**Handling User Authentication**

**AuthenticationApplication.java**

package com.example.Authentication;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

@SpringBootApplication

public class AuthenticationApplication {

public static void main(String[] args) {

SpringApplication.run(AuthenticationApplication.class, args);

}

}

**LoginController.java**

package com.example.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.ui.ModelMap;

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

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

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

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

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

import com.example.Authentication.entities.User;

import com.example.Authentication.repositories.UserRepository;

@RestController

public class LoginController {

@Autowired

UserRepository userRepository;

@GetMapping(value="/")

public String showIndexPage(ModelMap model){

return "<html>\n"

+ "<head>\n"

+ " <style>\n"

+ " .center {\n"

+ " text-align: center;\n"

+ " }\n"

+ " \n"

+ " </style>\n"

+ "</head>\n"

+ "<body style=\"background-color:lightblue;\">\n"

+ " <div class=\"center\">\n"

+ " <h1>User Login Page</h1>\n"

+ " \n"

+ " <h2 class=\"hello-title\">Welcome</h2>\n"

+ " \n"

+ " <a href=\"/allusers\">View all users</a>\n"

+ " <br><br>\n"

+ " <form method=\"get\" action=\"login\">\n"

+ " <br><h3>Login below:</h3>\n"

+ " <input type=\"text\" id=\"name\" name=\"name\" placeholder=\"Name\" required>\n"

+ " <input type=\"text\" id=\"email\" name=\"email\" placeholder=\"Email\" required>\n"

+ " <input type=\"text\" id=\"password\" name=\"password\" placeholder=\"Password\" required> \n"

+ " <input type=\"submit\" value=\"Enter\" />\n"

+ " </form>"

+ " </div>\n"

+ "</body>\n"

+ "</html>";

}

@GetMapping("/login")

public String showLogin(@RequestParam("name") String name, @RequestParam("email") String email, @RequestParam("password") String password, ModelMap map) {

User u = new User(name,email,password);

userRepository.save(u);

return "<html>\n"

+ "<head>\n"

+ " <style>\n"

+ " .center {\n"

+ " text-align: center;\n"

+ " }\n"

+ " \n"

+ " </style>\n"

+ "</head>\n"

+ "<body style=\"background-color:lightblue;\">\n"

+ " <div class=\"center\">\n"

+ " <h1>Logged In</h1>\n"

+ " \n"

+ " <h2 class=\"hello-title\">Successfully Added Your Information</h2>\n"

+ " </div>\n"

+ "</body>\n"

+ "</html>";

}

@GetMapping("/allusers")

public @ResponseBody String getAllFeedbacks() {

// This returns a JSON or XML with the Feedbacks

Iterable<User> allUser = userRepository.findAll();

return "<html>\n"

+ "<head>\n"

+ " <style>\n"

+ " .center {\n"

+ " text-align: center;\n"

+ " }\n"

+ " \n"

+ " </style>\n"

+ "</head>\n"

+ "<body style=\"background-color:lightblue;\">\n"

+ " <div class=\"center\">\n"

+ "<h1>Feedback Table</h1>\n"

+ allUser.toString()

+ " </div>\n"

+ "</body>\n"

+ "</html>";

}

@PostMapping("/login")

public String submitLogin(@RequestParam String username, @RequestParam String password){

//TODO:

return "Success";

}

}

**User.java**

package com.example.Authentication.entities;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

@Entity // This tells Hibernate to make a table out of this class

public class User {

@Id

@GeneratedValue(strategy=GenerationType.*IDENTITY*)

private Integer id;

private String name;

private String email;

private String password;

public User()

{

}

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

this.name = name;

this.email = email;

this.password = password;

}

public String getPassword() {

return password;

}

public void setPassword(String password) {

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;

}

@Override

public String toString() {

return "<br><h3>" + name + " [" + id + "]:" + "</h3><h4>email: " + email + "</h4><h4>password: " + password + "</h4><br>";

}

}

**UserNotFoundException.java**

package com.example.Authentication.exceptions;

public class UserNotFoundException extends RuntimeException {

private static final long *serialVersionUID* = 1L;

}

**UserRepository.java**

package com.example.Authentication.repositories;

import org.springframework.data.repository.CrudRepository;

import com.example.Authentication.entities.User;

public interface UserRepository extends CrudRepository<User, Integer> {

public User findByName(String name);

}

**UserService.java**

package com.example.Authentication.services;

import java.util.Optional;

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

import org.springframework.stereotype.Service;

import com.example.Authentication.entities.User;

import com.example.Authentication.exceptions.UserNotFoundException;

import com.example.Authentication.repositories.UserRepository;

@Service

public class UserService {

@Autowired

private UserRepository userRepository;

public Iterable<User> GetAllUsers()

{

return userRepository.findAll();

}

public User GetUserByName(String name) {

User foundUser = userRepository.findByName(name);

return foundUser;

}

public User GetUserById(int id) {

Optional<User> foundUser = userRepository.findById(id);

//TODO: we need to decide how to handle a "Not Found" condition

if (!foundUser.isPresent()) {

throw new UserNotFoundException();

}

return(foundUser.get());

}

public void UpdateUser(User usertoUpdate) {

userRepository.save(usertoUpdate);

}

}

**Application.properties**

spring.jpa.hibernate.ddl-auto=update

spring.datasource.url=jdbc:mysql://${localhost}:3306/Junit

spring.datasource.username=root

spring.datasource.password=Suru632kulA#

logging.level.org.springframework.web: DEBUG

server.port=8090

server.error.whitelabel.enabled=false

**AuthenticationApplicationTests.java**

package com.example.Authentication;

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

import static org.junit.jupiter.api.Assertions.*assertNotEquals*;

import static org.junit.jupiter.api.Assertions.*assertNotNull*;

import org.junit.jupiter.api.Test;

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

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

import com.example.Authentication.entities.User;

import com.example.Authentication.services.UserService;

@SpringBootTest

class AuthenticationApplicationTests {

@Autowired

private UserService userService;

@Test

void contextLoads() {

}

@Test

void testServiceCall() {

Iterable<User> users = userService.GetAllUsers();

Integer count = 0;

for(User u: users)

count++;

*assertNotEquals*(count, 2);

}

@Test

void countUsers() {

Iterable<User> users = userService.GetAllUsers();

Integer count = 0;

for(User u: users)

count++;

*assertEquals*(count, 0);

}

@Test

void checkAllUsers() {

Iterable<User> users = userService.GetAllUsers();

for(User u: users)

*assertNotNull*(u);

}

}

**AuthenticationTests.java**

package com.example.Authentication;

import com.example.Authentication.entities.User;

import com.example.Authentication.repositories.UserRepository;

import com.example.Authentication.services.UserService;

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

import org.junit.jupiter.api.Assertions.\*;

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

import static org.junit.jupiter.api.Assertions.*assertNotNull*;

@DataJpaTest

public class AuthenticationTests {

@Autowired

private TestEntityManager entityManager;

@Autowired

private UserRepository userRepository;

@Test

public void returnUserFromName() {

User testUser = new User();

testUser.setName("newTest");

testUser.setEmail("test@email.com");

testUser.setPassword("testpw");

entityManager.persist(testUser);

entityManager.flush();

User found = userRepository.findByName(testUser.getName());

*assertEquals*(found.getName(), testUser.getName());

}

@Test

public void passwordNotNull() {

Iterable<User> users = userRepository.findAll();

for(User u: users)

*assertNotNull*(u.getPassword());

}

@Test

public void nameNotNull() {

Iterable<User> users = userRepository.findAll();

for(User u: users)

*assertNotNull*(u.getName());

}

@Test

public void emailNotNull() {

Iterable<User> users = userRepository.findAll();

for(User u: users)

*assertNotNull*(u.getEmail());

}

}

**AuthenticationWebTests.java**

package com.example.Authentication;

import com.example.Authentication.controllers.LoginController;

import org.junit.jupiter.api.Test;

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

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

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

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

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

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

import static org.hamcrest.Matchers.*containsString*;

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.*content*;

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

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

@AutoConfigureMockMvc

public class AuthenticationWebTests {

@LocalServerPort

private int port;

@Autowired

private LoginController controller;

@Autowired

private MockMvc mockMvc;

@Test

public void shouldReturnDefaultMessage() throws Exception {

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

}

@Test

public void checkLoginPage() throws Exception {

this.mockMvc.perform(*get*("/login")).andDo(*print*()).andExpect(*status*().is4xxClientError());

}

@Test

public void checkUsersPage() throws Exception {

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

}

}

**EntityTests.java**

package com.example.Authentication;

import com.example.Authentication.entities.User;

import com.example.Authentication.repositories.UserRepository;

import com.example.Authentication.services.UserService;

import org.junit.jupiter.api.Test;

import org.junit.jupiter.api.Assertions.\*;

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

import static org.junit.jupiter.api.Assertions.*assertNotNull*;

public class EntityTests {

@Test

public void getAndSetPassword() {

User testUser = new User();

testUser.setPassword("mypassword");

*assertEquals*(testUser.getPassword(),"mypassword");

}

@Test

public void getAndSetName() {

User testUser = new User();

testUser.setName("joe");

*assertEquals*(testUser.getName(),"joe");

}

@Test

public void getAndSetEmail() {

User testUser = new User();

testUser.setEmail("joe@email.com");

*assertEquals*(testUser.getEmail(),"joe@email.com");

}

@Test

public void checkToString() {

User testUser = new User();

*assertNotNull*(testUser.toString());

}

@Test

public void checkConstructor() {

User testUser = new User("joe","joe@email.com","123");

User checkUser = new User();

checkUser.setName("joe");

checkUser.setEmail("joe@email.com");

checkUser.setPassword("123");

*assertEquals*(testUser.getName(), checkUser.getName());

*assertEquals*(testUser.getEmail(), checkUser.getEmail());

*assertEquals*(testUser.getPassword(), checkUser.getPassword());

}

@Test

public void testDefaultConstructor() {

User testUser = new User();

*assertNotNull*(testUser);

}

}

**Error.jsp**

<html>

<body>

<h2>Page not found</h2>

</body>

</html>

**Greeting.jsp**

<html>

<body>

<h2>Spring Application</h2>

</body>

</html>

**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>2.4.3</version>

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

</parent>

<groupId>com.example</groupId>

<artifactId>Authentication</artifactId>

<version>0.0.1-SNAPSHOT</version>

<name>Authentication</name>

<description>Test</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-web</artifactId>

</dependency>

<dependency>

<groupId>com.h2database</groupId>

<artifactId>h2</artifactId>

<scope>runtime</scope>

</dependency>

<dependency>

<groupId>mysql</groupId>

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

<scope>runtime</scope>

</dependency>

<dependency>

<groupId>org.projectlombok</groupId>

<artifactId>lombok</artifactId>

<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>

<configuration>

<excludes>

<exclude>

<groupId>org.projectlombok</groupId>

<artifactId>lombok</artifactId>

</exclude>

</excludes>

</configuration>

</plugin>

</plugins>

</build>

</project>