**Week 4:**

**1.Create a Spring Web Project using Maven:**

**Project Structure:**

SpringCountryApp/

│

├── src/

│ ├── main/

│ │ ├── java/

│ │ │ └── com/

│ │ │ └── example/

│ │ │ └── springcountryapp/

│ │ │ ├── config/

│ │ │ │ └── AppConfig.java

│ │ │ ├── controller/

│ │ │ │ ├── AuthController.java

│ │ │ │ └── CountryController.java

│ │ │ ├── model/

│ │ │ │ └── Country.java

│ │ │ ├── service/

│ │ │ │ └── AuthService.java

│ │ │ ├── util/

│ │ │ │ └── JwtUtil.java

│ │ │ └── SpringCountryApp.java

│ │ └── resources/

│ │ ├── application.properties

│ │ ├── countries.xml

│ │ └── log4j.properties

├── pom.xml

**2.Spring Core – Load Country from Spring Configuration XML**

**Pom.xml:**

<project xmlns="http://maven.apache.org/POM/4.0.0" ...>

<modelVersion>4.0.0</modelVersion>

<groupId>com.example</groupId>

<artifactId>springcountryapp</artifactId>

<version>1.0-SNAPSHOT</version>

<properties>

<java.version>1.8</java.version>

<spring.boot.version>2.7.5</spring.boot.version>

</properties>

<dependencies>

<!-- Spring Boot Starter -->

<dependency>

<groupId>org.springframework.boot</groupId>

<artifactId>spring-boot-starter-web</artifactId>

</dependency>

<!-- Spring Boot XML support -->

<dependency>

<groupId>org.springframework.boot</groupId>

<artifactId>spring-boot-starter</artifactId>

</dependency>

<!-- Jackson for JSON -->

<dependency>

<groupId>com.fasterxml.jackson.core</groupId>

<artifactId>jackson-databind</artifactId>

</dependency>

<!-- JWT -->

<dependency>

<groupId>io.jsonwebtoken</groupId>

<artifactId>jjwt</artifactId>

<version>0.9.1</version>

</dependency>

<!-- Spring Context for XML config -->

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-context</artifactId>

</dependency>

<!-- Test -->

<dependency>

<groupId>org.springframework.boot</groupId>

<artifactId>spring-boot-starter-test</artifactId>

<scope>test</scope>

</dependency>

</dependencies>

<build>

<plugins>

<!-- Spring Boot Maven plugin -->

<plugin>

<groupId>org.springframework.boot</groupId>

<artifactId>spring-boot-maven-plugin</artifactId>

</plugin>

</plugins>

</build>

</project>

**3.Country.java:(Model)**

package com.example.springcountryapp.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; }

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

}

**4.countries.xml (Spring Core Configuration):**

<?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="india" class="com.example.springcountryapp.model.Country">

<property name="code" value="IN"/>

<property name="name" value="India"/>

</bean>

<bean id="usa" class="com.example.springcountryapp.model.Country">

<property name="code" value="US"/>

<property name="name" value="United States"/>

</bean>

</beans>

**5.HelloWorld RESTful Web Service:**

**CountryController.java**:

package com.example.springcountryapp.controller;

import com.example.springcountryapp.model.Country;

import org.springframework.beans.factory.xml.XmlBeanFactory;

import org.springframework.core.io.ClassPathResource;

import org.springframework.web.bind.annotation.\*;

@RestController

@RequestMapping("/countries")

public class CountryController {

XmlBeanFactory factory = new XmlBeanFactory(new ClassPathResource("countries.xml"));

@GetMapping("/hello")

public String hello() {

return "Hello World from Spring Boot!";

}

@GetMapping("/{code}")

public Country getCountryByCode(@PathVariable String code) {

return (Country) factory.getBean(code.toLowerCase());

}

}

**6.JwtUtil.java:**

package com.example.springcountryapp.util;

import io.jsonwebtoken.Jwts;

import io.jsonwebtoken.SignatureAlgorithm;

import java.util.Date;

public class JwtUtil {

private static final String SECRET\_KEY = "mysecretkey";

public static String generateToken(String username) {

return Jwts.builder()

.setSubject(username)

.setIssuedAt(new Date(System.currentTimeMillis()))

.setExpiration(new Date(System.currentTimeMillis() + 1000 \* 60 \* 60))

.signWith(SignatureAlgorithm.HS256, SECRET\_KEY)

.compact();

}

}

**7.AuthService.java:**

package com.example.springcountryapp.service;

import org.springframework.stereotype.Service;

@Service

public class AuthService {

public boolean authenticate(String username, String password) {

return "user".equals(username) && "password".equals(password);

}

}

**8.AuthController.java:**

package com.example.springcountryapp.controller;

import com.example.springcountryapp.service.AuthService;

import com.example.springcountryapp.util.JwtUtil;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.web.bind.annotation.\*;

import java.util.Map;

import java.util.HashMap;

@RestController

@RequestMapping("/auth")

public class AuthController {

@Autowired

private AuthService authService;

@PostMapping("/login")

public Map<String, String> login(@RequestBody Map<String, String> credentials) {

String username = credentials.get("username");

String password = credentials.get("password");

Map<String, String> response = new HashMap<>();

if (authService.authenticate(username, password)) {

String token = JwtUtil.generateToken(username);

response.put("token", token);

} else {

response.put("error", "Invalid credentials");

}

return response;

}

}

**9.SpringCountryApp.java (Main Class):**

package com.example.springcountryapp;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

@SpringBootApplication

public class SpringCountryApp {

public static void main(String[] args) {

SpringApplication.run(SpringCountryApp.class, args);

}

}

**10.Sample Requests to Test:**

Hello World:

GET /countries/hello

Response: "Hello World from Spring Boot!"

Get Country by Code:

GET /countries/in

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

Authenticate:

POST /auth/login

Body: { "username": "user", "password": "password" }

Response: { "token": "<JWT\_TOKEN>" }

**OUTPUT:**

Run the project and open the browser at:

<http://localhost:8080/SpringWebApp/hello>

A close up of a message

AI-generated content may be incorrect.