WEEK 4
EX: 1 Create a Spring Web Project using Maven

SpringLearningApplication.java:
SpringLearningApplication.java:
package com.cognizant.spring_learn;

import org.slf4j.Logger;
import org.slf4j.LoggerFactory;
import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;

@SpringBootApplication
public class SpringLearnApplication {

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

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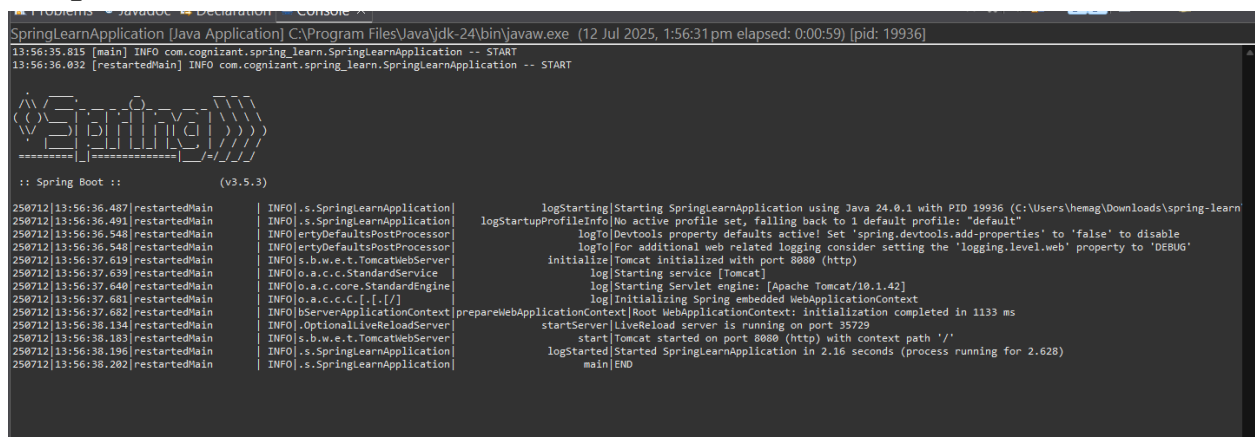   LOGGER.info("START");
        SpringApplication.run(SpringLearnApplication.class, args);
        LOGGER.info("END");
    }
}

Output Screenshot:

Pom.xml:

```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>24</java.version>
   </properties>
   <dependencies>
      <dependency>
```

```xml
            <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>
```

EX2 Spring Core — Load Country from Spring Configuration XML

HelloController.java:

```java
package com.cognizant.spring_learn.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");
        String message = "Hello World!!";
        LOGGER.info("END");
        return message;
    }
}
```

Country.java

```java
package com.cognizant.spring_learn.model;

public class Country {
    private String code;
    private String name;

    public String getCode() {
        return code;
    }

    public void setCode(String code) {
```

```java
      this.code = code;
   }

   public String getName() {
      return name;
   }

   public void setName(String name) {
      this.name = name;
   }

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

SpringLearnApplication.java

```java
package com.cognizant.spring_learn;

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;

import java.text.SimpleDateFormat;
import java.util.Date;

@SpringBootApplication
public class SpringLearnApplication {

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

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

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

        // Start the Spring Boot application
        SpringApplication.run(SpringLearnApplication.class, args);

        // Call method from Hands-on 2
        displayDate();

        LOGGER.info("END");
    }

    public static void displayDate() {
        LOGGER.info("START");

        // Load Spring XML configuration
        ApplicationContext context = new
ClassPathXmlApplicationContext("date-format.xml");

        // Get dateFormat bean
        SimpleDateFormat format = context.getBean("dateFormat",
SimpleDateFormat.class);

        try {
            Date date = format.parse("31/12/2018");
            LOGGER.debug("Date: {}", date);
        } catch (Exception e) {
            LOGGER.error("Error parsing date", e);
        }

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

RESOURCES
Application.properties:
spring.application.name=spring-learn
logging.level.org.springframework=info

logging.level.com.cognizant.spring_learn=debug
logging.pattern.console=%d{yyMMdd}|%d{HH:mm:ss.SSS}|%-20.20thread|%5p|%-25.25logger{25}|%25M|%m%n
server.port=8085

Country.xml
```xml
<?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="in" class="com.cognizant.spring_learn.model.Country">
    <property name="code" value="IN"/>
    <property name="name" value="India"/>
  </bean>
</beans>
```

Date_format.xml
```xml
<?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
    https://www.springframework.org/schema/beans/spring-beans.xsd">

  <bean id="dateFormat" class="java.text.SimpleDateFormat">
    <constructor-arg value="dd/MM/yyyy" />
  </bean>
</beans>
```

SpringLearnApplicationTest.java
```java
package com.cognizant.spring_learn;

import org.junit.jupiter.api.Test;
import org.springframework.boot.test.context.SpringBootTest;
```

```java
@SpringBootTest
class SpringLearnApplicationTests {

  @Test
  void contextLoads() {
  }

}
```

EX 1: HELLO WORLD
HelloWorldServiceApplication.java:
```java
package com.cognizant.spring_learn;

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

@SpringBootApplication
public class HelloWorldServiceApplication {
  public static void main(String[] args) {
    SpringApplication.run(HelloWorldServiceApplication.class, args);
  }
}
```

Pom.xml
```xml
<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>

  <groupId>com.cognizant.spring-learn</groupId>
  <artifactId>hello-world-service</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <description>Hello World REST Service</description>
  <packaging>jar</packaging>
```

```xml
<parent>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-parent</artifactId>
    <version>3.2.0</version>
    <relativePath/>
</parent>

<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-starter-logging</artifactId>
    </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 Screenshot:

Hello World!!

EX2 REST - Country Web Service

CountryController.java:

```java
package com.cognizant.spring_learn.controller;

import com.cognizant.spring_learn.model.Country;
import org.springframework.context.ApplicationContext;
import org.springframework.context.support.ClassPathXmlApplicationContext;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RestController;

@RestController
public class CountryController {

    @RequestMapping("/country")
    public Country getCountryIndia() {
        ApplicationContext context = new
ClassPathXmlApplicationContext("country.xml");
        Country country = (Country) context.getBean("country");
        return country;
    }
}
```

CountryServiceApplication.java

```java
package com.cognizant.spring_learn;

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

@SpringBootApplication
public class CountryServiceApplication {
    public static void main(String[] args) {
        SpringApplication.run(CountryServiceApplication.class, args);
    }
}
```
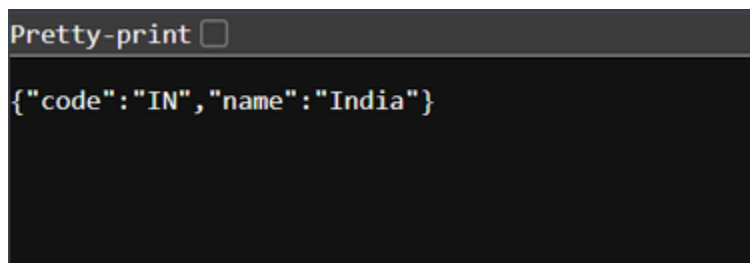
Country.xml

```xml
<?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
    https://www.springframework.org/schema/beans/spring-beans.xsd">

  <bean id="country" class="com.cognizant.spring_learn.model.Country">
    <property name="code" value="IN" />
    <property name="name" value="India" />
  </bean>

</beans>
```

Output Screenshot:

EX3 Get Country based on Country code

CountryController.java:

```java
package com.cognizant.spring_learn.controller;

import com.cognizant.spring_learn.model.Country;
import com.cognizant.spring_learn.service.CountryService;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.PathVariable;
import org.springframework.web.bind.annotation.RestController;

@RestController
```

```java
public class CountryController {

    @Autowired
    private CountryService countryService;

    @GetMapping("/countries/{code}")
    public Country getCountry(@PathVariable String code) {
        return countryService.getCountry(code);
    }
}
```

Country.java
```java
package com.cognizant.spring_learn.model;

public class Country {
    private String code;
    private String name;

    public Country() {}

    public Country(String code, String name) {
        this.code = code;
        this.name = name;
    }

    public String getCode() {
        return code;
    }

    public void setCode(String code) {
        this.code = code;
    }

    public String getName() {
        return name;
    }
```

```java
    public void setName(String name) {
        this.name = name;
    }
}
```

CountryLookupApplication
```java
package com.cognizant.spring_learn;

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

@SpringBootApplication
public class CountryLookupApplication {
    public static void main(String[] args) {
        SpringApplication.run(CountryLookupApplication.class, args);
    }
}
```

Country.xml
```xml
<?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
    https://www.springframework.org/schema/beans/spring-beans.xsd">

  <bean id="country1" class="com.cognizant.spring_learn.model.Country">
    <property name="code" value="IN"/>
    <property name="name" value="India"/>
  </bean>

  <bean id="country2" class="com.cognizant.spring_learn.model.Country">
    <property name="code" value="US"/>
    <property name="name" value="United States"/>
  </bean>

  <bean id="country3" class="com.cognizant.spring_learn.model.Country">
    <property name="code" value="JP"/>
```

```xml
      <property name="name" value="Japan"/>
   </bean>

   <bean id="countryList" class="java.util.ArrayList">
      <constructor-arg>
         <list>
            <ref bean="country1"/>
            <ref bean="country2"/>
            <ref bean="country3"/>
         </list>
      </constructor-arg>
   </bean>

</beans>
```

Pom.xml
```xml
<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>

   <groupId>com.cognizant.spring-learn</groupId>
   <artifactId>country-lookup-service</artifactId>
   <version>0.0.1-SNAPSHOT</version>
   <description>Country Lookup REST Service</description>
   <packaging>jar</packaging>

   <parent>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-parent</artifactId>
      <version>3.2.0</version>
      <relativePath/>
   </parent>

   <properties>
```

```xml
        <java.version>17</java.version>
    </properties>

    <dependencies>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-web</artifactId>
        </dependency>

        <dependency>
            <groupId>org.springframework</groupId>
            <artifactId>spring-context</artifactId>
        </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 Screenshot:

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

EX5 JWT Hands on

Util:

```
package com.example.jwt;

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

@SpringBootApplication
public class JwtAuthExampleApplication {
    public static void main(String[] args) {
        SpringApplication.run(JwtAuthExampleApplication.class, args);
    }
}
```

Pom.xml

```xml
<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
http://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <groupId>com.example</groupId>
  <artifactId>jwt-auth-example</artifactId>
  <version>1.0-SNAPSHOT</version>
  <packaging>jar</packaging>
  <name>jwt-auth-example</name>
  <description>Spring Boot JWT Authentication Example</description>

  <parent>
```

```xml
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-parent</artifactId>
    <version>2.7.15</version>
    <relativePath/>
</parent>

<dependencies>
    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-web</artifactId>
    </dependency>
    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-security</artifactId>
    </dependency>
    <dependency>
        <groupId>io.jsonwebtoken</groupId>
        <artifactId>jjwt-api</artifactId>
        <version>0.11.5</version>
    </dependency>
    <dependency>
        <groupId>io.jsonwebtoken</groupId>
        <artifactId>jjwt-impl</artifactId>
        <version>0.11.5</version>
        <scope>runtime</scope>
    </dependency>
    <dependency>
        <groupId>io.jsonwebtoken</groupId>
        <artifactId>jjwt-jackson</artifactId>
        <version>0.11.5</version>
        <scope>runtime</scope>
    </dependency>
</dependencies>

<build>
    <plugins>
        <plugin>
```

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

```
Microsoft Windows [Version 10.0.26100.4652]
(c) Microsoft Corporation. All rights reserved.

C:\Users\hemag>curl -s -u user:pwd http://localhost:8090/authenticate
{"token":"eyJhbGciOiJIUzI1NiJ9.eyJzdWIiOiJ1c2VyIiwiaWF0IjoxNzUyNDAyMjYzLCJleHAiOjE3NTI0MDI4NjN9.Uwmo2d38OiWb4c8obDwIN3meQnyHL2vCGlzMY7NHLSA"}
C:\Users\hemag>
```