**JWT Hands on**

**Question 1: Create authentication service that returns JWT**

**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>3.2.7</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 Rest</description>

<properties>

<java.version>17</java.version>

<jjwt.version>0.12.5</jjwt.version>

</properties>

<dependencies>

<dependency>

<groupId>io.jsonwebtoken</groupId>

<artifactId>jjwt</artifactId>

<version>0.9.1</version>

</dependency>

<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>

<dependency>

<groupId>org.slf4j</groupId>

<artifactId>slf4j-api</artifactId>

<version>2.0.7</version>

</dependency>

<dependency>

<groupId>org.slf4j</groupId>

<artifactId>slf4j-simple</artifactId>

<version>2.0.7</version>

</dependency>

<dependency>

<groupId>javax.xml.bind</groupId>

<artifactId>jaxb-api</artifactId>

<version>2.3.1</version>

</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;

@SpringBootApplication

public class SpringLearnApplication {

public static void main(String[] args) {

SpringApplication.run(SpringLearnApplication.class, args);

}

}

AuthController.java

package com.cognizant.spring\_learn.controller;

import com.cognizant.spring\_learn.util.JwtUtil;

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

import org.springframework.security.core.Authentication;

import org.springframework.web.bind.annotation.GetMapping;

import org.springframework.web.bind.annotation.RestController;

import java.util.HashMap;

import java.util.Map;

@RestController

public class AuthController {

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

private final JwtUtil jwtUtil;

public AuthController(JwtUtil jwtUtil) {

this.jwtUtil = jwtUtil;

}

@GetMapping("/authenticate")

public Map<String, String> authenticate(Authentication authentication) {

LOGGER.info("Authenticated user: {}", authentication.getName());

String token = jwtUtil.generateToken(authentication.getName());

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

response.put("token", token);

return response;

}

}

**JwtUtil.java**

package com.cognizant.spring\_learn.util;

import java.util.Date;

import io.jsonwebtoken.Jwts;

import io.jsonwebtoken.SignatureAlgorithm;

import org.springframework.stereotype.Component;

@Component

public class JwtUtil {

private final String secretKey = "secret";

private final long expirationTime = 1000 \* 60 \* 60; // 1 hour

public String generateToken(String username) {

return Jwts.builder()

.setSubject(username)

.setIssuedAt(new Date())

.setExpiration(new Date(System.currentTimeMillis() + expirationTime))

.signWith(SignatureAlgorithm.HS256, secretKey)

.compact();

}

}

**SecurityConfig.java**

package com.cognizant.spring\_learn.config;

import org.springframework.context.annotation.Bean;

import org.springframework.context.annotation.Configuration;

import org.springframework.security.authentication.AuthenticationManager;

import org.springframework.security.authentication.ProviderManager;

import org.springframework.security.authentication.dao.DaoAuthenticationProvider;

import org.springframework.security.config.annotation.web.builders.HttpSecurity;

import org.springframework.security.core.userdetails.UserDetailsService;

import org.springframework.security.web.SecurityFilterChain;

@Configuration

public class SecurityConfig {

@Bean

public SecurityFilterChain securityFilterChain(HttpSecurity http) throws Exception {

http.csrf().disable()

.authorizeHttpRequests()

.requestMatchers("/authenticate").authenticated()

.anyRequest().permitAll()

.and()

.httpBasic();

return http.build();

}

@Bean

public AuthenticationManager authenticationManager(UserDetailsService userDetailsService) {

DaoAuthenticationProvider authProvider = new DaoAuthenticationProvider();

authProvider.setUserDetailsService(userDetailsService);

return new ProviderManager(authProvider);

}

}

* **UserDetailsService.java**

package com.cognizant.spring\_learn.config;

import org.springframework.context.annotation.Bean;

import org.springframework.context.annotation.Configuration;

import org.springframework.security.core.userdetails.User;

import org.springframework.security.core.userdetails.UserDetailsService;

import org.springframework.security.provisioning.InMemoryUserDetailsManager;

@Configuration

public class UserDetailsServiceConfig {

@Bean

public UserDetailsService userDetailsService() {

return new InMemoryUserDetailsManager(

User.withUsername("user")

.password("{noop}pwd")

.roles("USER")

.build()

);

}

}

application.properties

server.port=8090

spring.application.name=spring\_learn

logging.level.com.cognizant=DEBUG

