**Online Quiz Portal Using REST APIs**

***DESCRIPTION***

To create an online quiz portal with multiple REST APIs where users can browse different quizzes, attempt them, and find their scores and standings.

Application.properties file :

server.port=9090

spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver

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

spring.datasource.username=root

[spring.datasource.password=lingala@1928](mailto:spring.datasource.password=lingala@1928)

com.bean:

Admin.java:

package com.bean;

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class Admin {

@Id

private String email;

private String password;

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 "Admin [email=" + email + ", password=" + password + "]";

}

}

Participant.java:

package com.bean;

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class Participant {

@Id

private String email;

private int pid;

private String name;

private int age;

private String password;

public int getPid() {

return pid;

}

public void setPid(int pid) {

this.pid = pid;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public int getAge() {

return age;

}

public void setAge(int age) {

this.age = age;

}

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 "Participant [pid=" + pid + ", name=" + name + ", age=" + age + ", email=" + email + ", password="

+ password + "]";

}

}

Question.java:

package com.bean;

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class Question {

@Id

private int qid;

private String question;

private String optionA;

private String optionB;

private String optionC;

private String optionD;

private String correctanswer;

public int getQid() {

return qid;

}

public void setQid(int qid) {

this.qid = qid;

}

public String getQuestion() {

return question;

}

public void setQuestion(String question) {

this.question = question;

}

public String getOptionA() {

return optionA;

}

public void setOptionA(String optionA) {

this.optionA = optionA;

}

public String getOptionB() {

return optionB;

}

public void setOptionB(String optionB) {

this.optionB = optionB;

}

public String getOptionC() {

return optionC;

}

public void setOptionC(String optionC) {

this.optionC = optionC;

}

public String getOptionD() {

return optionD;

}

public void setOptionD(String optionD) {

this.optionD = optionD;

}

public String getCorrectanswer() {

return correctanswer;

}

public void setCorrectanswer(String correctanswer) {

this.correctanswer = correctanswer;

}

@Override

public String toString() {

return "Question [qid=" + qid + ", question=" + question + ", optionA=" + optionA + ", optionB=" + optionB

+ ", optionC=" + optionC + ", optionD=" + optionD + ", correctanswer=" + correctanswer + "]";

}

}

Quiz.java:

package com.bean;

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class Quiz {

@Id

private int qzid;

private String subject;

private int qid;

public int getQzid() {

return qzid;

}

public void setQzid(int qzid) {

this.qzid = qzid;

}

public String getSubject() {

return subject;

}

public void setSubject(String subject) {

this.subject = subject;

}

public int getQid() {

return qid;

}

public void setQid(int qid) {

this.qid = qid;

}

@Override

public String toString() {

return "Quiz [qzid=" + qzid + ", subject=" + subject + ", qid=" + qid + "]";

}

}

Score.java:

package com.bean;

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class Score {

@Id

private String email;

private String name;

private String subject;

private int score;

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 getSubject() {

return subject;

}

public void setSubject(String subject) {

this.subject = subject;

}

public int getScore() {

return score;

}

public void setScore(int score) {

this.score = score;

}

}

USerQuiz.java:

package com.bean;

import javax.persistence.Entity;

import javax.persistence.Id;

@Entity

public class Userquiz {

@Id

private int uqid;

private String email;

private int qzid;

private int qid;

private String usercorrectans;

public int getUqid() {

return uqid;

}

public void setUqid(int uqid) {

this.uqid = uqid;

}

public String getEmail() {

return email;

}

public void setEmail(String email) {

this.email = email;

}

public int getQzid() {

return qzid;

}

public void setQzid(int qzid) {

this.qzid = qzid;

}

public int getQid() {

return qid;

}

public void setQid(int qid) {

this.qid = qid;

}

public String getUsercorrectans() {

return usercorrectans;

}

public void setUsercorrectans(String usercorrectans) {

this.usercorrectans = usercorrectans;

}

}

Com.controller:

AdminController.java:

package com.controller;

import java.util.List;

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

import org.springframework.http.MediaType;

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

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

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

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

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

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

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

import com.bean.Admin;

import com.bean.Question;

import com.bean.Quiz;

import com.bean.Score;

import com.service.AdminService;

@RestController

@RequestMapping("admin")

public class AdminController {

@Autowired

AdminService adminService;

@PostMapping(value = "signIn")

public String checkAdmin(@RequestBody Admin ad) {

return adminService.CheckAdmin(ad);

}

@PatchMapping(value = "updatePassword",consumes = MediaType.APPLICATION\_JSON\_VALUE)

public String updatePassword(@RequestBody Admin ad) {

return adminService.updatePassword(ad);

}

@PostMapping(value = "addQuestion",consumes = MediaType.APPLICATION\_JSON\_VALUE)

public String addQuestion(@RequestBody Question qn) {

return adminService.addQuestion(qn);

}

@GetMapping(value = "questionbyID/{id}",produces = MediaType.APPLICATION\_JSON\_VALUE)

public Question findQuestionById(@PathVariable("id") int qid) {

return adminService.findQuestionById(qid);

}

@PostMapping(value = "addQuiz",consumes = MediaType.APPLICATION\_JSON\_VALUE)

public String addQuiz(@RequestBody Quiz qz) {

return adminService.addQuiz(qz);

}

@GetMapping(value = "getStandingPosition",produces = MediaType.APPLICATION\_JSON\_VALUE)

public List<Score> getstandingPosition() {

return adminService.getstandingPosition();

}

}

Participant.java:

package com.controller;

import java.util.List;

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

import org.springframework.http.MediaType;

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

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

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

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

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

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

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

import com.bean.Participant;

import com.bean.Question;

import com.bean.Quiz;

import com.bean.Score;

import com.bean.Userquiz;

import com.service.ParticipantService;

@RestController

@RequestMapping("participant")

public class ParticipantController {

@Autowired

ParticipantService participantService;

@PostMapping(value = "userRegister",consumes = MediaType.APPLICATION\_JSON\_VALUE)

public String userRegister(@RequestBody Participant pt) {

return participantService.userRegister(pt);

}

@PostMapping(value = "signIn")

public String checkUser(@RequestBody Participant pt) {

return participantService.checkUser(pt);

}

@PostMapping(value = "takeQuiz",consumes = MediaType.APPLICATION\_JSON\_VALUE)

public String takeQuiz(@RequestBody Userquiz uq) {

return participantService.takeQuiz(uq);

}

@GetMapping(value = "getResult/{email}",produces = MediaType.APPLICATION\_JSON\_VALUE)

public Score getResult(@PathVariable("email") String email) {

return participantService.getResult(email);

}

@GetMapping(value = "getAllQuiz",produces = MediaType.APPLICATION\_JSON\_VALUE)

public List<Quiz> getAllEmployeeInfoDB() {

return participantService.getAllQuiz();

}

}

Com.dao:

AdminDao.java:

package com.dao;

import java.util.List;

import javax.persistence.EntityManager;

import javax.persistence.EntityManagerFactory;

import javax.persistence.EntityTransaction;

import javax.persistence.Query;

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

import org.springframework.stereotype.Repository;

import com.bean.Admin;

import com.bean.Question;

import com.bean.Quiz;

import com.bean.Score;

@Repository

public class AdminDao {

@Autowired

EntityManagerFactory emf;

public Admin getAdminDetails(String email) {

EntityManager manager = emf.createEntityManager();

Admin ad = manager.find(Admin.class, email);

return ad;

}

public Question getQestionDetails(int qid) {

EntityManager manager = emf.createEntityManager();

Question qn = manager.find(Question.class, qid);

return qn;

}

public int checkAdmin(Admin ad) {

EntityManager manager = emf.createEntityManager();

Admin a = manager.find(Admin.class, ad.getEmail());

if(a==null) {

return 0;

}

else {

String pass=ad.getPassword();

if(pass.equals(a.getPassword())) {

return 1;

}

return 0;

}

}

public int updatePassword(Admin ad) {

EntityManager manager = emf.createEntityManager();

EntityTransaction tran = manager.getTransaction();

Admin e = manager.find(Admin.class, ad.getEmail());

if(e==null) {

return 0;

}

else {

e.setPassword(ad.getPassword());

tran.begin();

manager.merge(e);

tran.commit();

return 1;

}

}

public int addQuestion(Question qn) {

try {

EntityManager manager = emf.createEntityManager();

EntityTransaction tran = manager.getTransaction();

tran.begin();

manager.persist(qn);

tran.commit();

return 1;

} catch (Exception e) {

// TODO: handle exception

System.out.println(e);

return 0;

}

}

public int addQuiz(Quiz qz) {

try {

EntityManager manager = emf.createEntityManager();

EntityTransaction tran = manager.getTransaction();

tran.begin();

manager.persist(qz);

tran.commit();

return 1;

} catch (Exception e) {

// TODO: handle exception

System.out.println(e);

return 0;

}

}

public List<Score> getstandingPosition(){

EntityManager manager = emf.createEntityManager();

Query qry = manager.createQuery("select s.email,s.subject,s.score FROM Score s ORDER BY s.score DESC");//JPQL

List<Score> list = qry.getResultList();

return list;

}

}

ParticipantDao.java:

package com.dao;

import java.util.List;

import javax.persistence.EntityManager;

import javax.persistence.EntityManagerFactory;

import javax.persistence.EntityTransaction;

import javax.persistence.Query;

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

import org.springframework.stereotype.Repository;

import com.bean.Admin;

import com.bean.Participant;

import com.bean.Question;

import com.bean.Quiz;

import com.bean.Score;

import com.bean.Userquiz;

@Repository

public class ParticipantDao {

@Autowired

EntityManagerFactory emf;

public int userRegister(Participant pt) {

try {

EntityManager manager = emf.createEntityManager();

EntityTransaction tran = manager.getTransaction();

tran.begin();

manager.persist(pt);

tran.commit();

return 1;

} catch (Exception e) {

// TODO: handle exception

System.out.println(e);

return 0;

}

}

public int checkUser(Participant pt) {

EntityManager manager = emf.createEntityManager();

Participant p = manager.find(Participant.class, pt.getEmail());

if(p==null) {

return 0;

}

else {

String pass=pt.getPassword();

if(pass.equals(p.getPassword())) {

return 1;

}

return 0;

}

}

public int takeQuiz(Userquiz uq) {

try {

EntityManager manager = emf.createEntityManager();

EntityTransaction tran = manager.getTransaction();

tran.begin();

manager.persist(uq);

Score s = manager.find(Score.class, uq.getEmail());

Question q = manager.find(Question.class, uq.getQid());

Quiz qz = manager.find(Quiz.class, uq.getQzid());

String res = uq.getUsercorrectans();

if(res.equals(q.getCorrectanswer())) {

s.setEmail(uq.getEmail());

s.setSubject(qz.getSubject());

s.setScore(s.getScore()+1);

}

tran.commit();

return 1;

} catch (Exception e) {

// TODO: handle exception

System.out.println(e);

return 0;

}

}

public Score getResult(String email) {

EntityManager manager = emf.createEntityManager();

Score s = manager.find(Score.class, email);

return s;

}

public List<Quiz> getAllQuiz(){

EntityManager manager = emf.createEntityManager();

Query qry = manager.createQuery("select q from Quiz q");//JPQL

List<Quiz> list = qry.getResultList();

return list;

}

}

com.service:

AdminService.java:

package com.service;

import java.util.List;

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

import org.springframework.stereotype.Service;

import com.bean.Admin;

import com.bean.Question;

import com.bean.Quiz;

import com.bean.Score;

import com.dao.AdminDao;

@Service

public class AdminService {

@Autowired

AdminDao adminDao;

public String CheckAdmin(Admin ad) {

if(adminDao.checkAdmin(ad)>0) {

return "Admin Login Successful";

}

else {

return "Failure! Provide Correct Credentials!";

}

}

public String updatePassword(Admin ad) {

Admin a = adminDao.getAdminDetails(ad.getEmail());

if(a==null) {

return "Admin details not present, cannot be updated";

}

else if(adminDao.updatePassword(ad)>0) {

return "Password Updated";

}else {

return "Password Not Updated";

}

}

public String addQuestion(Question qn) {

if(adminDao.addQuestion(qn)>0) {

return "Question Added Successfully";

}

else {

return "Question didnt added";

}

}

public String addQuiz(Quiz qz) {

if(adminDao.addQuiz(qz)>0) {

return "Quiz Created Successfully";

}

else {

return "Question didnt created";

}

}

public Question findQuestionById(int qid) {

return adminDao.getQestionDetails(qid);

}

public List<Score> getstandingPosition(){

return adminDao.getstandingPosition();

}

}

ParticipantService.java:

package com.service;

import java.util.List;

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

import org.springframework.stereotype.Service;

import com.bean.Admin;

import com.bean.Participant;

import com.bean.Question;

import com.bean.Quiz;

import com.bean.Score;

import com.bean.Userquiz;

import com.dao.ParticipantDao;

@Service

public class ParticipantService {

@Autowired

ParticipantDao participantDao;

public String userRegister(Participant pt) {

if(participantDao.userRegister(pt)>0) {

return "User Registration Successful";

}

else {

return "User Registration Failure";

}

}

public String checkUser(Participant pt) {

if(participantDao.checkUser(pt)>0) {

return "Participant Login Successful";

}

else {

return "Failure! Provide Correct Credentials!";

}

}

public String takeQuiz(Userquiz uq) {

if(participantDao.takeQuiz(uq)>0) {

return "Quiz Attempted Successfully";

}

else {

return "Try Again!";

}

}

public Score getResult(String email) {

return participantDao.getResult(email);

}

public List<Quiz> getAllQuiz(){

return participantDao.getAllQuiz();

}

}

OnlineQuizProtalApplication:

package com;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import org.springframework.boot.autoconfigure.domain.EntityScan;

import org.springframework.data.jpa.repository.config.EnableJpaRepositories;

@SpringBootApplication(scanBasePackages = "com")

@EntityScan(basePackages = "com.bean")

public class OnlineQuizPortalApplication {

public static void main(String[] args) {

SpringApplication.run(OnlineQuizPortalApplication.class, args);

System.out.println("Server Up!!!");

}

}

Test:

OnlineQuizProtalApplicationTest:

package com;

import org.junit.jupiter.api.Test;

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

@SpringBootTest

class OnlineQuizPortalApplicationTests {

@Test

void contextLoads() {

}

}

Pom.xml:

<?xml version="1.0" encoding="UTF-8"?>

-<project xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-4.0.0.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://maven.apache.org/POM/4.0.0">

<modelVersion>4.0.0</modelVersion>

-<parent>

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

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

<version>2.6.11</version>

<relativePath/>

<!-- lookup parent from repository -->

</parent>

<groupId>com.example</groupId>

<artifactId>OnlineQuizPortal</artifactId>

<version>0.0.1-SNAPSHOT</version>

<name>OnlineQuizPortal</name>

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

-<properties>

<java.version>11</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>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>

</dependencies>

-<build>

-<plugins>

-<plugin>

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

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

</plugin>

</plugins>

</build>

</project>­­­­­­

***RESULTS:***

