**Handling User Authentication**

**Source code:**

**AuthenticationController.java**

package com.project.Authentication.controllers;

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

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

import org.springframework.stereotype.Controller;

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

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

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

import com.project.Authentication.entities.User;

import com.project.Authentication.services.AuthenticationService;

@Controller

public class AuthenticationController {

Logger logger = LoggerFactory.getLogger(AuthenticationController.class);

@Autowired

AuthenticationService authService;

@GetMapping("/")

public String showGreeting() {

return "greeting";

}

@GetMapping("/Auth")

public String showLogin() {

return "authenticate";

}

@PostMapping("/Auth")

public String authenticateUser(@RequestParam("username") String username, @RequestParam("password") String pswd) {

User user = authService.GetUserByName(username);

logger.info(user.getName() + " attempted to login with " + user.getPassword());

String path = (authService.isValidPassword(pswd, user.getPassword())) ? "success" : "failure";

logger.info("The path return: " + path);

return path;

}

}

**User.java**

package com.project.Authentication.entities;

import javax.persistence.Column;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

import javax.persistence.Table;

import javax.validation.constraints.NotNull;

@Entity

@Table(name = "user")

public class User {

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

@NotNull

private Integer id;

@Column(name = "name")

@NotNull

private String name;

@Column(name = "email")

@NotNull

private String email;

@Column(name = "password")

@NotNull

private String password;

public User() {

super();

}

public User(@NotNull String name, @NotNull String password) {

this.name = name;

this.password = password;

}

public User(@NotNull String name, @NotNull String email, @NotNull String password) {

super();

this.name = name;

this.email = email;

this.password = password;

}

public Integer getId() {

return id;

}

public void setId(Integer id) {

this.id = id;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public String getEmail() {

return email;

}

public void setEmail(String email) {

this.email = email;

}

public String getPassword() {

return password;

}

public void setPassword(String password) {

this.password = password;

}

@Override

public String toString() {

return "User [id=" + id + ", name=" + name + ", email=" + email + ", password=" + password + "]";

}

}

**UserNotFoundException.java**

package com.project.Authentication.exceptions;

public class UserNotFoundException extends RuntimeException {

private static final long serialVersionUID = 1L;

}

**AuthenticationRepository.java**

package com.project.Authentication.repositories;

import java.util.Optional;

import org.springframework.data.repository.CrudRepository;

import org.springframework.stereotype.Repository;

import com.project.Authentication.entities.User;

@Repository

public interface AuthenticationRepository extends CrudRepository<User, Integer> {

public Optional<User> findUserByName(String name);

}

**AuthenticationService.java**

package com.project.Authentication.services;

import java.util.Optional;

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

import org.springframework.stereotype.Service;

import com.project.Authentication.entities.User;

import com.project.Authentication.exceptions.UserNotFoundException;

import com.project.Authentication.repositories.AuthenticationRepository;

@Service

public class AuthenticationService {

@Autowired

AuthenticationRepository authRepo;

public User GetUserByName(String name) {

Optional<User> found = authRepo.findUserByName(name);

if(found.isPresent()) return found.get();

else throw new UserNotFoundException();

}

public Boolean isValidPassword(String cmp, String actual) {

return ((cmp.equals(actual)) ? true : false);

}

}

**AuthenticationApplication.java**

package com.project.Authentication;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import org.springframework.context.annotation.Import;

import com.project.Authentication.controllers.AuthenticationController;

import com.project.Authentication.entities.User;

import com.project.Authentication.exceptions.UserNotFoundException;

import com.project.Authentication.services.AuthenticationService;

@SpringBootApplication

@Import({

AuthenticationController.class,

UserNotFoundException.class,

AuthenticationService.class,

User.class

})

public class AuthenticationApplication {

public static void main(String[] args) {

SpringApplication.run(AuthenticationApplication.class, args);

}

}

**Authentication.jsp**

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"

pageEncoding="ISO-8859-1"%>

<%@ taglib prefix="form" uri="http://www.springframework.org/tags/form"%>

<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Authentication Page</title>

</head>

<center>

<h2>Login Page</h2>

<body>

<h3> Welcome to the authentication page</h3>

<form:form action="Auth" method="post" commandName="login">

<label for="username"> Username:</label>

<input name="username" id="username" type="text" placeholder="Username" required/>

<br><br>

<label for="password">Password:</label>

<input name="password" id="password" type="password" placholder="Password" required/>

<br><br>

<input type="submit" name="Submit"/>

</form:form>

</center>

</body>

</html>

**Failure.jsp**

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"

pageEncoding="ISO-8859-1"%>

<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Failed Login</title>

</head>

<body>

<h1>Wrong username and password!!</h1>

<br/>

<a href="/Auth">Attempt Login again</a>

</body>

</html>

**Greeting.jsp**

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"

pageEncoding="ISO-8859-1"%>

<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Landing Page</title>

</head>

<h2>Welcome to this page</h2>

<body>

<a href="Auth">Login</a>

</body>

</html>

**Success.jsp**

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"

pageEncoding="ISO-8859-1"%>

<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Successful Login Page</title>

</head>

<body>

<h1>Successful Login</h1>

</body>

</html>

**Application.properties**

spring.jpa.hibernate.ddl-auto=update

spring.datasource.url=jdbc:mysql://localhost:3306/authentication

spring.datasource.username=root

spring.datasource.password=

logging.level.org.springframework.web: DEBUG

spring.mvc.view.prefix=/WEB-INF/jsp/

spring.mvc.view.suffix=.jsp

server.port=8080

**AuthenticationApplicationTests**

package com.project.Authentication;

import org.junit.Test;

import org.springframework.boot.test.context.SpringBootTest;

@SpringBootTest

public class AuthenticationApplicationTests {

@Test

public void contextLoads() {

}

}

**AuthenticationCodeTests**

package com.project.Authentication;

import static org.junit.jupiter.api.Assertions.assertEquals;

import static org.junit.jupiter.api.Assertions.assertFalse;

import static org.junit.jupiter.api.Assertions.assertTrue;

import java.util.Optional;

import org.junit.jupiter.api.BeforeEach;

import org.junit.jupiter.api.Test;

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

import org.springframework.boot.test.autoconfigure.orm.jpa.DataJpaTest;

import org.springframework.boot.test.autoconfigure.orm.jpa.TestEntityManager;

import com.project.Authentication.entities.User;

import com.project.Authentication.exceptions.UserNotFoundException;

import com.project.Authentication.repositories.AuthenticationRepository;

import com.project.Authentication.services.AuthenticationService;

@DataJpaTest

public class AuthenticationCodeTests {

@Autowired

private TestEntityManager entityManager;

@Autowired

private AuthenticationService authService;

@Autowired

private AuthenticationRepository authRepo;

private User testUser;

@BeforeEach

private void Setup() {

testUser = new User("dummy", "dummy@testdummy.edu", "TestDummy4Life");

System.out.println(testUser.toString());

entityManager.persist(testUser);

entityManager.flush();

}

@Test

public void shouldGetUserByName() {

User test = authService.GetUserByName("dummy");

assertEquals(testUser.getName(), test.getName());

}

@Test

public void shouldFindUserByName() throws UserNotFoundException {

Optional<User> temp = authRepo.findUserByName("dummy");

User tempUser = (temp.isPresent()) ? temp.get() : new User();

assertEquals(testUser.getName(), tempUser.getName());

tempUser = new User();

assertFalse(testUser.getName().equals(tempUser.getName()));

}

@Test

public void shouldValidateUser() {

// incorrect username

User input = new User("dumbo", "BigEars");

Optional<User> temp = authRepo.findUserByName(input.getName());

User tempUser = (temp.isPresent()) ? temp.get() : new User();

assertFalse(testUser.getName().equals(input.getName()));

// incorrect password but correct username

input.setName("dummy");

temp = authRepo.findUserByName(input.getName());

tempUser = (temp.isPresent()) ? temp.get() : new User();

assertFalse(authService.isValidPassword(tempUser.getPassword(), input.getPassword()));

//correct username and password

input.setPassword("TestDummy4Life");

assertTrue(authService.isValidPassword(tempUser.getPassword(), input.getPassword()));

}

}

**AuthenticationWebTesting**

package com.project.Authentication;

import static org.springframework.test.web.servlet.request.MockMvcRequestBuilders.get;

import static org.springframework.test.web.servlet.result.MockMvcResultHandlers.print;

import static org.springframework.test.web.servlet.result.MockMvcResultMatchers.status;

import org.junit.jupiter.api.Test;

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

import org.springframework.boot.test.autoconfigure.web.servlet.AutoConfigureMockMvc;

import org.springframework.boot.test.context.SpringBootTest;

import org.springframework.boot.web.server.LocalServerPort;

import org.springframework.test.web.servlet.MockMvc;

@SpringBootTest(webEnvironment = SpringBootTest.WebEnvironment.RANDOM\_PORT)

@AutoConfigureMockMvc

public class AuthenticationWebTesting {

@Autowired

private MockMvc mockMvc;

@LocalServerPort

private int port;

@Test

public void shouldGetDefaultMessageFromGreetings() throws Exception{

this.mockMvc.perform(get("/")).andDo(print()).andExpect(status().isOk());

}

@Test

public void shouldGetDefaultMessageFromAuthenticate() throws Exception {

this.mockMvc.perform(get("/Auth")).andDo(print()).andExpect(status().isOk());

}

}

**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>2.5.1</version>

<relativePath /> <!-- lookup parent from repository -->

</parent>

<groupId>com.project</groupId>

<artifactId>Authentication</artifactId>

<version>0.0.1-SNAPSHOT</version>

<name>Authentication</name>

<description>Demo project for Spring Boot</description>

<properties>

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

</properties>

<dependencies>

<dependency>

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

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

</dependency>

<dependency>

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

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

</dependency>

<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>mysql</groupId>

<artifactId>mysql-connector-java</artifactId>

<scope>runtime</scope>

</dependency>

<dependency>

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

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

<scope>test</scope>

</dependency>

<dependency>

<groupId>org.apache.tomcat.embed</groupId>

<artifactId>tomcat-embed-jasper</artifactId>

<scope>provided</scope>

</dependency>

<dependency>

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

<artifactId>jaxb-api</artifactId>

</dependency>

<dependency>

<groupId>org.javassist</groupId>

<artifactId>javassist</artifactId>

<version>3.25.0-GA</version>

</dependency>

<dependency>

<groupId>javax.servlet</groupId>

<artifactId>jstl</artifactId>

<version>1.2</version>

</dependency>

<dependency>

<groupId>org.projectlombok</groupId>

<artifactId>lombok-maven-plugin</artifactId>

<version>1.18.18.0</version>

<type>maven-plugin</type>

</dependency>

<dependency>

<groupId>junit</groupId>

<artifactId>junit</artifactId>

<version>4.11</version>

<scope>test</scope>

</dependency>

<dependency>

<groupId>com.h2database</groupId>

<artifactId>h2</artifactId>

<scope>runtime</scope>

</dependency>

</dependencies>

<build>

<plugins>

<plugin>

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

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

<configuration>

</configuration>

</plugin>

<plugin>

<groupId>org.projectlombok</groupId>

<artifactId>lombok-maven-plugin</artifactId>

<version>1.18.18.0</version>

</plugin>

</plugins>

</build>

</project>