework.boot</groupId>
20             <artifactId>spring-boot-starter-test</artifactId>
21             <scope>test</scope>
22         </dependency>
23         <dependency>
24             <groupId>org.springframework.boot</groupId>
25             <artifactId>spring-boot-starter-logging</artifactId>
26         </dependency>
27         <dependency>
28             <groupId>org.slf4j</groupId>
29             <artifactId>slf4j-api</artifactId>
30             <version>2.0.9</version>
31         </dependency>
32         <dependency>
33             <groupId>org.springframework</groupId>
34             <artifactId>spring-context</artifactId>
35         </dependency>
36     </dependencies>
37     <build>
38         <plugins>
39             <plugin>
40                 <groupId>org.springframework.boot</groupId>
41                 <artifactId>spring-boot-maven-plugin</artifactId>
42             </plugin>
43         </plugins>
44     </build>
45 </project>
```

Output

```
SpringLearnApplication <
org.springframework.boot.autoconfigure.info.ProjectInfoAutoConfiguration

2025-07-12T22:32:17.349+05:30 INFO 7672 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : Started SpringLearnApplication in 3.174 seconds
(process running for 3.842)
2025-07-12T22:32:17.351+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] o.s.b.a.ApplicationAvailabilityBean : Application availability state LivenessState
changed to CORRECT
2025-07-12T22:32:17.353+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] o.s.boot.devtools.restart.Restarter : Creating new Restarter for thread Thread[#1,main,5,
main]
2025-07-12T22:32:17.353+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] o.s.boot.devtools.restart.Restarter : Immediately restarting application
2025-07-12T22:32:17.353+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] o.s.boot.devtools.restart.Restarter : Starting application com.cognizant.spring_learn
.SpringLearnApplication with URLs [file:/C:/Users/221tb/OneDrive/Desktop/Week%20-%202/Week%204/spring-learn/target/classes/]
2025-07-12T22:32:17.354+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] o.s.b.a.ApplicationAvailabilityBean : Application availability state ReadinessState
changed to ACCEPTING_TRAFFIC
>>> Inside displayCountry()
2025-07-12T22:32:17.356+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] o.s.c.s.ClassPathXmlApplicationContext : Refreshing org.springframework.context.support
.ClassPathXmlApplicationContext@11930a1
2025-07-12T22:32:17.506+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] o.s.b.f.xml.XmlBeanDefinitionReader : Loaded 1 bean definitions from class path resource
[country.xml]
2025-07-12T22:32:17.508+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] o.s.b.f.s.DefaultListableBeanFactory : Creating shared instance of singleton bean 'country'
2025-07-12T22:32:17.508+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] com.cognizant.spring_learn.Country : Inside Country Constructor.
2025-07-12T22:32:17.510+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] o.s.beans.CachedIntrospectionResults : Not strongly caching class [com.cognizant
.spring_learn.Country] because it is not cache-safe
2025-07-12T22:32:17.511+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] com.cognizant.spring_learn.Country : Inside setCode.
2025-07-12T22:32:17.511+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] com.cognizant.spring_learn.Country : Inside setName.
2025-07-12T22:32:17.512+05:30 DEBUG 7672 --- [spring-learn] [ restartedMain] c.c.spring_learn.SpringLearnApplication : Country : Country [code=IN, name=India]
```