Online Quiz Portal Using REST APIs

This document contains section for

- Sprint planning and Task completion
- Core concept used in project
- Flow of the Application
- Demonstrating the product capabilities, appearance and user interaction
- Conclusion

The code for this project is hosted at https://github.com/Prateekdu/Phase-1-Practice-Project.git

The project is developed by **Prateek Dubey**.

Sprints planning and Task completion

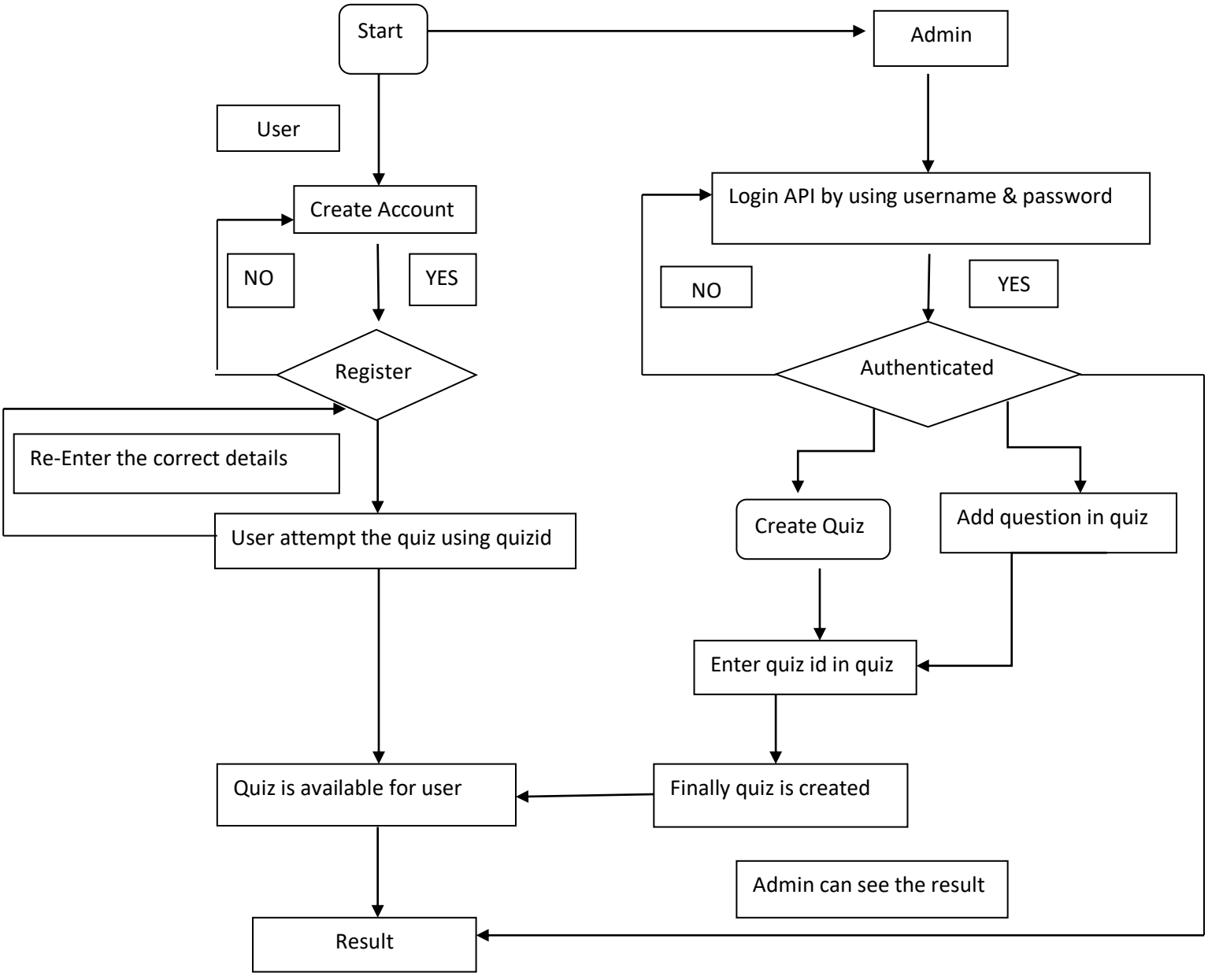
The project is planned to be completed in 1 sprint .Task assumed to be completed in the sprint are:

- Creating the flow of the application
- Initialization git repository to track changes as development progresses.
- Writing the java program to fulfill the requirements of the project.
- Testing the java program with different kinds of user input.
- Pushing code to GitHub.
- Creating this specification document highlighting application capabilities, appearance ,and user interactions.

Concepts used in project

- MYSQL
- Spring Boot
- Hibernate
- Rest API
- Tool → Postman

Flow of the Application



Code

OnlineQuizApplication.java

```
package com;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

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

@SpringBootApplication(scanBasePackages = "com")

@EntityScan(basePackages = "com.bean")

public class OnlineQuizApplication {

	public static void main(String[] args) {

		SpringApplication.run(OnlineQuizApplication.class, args);

		System.out.println("Quiz Server Started");

	}

}
```

Com.controller

Quiz.Controller.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.PathVariable;

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.AdminLogin;
```

```
import com.bean.Participants;

import com.bean.Questions;

import com.bean.Quiz;

import com.bean.UserQuiz;

import com.service.QuizService;

@RestController

public class QuizController {

	@Autowired

	QuizService quizService;

		// http://localhost:8080/checkAdmin/

	@RequestMapping(value = "checkAdmin/{emailid}/{password}",method=RequestMethod.POST)

	public String checkAdminLogin(@PathVariable("emailid") String emailid,@PathVariable("password")
String password) {

		//List<AdminLogin> listAdmin = quizservice.checkadminDetails();

		if(emailid.equals("Prateek@quiz.in") && password.equals("12345"))

		 {				return "Admin logged in successfully";

		}

		else {

			return "Admin Not Found";

		}

	}

		// http://localhost:8080/signUp/

	@RequestMapping(value = "signUp",method=RequestMethod.POST,consumes =
MediaType.APPLICATION_JSON_VALUE)

		public String signUp(@RequestBody Participants pt) {

		return quizService.storeParticipant(pt);

		}

		// http://localhost:8080/checkParticipants/
```

```
@RequestMapping(value = "checkParticipants/{emailid}/{password}",method=RequestMethod.POST)
		public String checkParticipantsLogin(@PathVariable("emailid") String emailid,@PathVariable("password") String password) {
			List<Participants> listOfParticipants = quizService.getAllParticipants();
			Participants s = listOfParticipants.get(0);
			if(s.equals(emailid) && s.equals(password)) {
				return "Paticipant logged in successfully";
			}
			else {
				return "Paticipant Not Found";
			}
		}
			//http://localhost:8080/getAllParticipants/
		@RequestMapping(value = "getAllParticipants",method=RequestMethod.GET,consumes = MediaType.APPLICATION_JSON_VALUE)
		public List<Participants> getAllParticipants() {
			return quizService.getAllParticipants();
		}
		//http://localhost:8080/addQuestion/
		@RequestMapping(value = "addQuestion",method=RequestMethod.POST,consumes = MediaType.APPLICATION_JSON_VALUE)
		public String addQuestion(@RequestBody Questions q) {
			return quizService.storeQuestion(q);
		}
		// http://localhost:8080/findQuestionsById/1
		@RequestMapping(value = "findQuestionsById/{qid}",method = RequestMethod.GET,produces = MediaType.APPLICATION_JSON_VALUE)
		public Questions findQuestionsByIdUsingPathParam(@PathVariable("qid") int id) {
			return quizService.findQuestions(id);
```

```
		}

		//check this

		//http://localhost:8080/createQuiz/

		@RequestMapping(value = "createQuiz",method=RequestMethod.POST,consumes =
MediaType.APPLICATION_JSON_VALUE)

		public String createQuiz(@RequestBody Quiz qu) {

			return quizService.createQuiz(qu);

		}



		//http://localhost:8080/takeQuiz/

		@RequestMapping(value = "takeQuiz",method=RequestMethod.POST,consumes =
MediaType.APPLICATION_JSON_VALUE)

		public String takeQuizQuiz(@RequestBody UserQuiz uq) {

			return quizService.takeQuiz(uq);

		}

				//http://localhost:8080/checkResult/

		@RequestMapping(value = "checkResult",method=RequestMethod.GET,consumes =
MediaType.APPLICATION_JSON_VALUE)

		public String checkResult() {

			return quizService.checkResult();

		}

}
```

Com.bean

AdminLogin.java

```
package com.bean;

import javax.persistence.Entity;
```

```
import javax.persistence.Id;

@Entity

public class AdminLogin {

	@Id

	private String emailid;

	private String password;

	public String getEmailid() {

		return emailid;

	}

	public void setEmailid(String emailid) {

		this.emailid = emailid;

	}

	public String getPassword() {

		return password;

	}

	public void setPassword(String password) {

		this.password = password;

	}

	@Override

	public String toString() {

		return "AdminLogin [emailid=" + emailid + ", password=" + password + "]";

	}

}
```

Participants.java

```
package com.bean;

import javax.persistence.Entity;

import javax.persistence.Id;
```

```
import javax.persistence.Table;
@Entity
@Table(name="participants")
public class Participants {
	@Id
	private String emailid;
	private String name;
	private String password;
	private String phoneno;

	public String getEmailid() {
		return emailid;
	}
	public void setEmailid(String emailid) {
		this.emailid = emailid;
	}
	public String getName() {
		return name;
	}
	public void setName(String name) {
		this.name = name;
	}
	public String getPassword() {
		return password;
	}
	public void setPassword(String password) {
		this.password = password;
```

```
	}
	public String getPhoneno() {
		return phoneno;
	}
	public void setPhoneno(String phoneno) {
		this.phoneno = phoneno;
	}
	@Override
	public String toString() {
		return "Participants [emailid=" + emailid + ", name=" + name + ", password=" + password + ",
phoneno=" + phoneno
				+ "]";
	}
}
```

Questions.java

```
package com.bean;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.GenerationType;
import javax.persistence.Id;
@Entity
public class Questions {
	@Id
	@GeneratedValue(strategy=GenerationType.IDENTITY)
	private int qid;
	private String question;
	private String a;
```

```
private String b;

private String c;

private String d;

private String correctanswer;

public String getQuestion() {

        return question;

}

public void setQuestion(String question) {

        this.question = question;

}

public String getA() {

        return a;

}

public void setA(String a) {

        this.a = a;

}

public String getB() {

        return b;

}

public void setB(String b) {

        this.b = b;

}

public String getC() {

        return c;

}

public void setC(String c) {

        this.c = c;
```

```
	}
	public String getD() {
		return d;
	}
	public void setD(String d) {
		this.d = d;
	}
	public String getCorrectanswer() {
		return correctanswer;
	}
	public void setCorrectanswer(String correctanswer) {
		this.correctanswer = correctanswer;
	}
	public int getQid() {
		return qid;
	}
	@Override
	public String toString() {
		return "Questions [qid=" + qid + ", question=" + question + ", a=" + a + ", b=" + b + ", c=" + c + ",
d=" + d
				+ ", correctanswer=" + correctanswer + "]";
	}
}
```

Quiz.java

```
package com.bean;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
```

```
import javax.persistence.GenerationType;
import javax.persistence.Id;
import javax.persistence.JoinColumn;
import javax.persistence.OneToMany;
@Entity
public class Quiz {
	@Id
	@GeneratedValue(strategy=GenerationType.IDENTITY)
	private int selfId;
	private int quizid;
	private String title;
	//@OneToMany
	//@JoinColumn(name = "qid")
	private int qid;
	public int getSelfid() {
		return selfId;
	}
	public void setSelfId(int quizid) {
		this.selfId = selfId;
	}
	public int getQuizid() {
		return quizid;
	}
	public void setQuizid(int quizid) {
		this.quizid = quizid;
	}
	public String getTitle() {
```

```
		return title;
	}
	public void setTitle(String title) {
		this.title = title;
	}
	public int getQid() {
		return qid;
	}
	public void setQid(int qid) {
		this.qid = qid;
	}
	@Override
	public String toString() {
		return "Quiz [quizid=" + quizid + ", title=" + title + ", qid=" + qid + "]";
	}
}
```

UserQuiz.java

```
package com.bean;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.GenerationType;
import javax.persistence.Id;
import javax.persistence.Table;
@Entity
@Table(name = "userquiz")
public class UserQuiz {
	@Id
```

```
@GeneratedValue(strategy=GenerationType.IDENTITY)
private int userid;
private String emailid;
private int quizid;
private int qid;
private String correctuseranswer;


public String getEmailid() {
		return emailid;
}
public void setEmailid(String emailid) {
		this.emailid = emailid;
}
public int getQuizid() {
		return quizid;
}
public void setQuizid(int quizid) {
		this.quizid = quizid;
}
public int getQid() {
		return qid;
}
public void setQid(int qid) {
		this.qid = qid;
}
public String getCorrectuseranswer() {
		return correctuseranswer;
```

```
	}
	public void setCorrectuseranswer(String correctuseranswer) {
		this.correctuseranswer = correctuseranswer;
	}
	public int getUserid() {
		return userid;
	}
	@Override
	public String toString() {
		return "UserQuiz [userid=" + userid + ", emailid=" + emailid + ", quizid=" + quizid + ", qid=" + qid
				+ ", correctuseranswer=" + correctuseranswer + "]";
	}
	public UserQuiz() {
		super();
		// TODO Auto-generated constructor stub
	}
}
```

Com.dao

QuizDao.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 javax.transaction.Transaction;
```

```
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Repository;
import com.bean.Participants;
import com.bean.Questions;
import com.bean.Quiz;
import com.bean.UserQuiz;
@Repository
public class QuizDao {
	@Autowired
	EntityManagerFactory emf;
	public int partipantSignUp(Participants pt) {
		try {
			EntityManager manager = emf.createEntityManager();
			EntityTransaction tran = manager.getTransaction();
			tran.begin();
			manager.persist(pt);
			tran.commit();
			return 1;
		} catch (Exception e) {
		System.out.println(e);
		return 0;
		}
	}
		public List<Participants> partipantLoginIn() {
		EntityManager manag = emf.createEntityManager();
		Query qry = manag.createQuery("select pt from Participants pt");		// JPQL
		List<Participants> listOfParticipants = qry.getResultList();
```

```
		return listOfParticipants;
	}
		public int addQuestion(Questions q) {
		try {
			EntityManager manager = emf.createEntityManager();
			EntityTransaction tran = manager.getTransaction();
			tran.begin();
				manager.persist(q);
			tran.commit();
			return 1;
		} catch (Exception e) {
		System.out.println(e);
		return 0;
		}
	}

	public Questions findQuestions(int qid){
		EntityManager manager = emf.createEntityManager();
	// Session in Hibernate
		Questions q = manager.find(Questions.class, qid);                                    //
session.get(Employee.class,id)
		return q;
	}

	public int createQuiz(Quiz qu) {
		try {
			EntityManager manager = emf.createEntityManager();
			EntityTransaction tran = manager.getTransaction();
```

```
                tran.begin();
                        manager.persist(qu);
                tran.commit();
                return 1;
            } catch (Exception e) {
            System.out.println(e);
            return 0;
            }
        }
            public int takeQuiz(UserQuiz uq) {
            try {
                EntityManager manager = emf.createEntityManager();
                EntityTransaction tran = manager.getTransaction();
                tran.begin();
                        manager.persist(uq);
                tran.commit();
                return 1;
            } catch (Exception e) {
            System.out.println(e);
            return 0;
            }
        }
        public String checkResult() {
            EntityManager manag = emf.createEntityManager();
            Query qry = manag.createQuery("select count(uq.userid) from Questions q,UserQuiz uq where
q.correctanswer = uq.correctuseranswer");
            List result1 = qry.getResultList();
```

```
		Query qry1 = manag.createQuery("select uq.emailid from Questions q,UserQuiz uq where
q.correctanswer = uq.correctuseranswer");

		List result2 = qry1.getResultList();

		result2.addAll(result1);

		String s = "Emailid  : " + result2.get(0) + "Score : " + result2.get(1);

		return s;

	}

	}
```

com.service

QuizService.java

```
package com.service;

import java.util.List;

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

import org.springframework.stereotype.Service;

import com.bean.Participants;

import com.bean.Questions;

import com.bean.Quiz;

import com.bean.UserQuiz;

import com.dao.QuizDao;

@Service

public class QuizService {


	@Autowired

	QuizDao quizDao;

		public String storeParticipant(Participants pt) {

		if(quizDao.partipantSignUp(pt) > 0) {

			return "Participant data Stored Successfully";
```

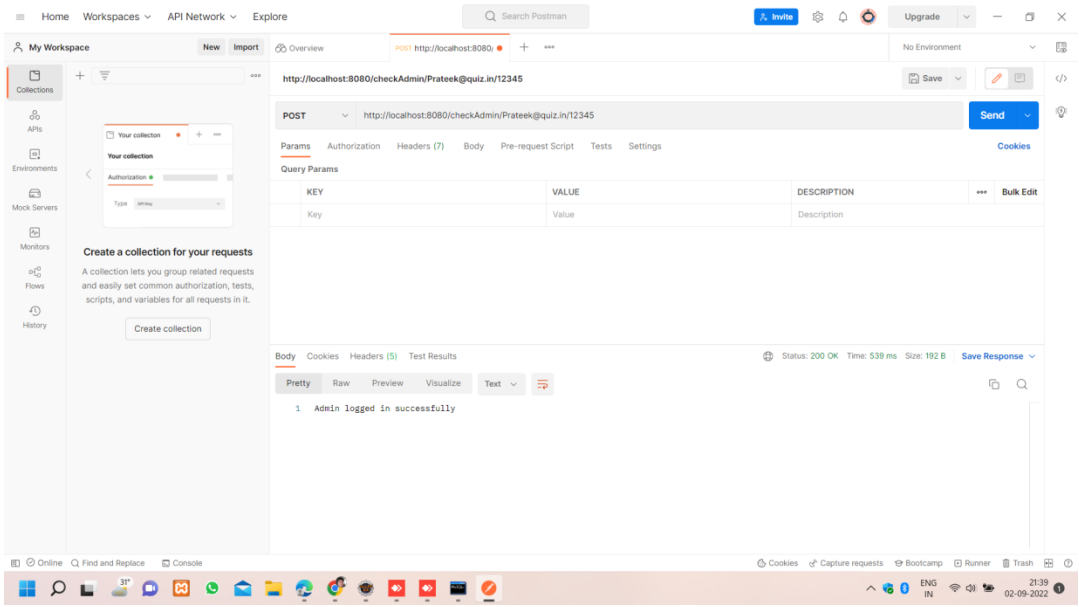
```
		}
		else {
			return "Data didn't store";
		}
	}

	public List<Participants> getAllParticipants() {
		return quizDao.partipantLoginIn();
		}
		public String storeQuestion(Questions q) {
		if(quizDao.addQuestion(q) > 0) {
			return "Question added Successfully";
		}
		else {
			return "Question didn't add";
		}
	}
	public Questions findQuestions(int qid) {
		return quizDao.findQuestions(qid);
	}
	public String createQuiz(Quiz qu) {
		if(quizDao.createQuiz(qu) > 0) {
			return "Quiz created Successfully";
		}
		else {
			return "Quiz didn't created";
		}
```

```
	}
	public String takeQuiz(UserQuiz uq) {
		if(quizDao.takeQuiz(uq) > 0) {
			return "UserQuiz created Successfully";
		}
		else {
			return "UserQuiz didn't created";
		}
	}
	public String checkResult() {
		return quizDao.checkResult();
		}
}
```

Output

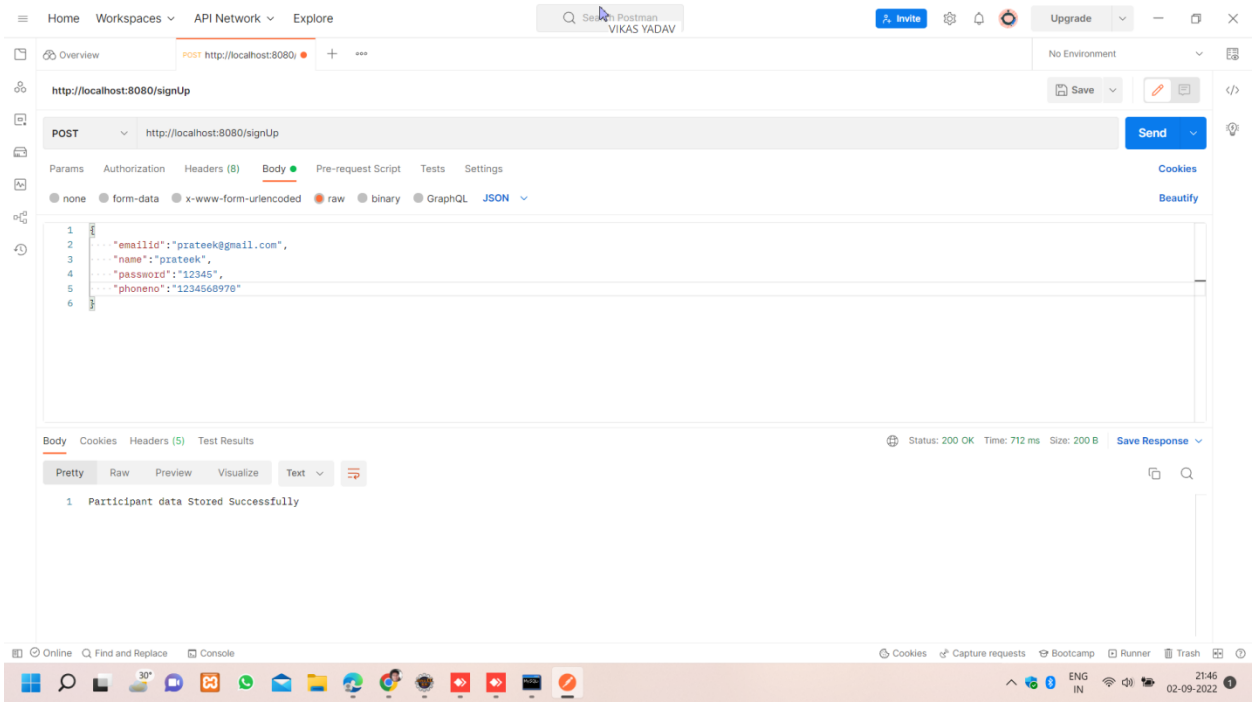
http://localhost:8080/checkAdmin/

This Url for checkAdmin in Postman tool



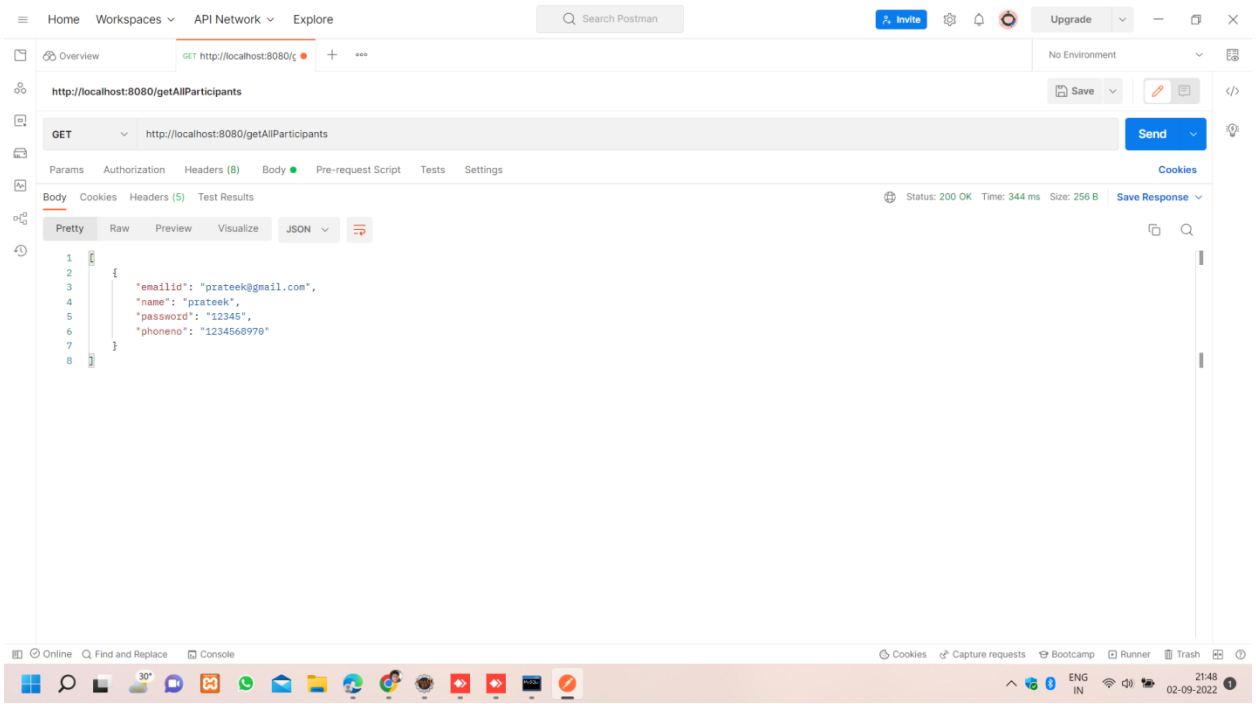
http://localhost:8080/signUp/

This URL shows that the participants signup in Online quiz portal.



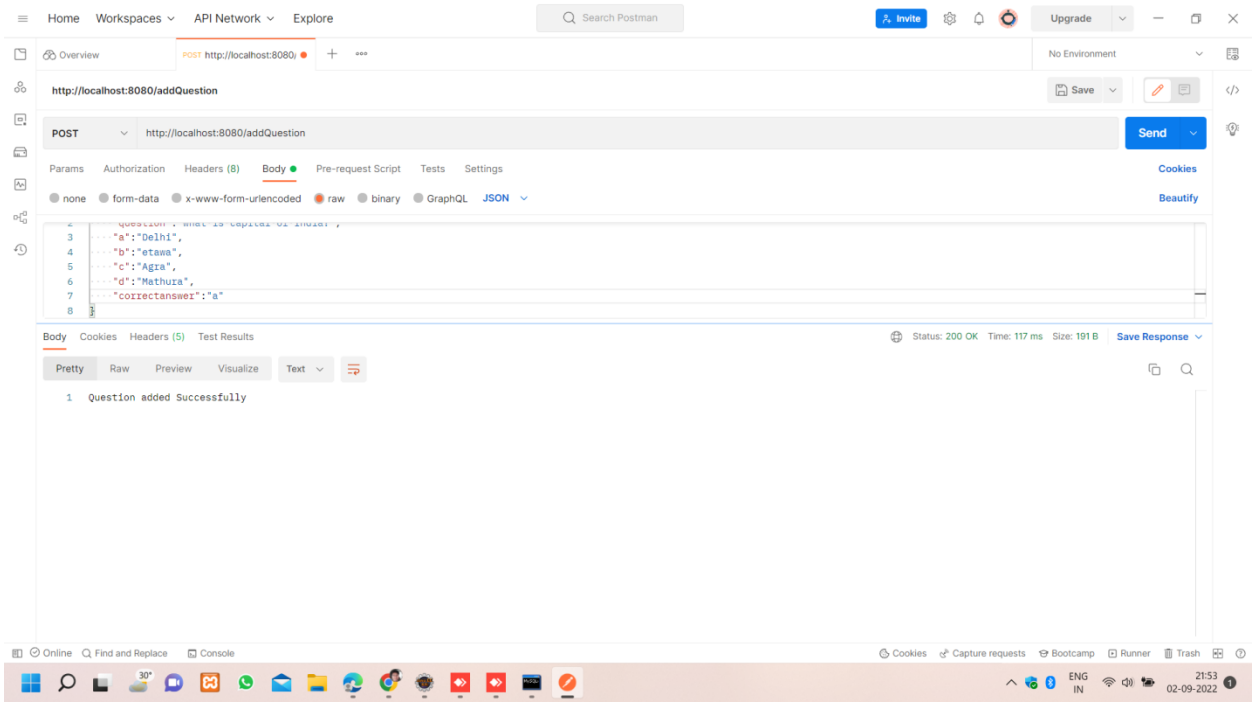
http://localhost:8080/getAllParticipants

This URL shows all the participants signup in Online quiz portal

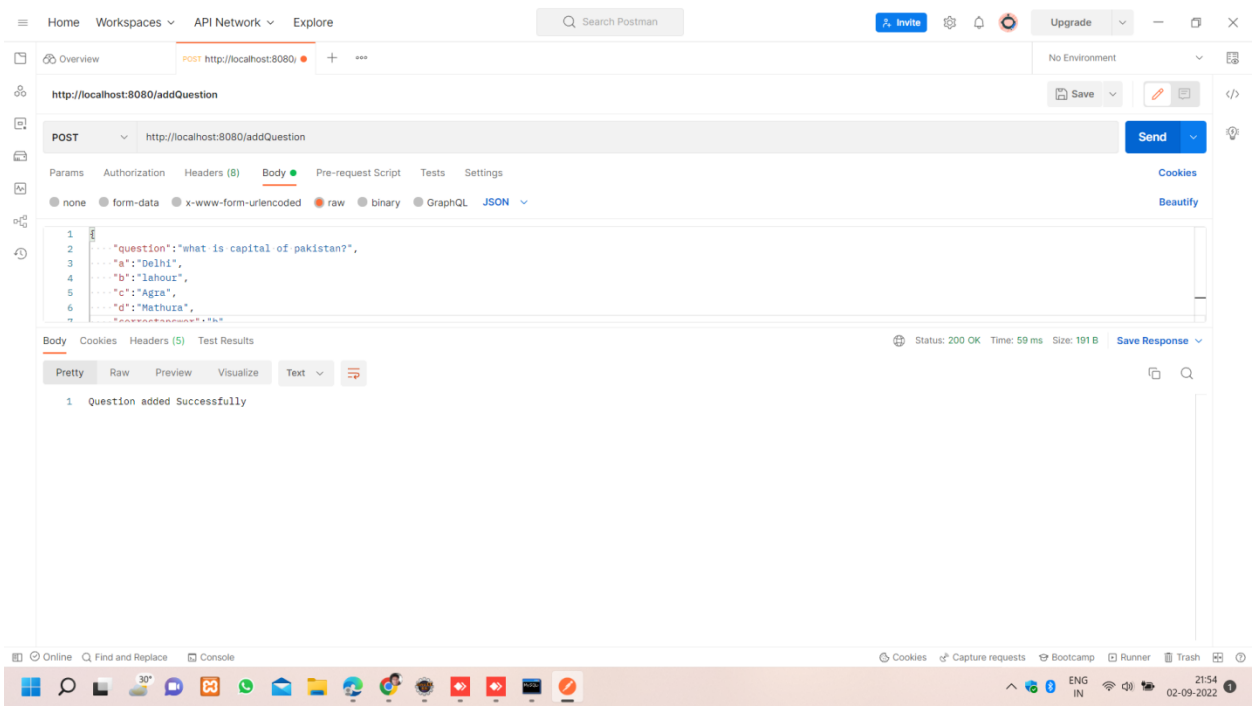


http://localhost:8080/addQuestion/

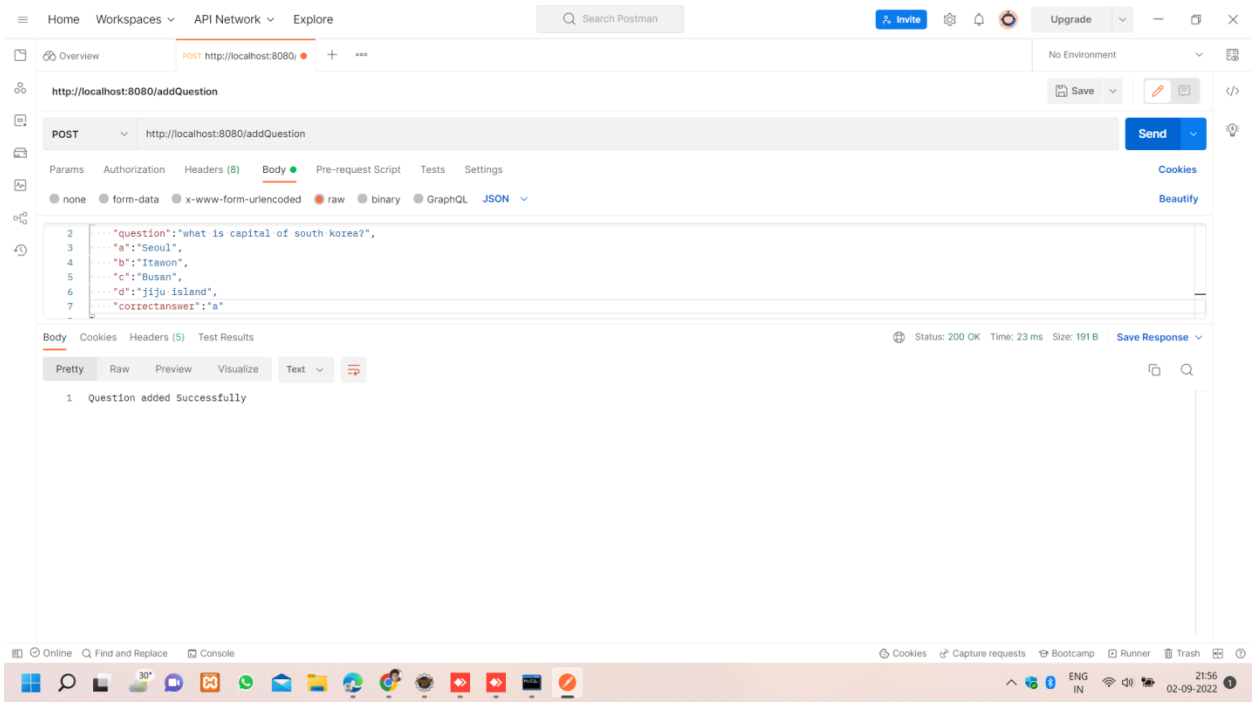
This URL shows that the add question in Online quiz portal.



First question inserted.



Second question inserted

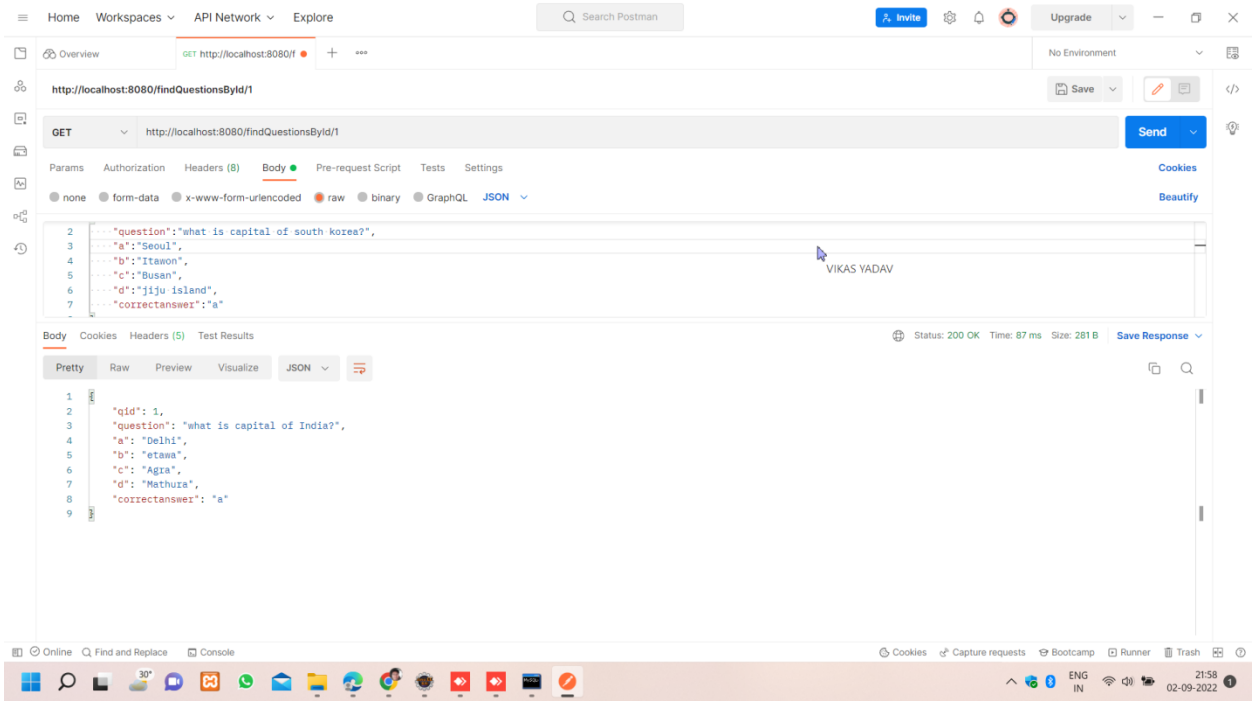


Third question inserted

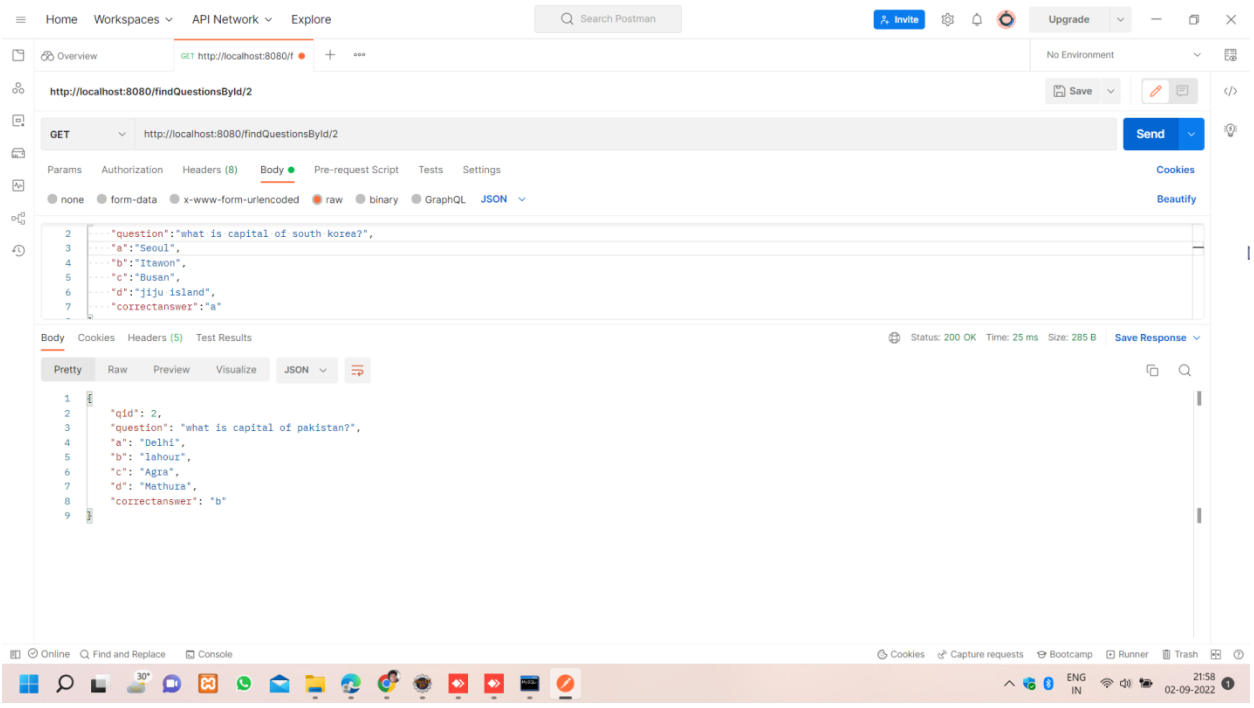
http://localhost:8080/findQuestionsById/1

This URL find question using by Id

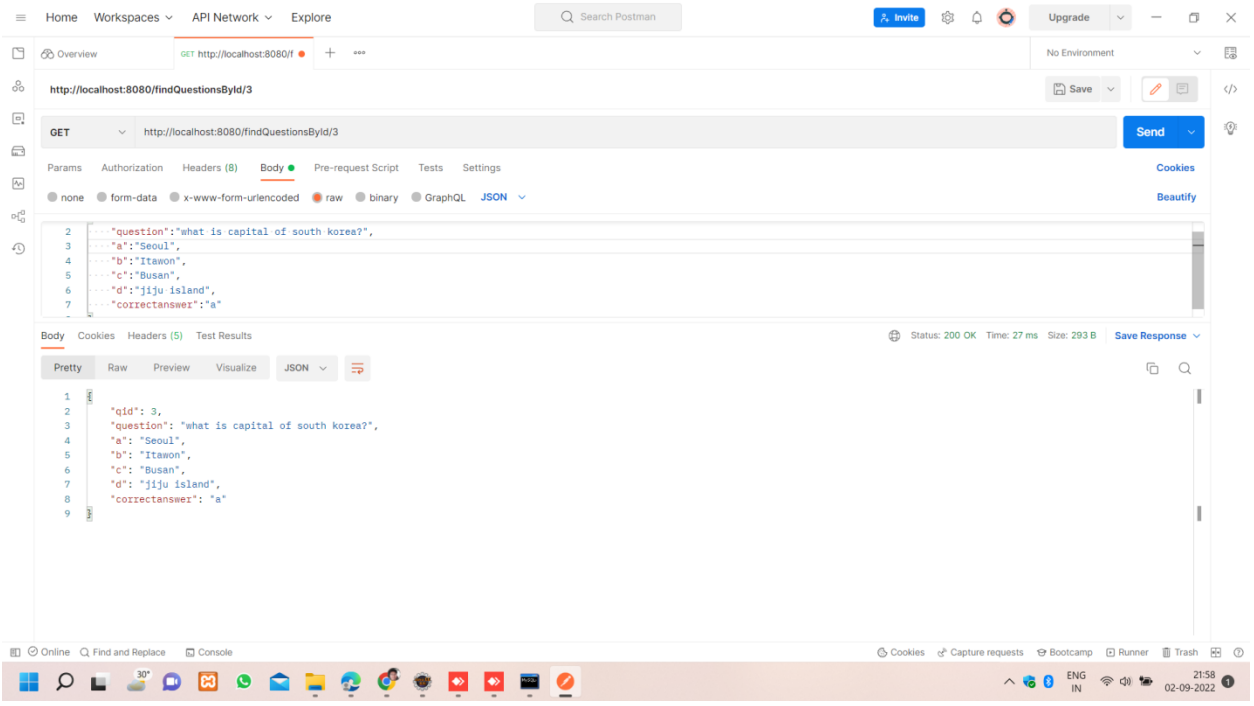
If you enter this Id=1 then you will get this output



If you enter this Id=2 then you will get this output



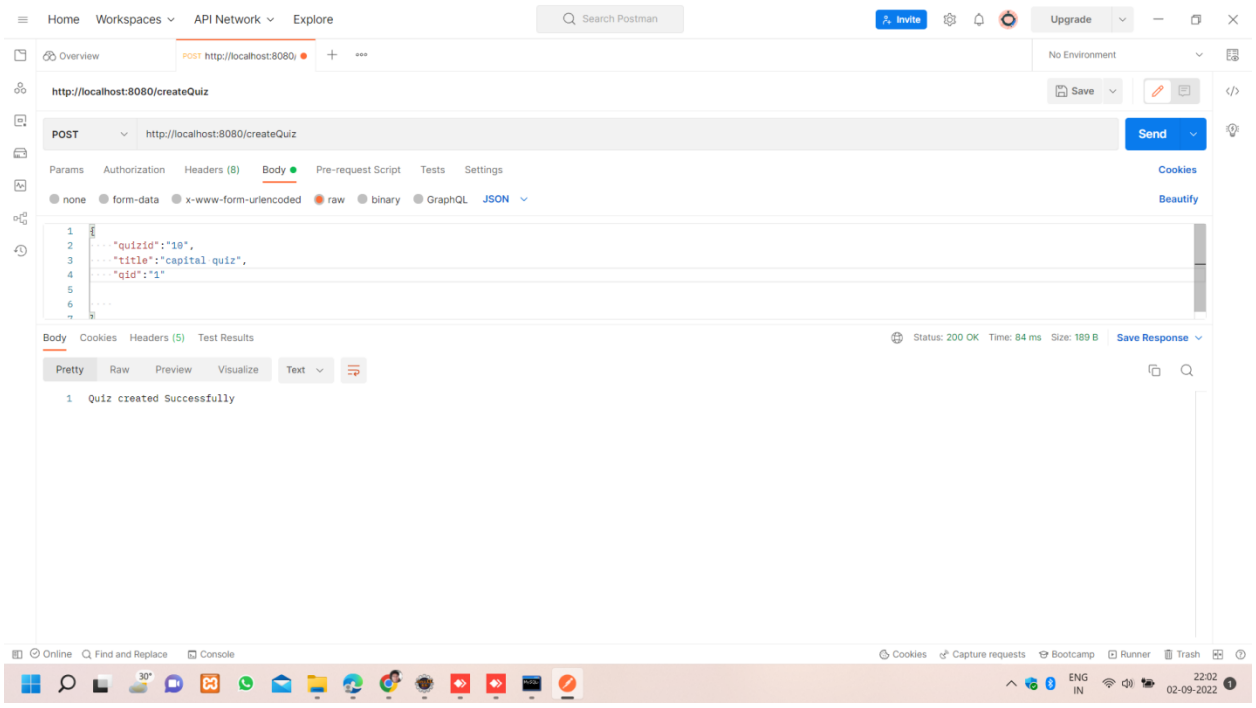
If you enter this Id=3 then you will get this output



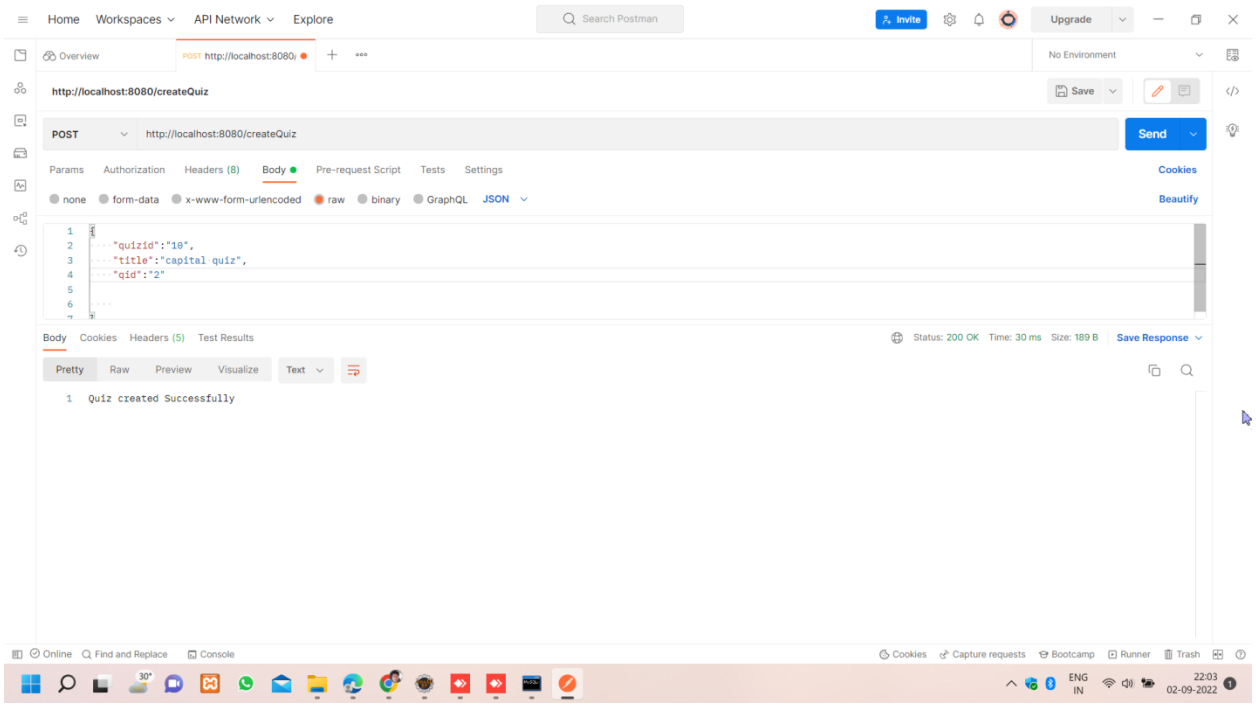
http://localhost:8080/createQuiz/

This url create quiz by using quiz id . Quiz id is unique and in this quiz we added questions by using question id

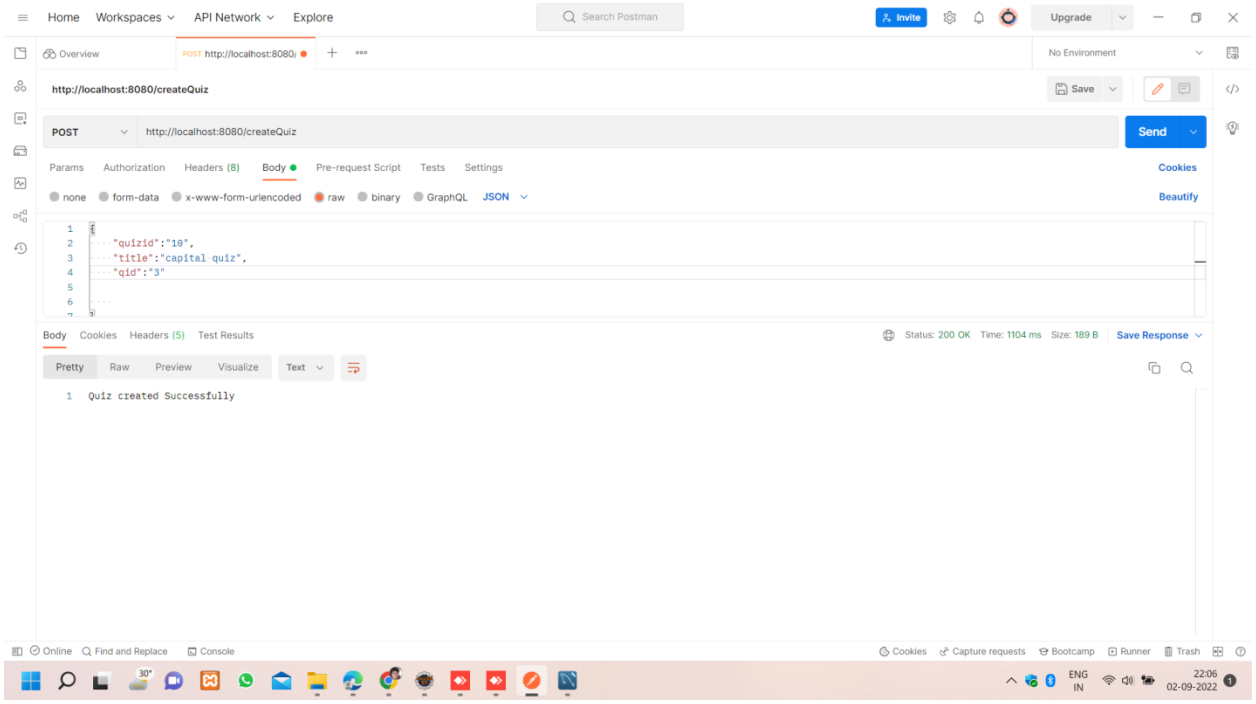
If you enter this qId=1 then you will get this output



If you enter this qId=2 then you will get this output

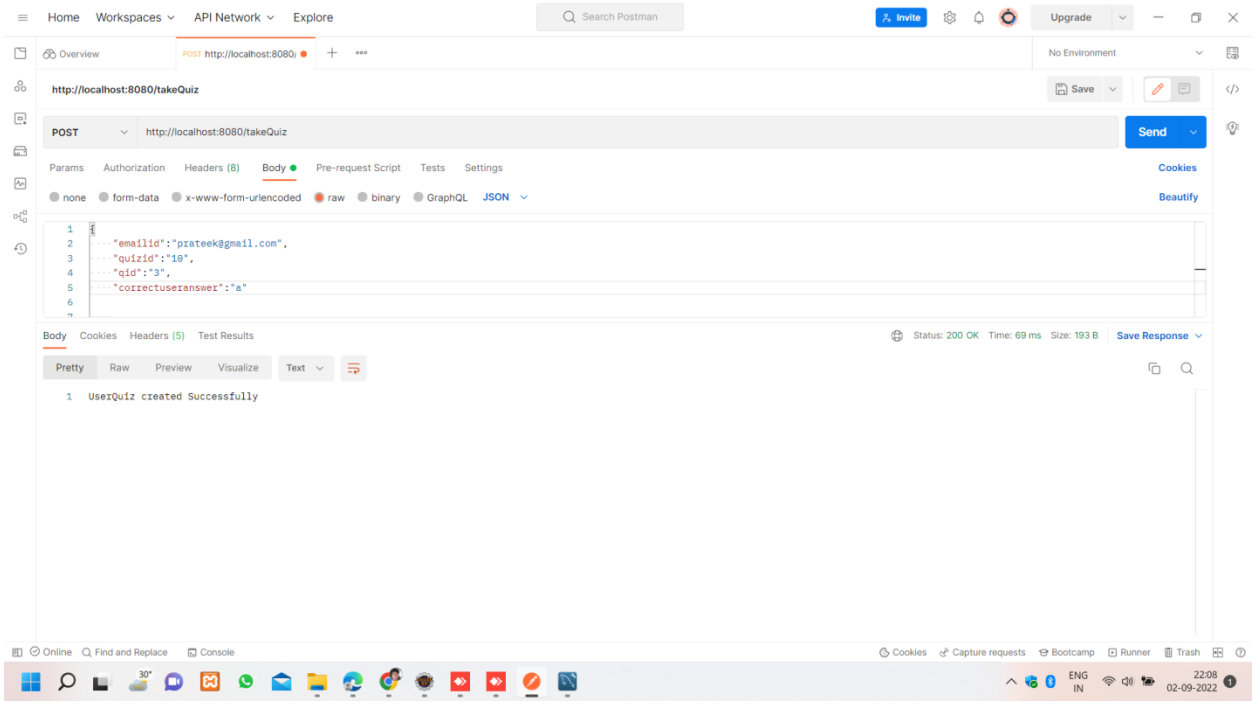


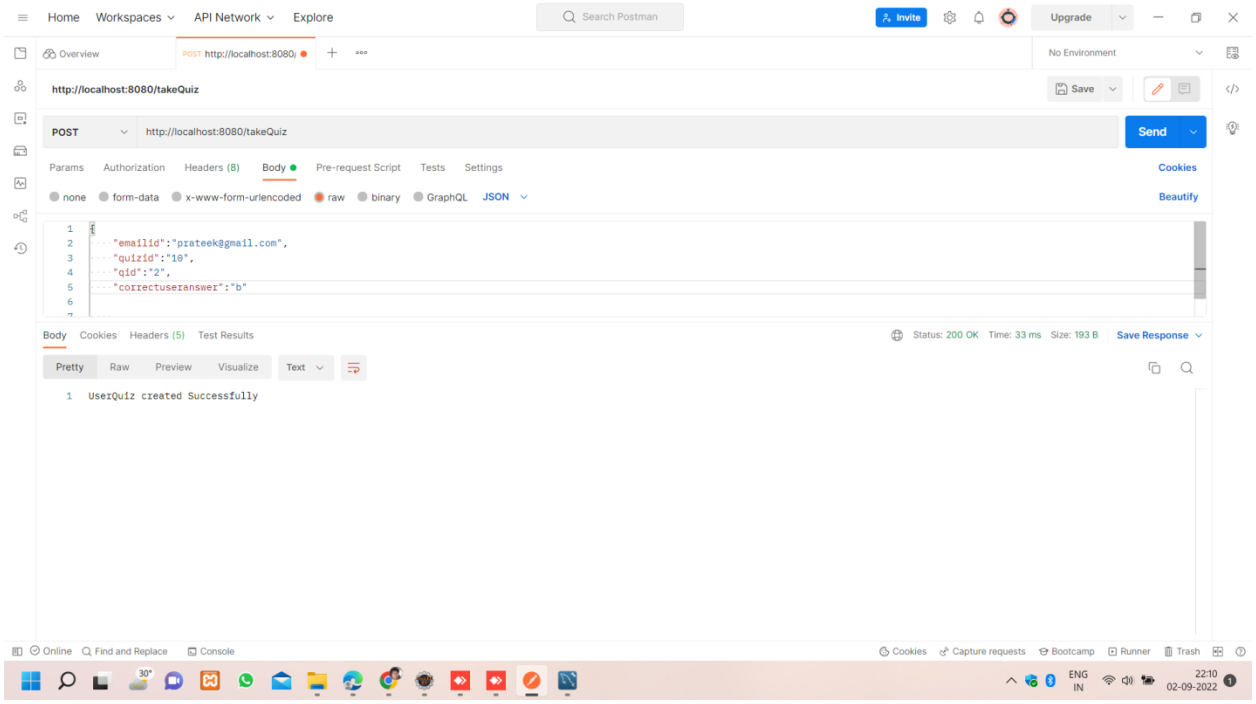
If you enter this qId=3 then you will get this output

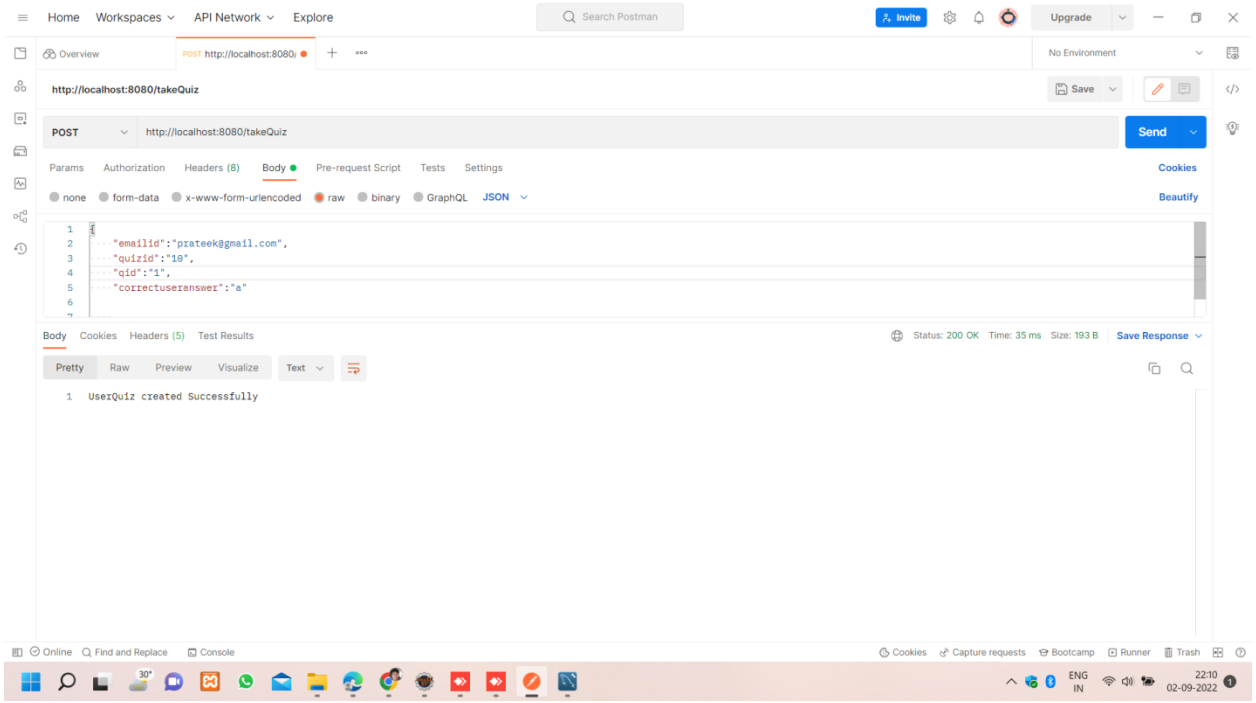


http://localhost:8080/takeQuiz/

when the participant gives the quiz , he/she will enter their email id , question id , quiz id and correct answer of the question inside the quiz.

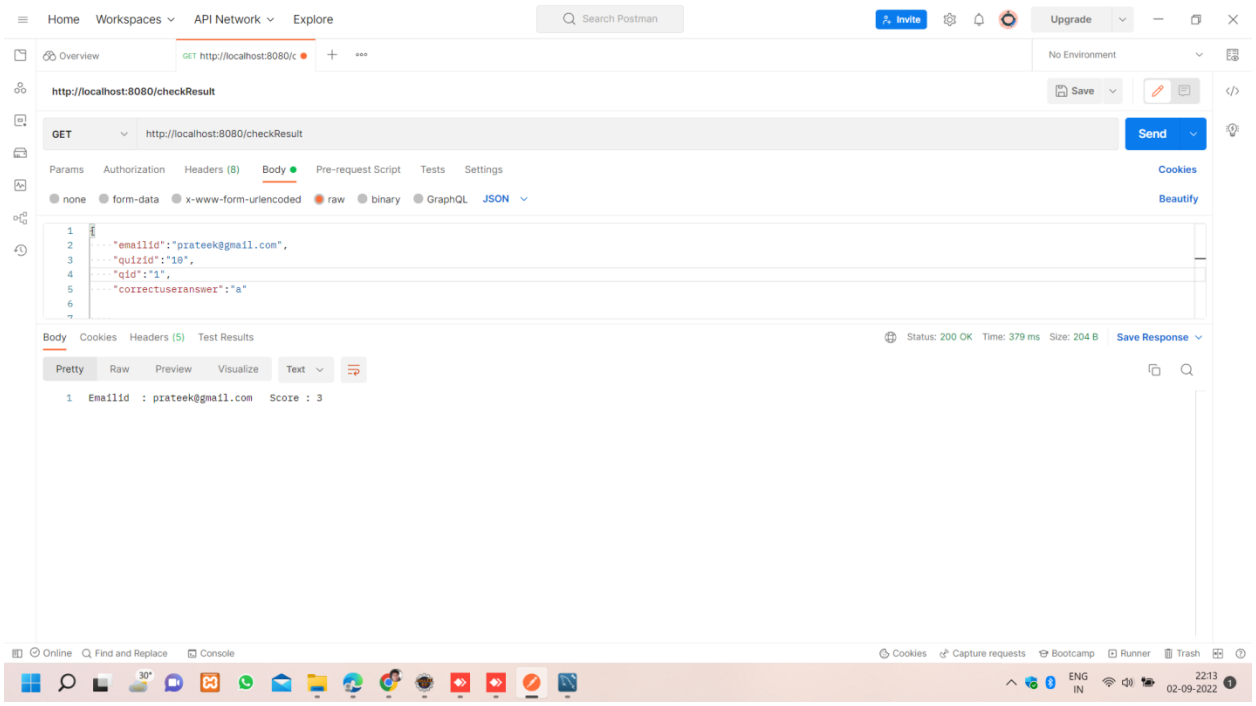




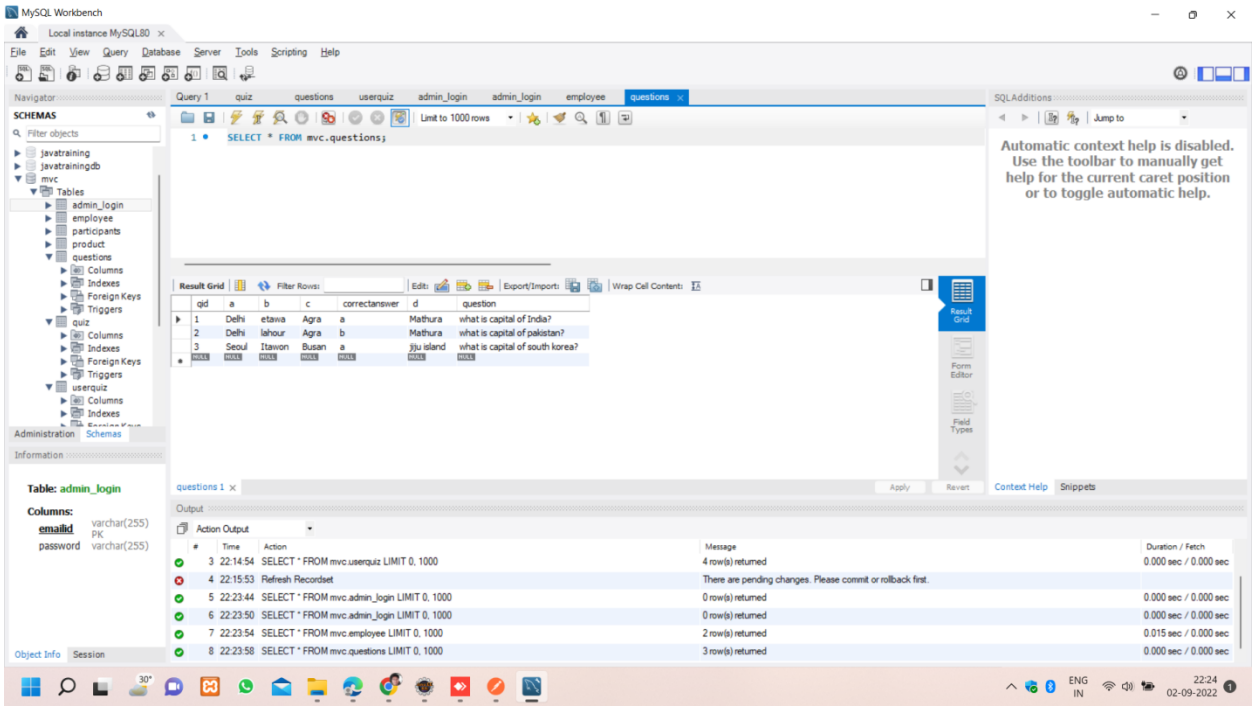


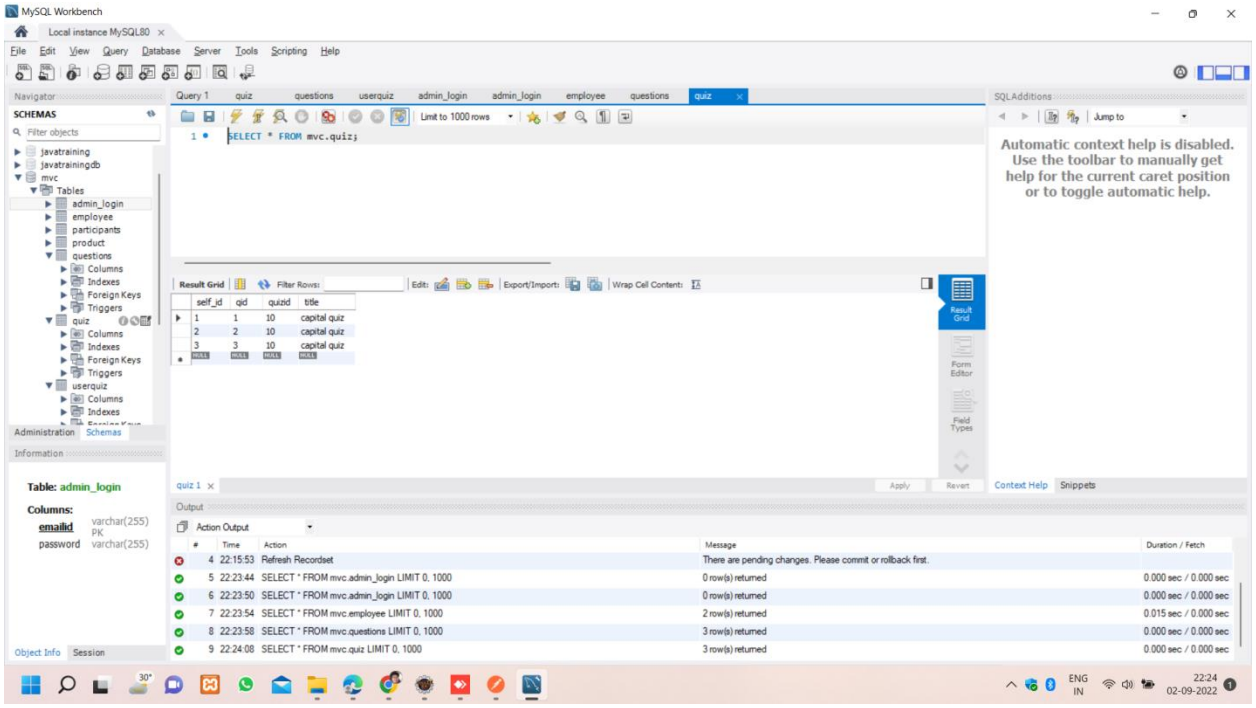
http://localhost:8080/checkResult

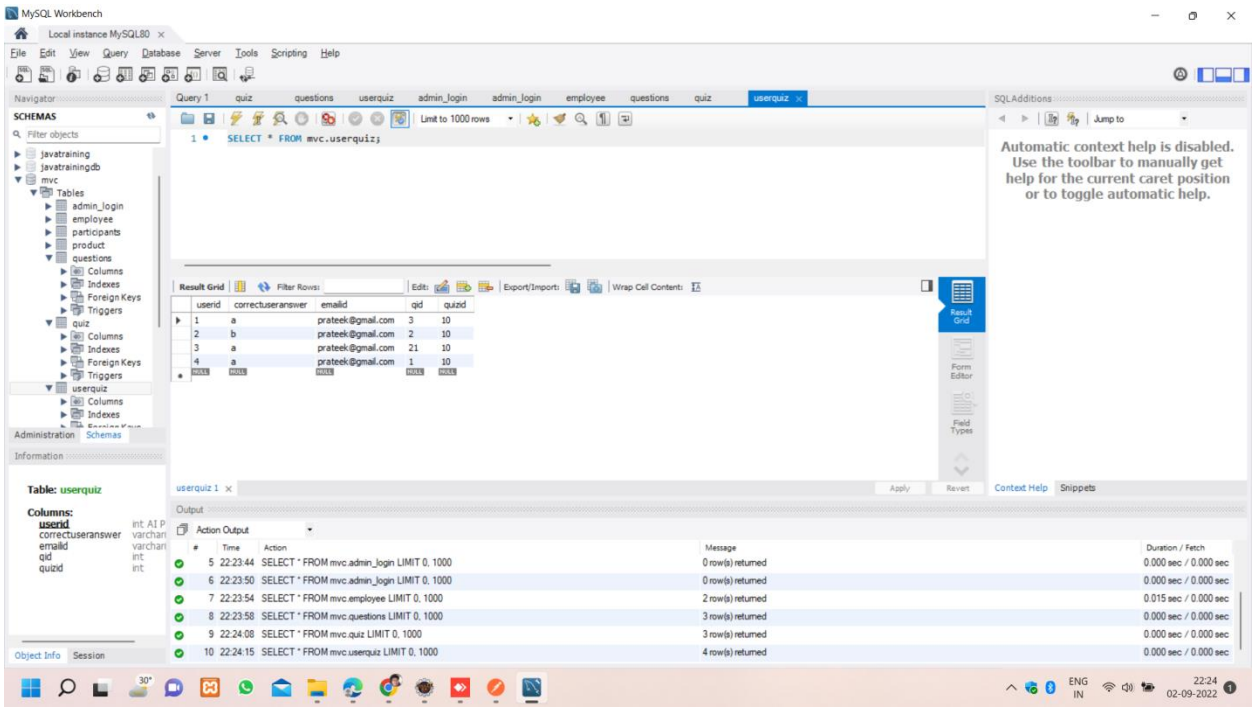
This URL shows the result of the quiz.


http://localhost:8080/checkResult
GET
http://localhost:8080/checkResult
Send
{
"emailId":"prateek@gmail.com",
"quizId":"10",
"qid":"1",
"correctuseranswer":"a"
}
Status: 200 OK Time: 379 ms Size: 204 B
Emailid : prateek@gmail.com Score : 3

Database


MySQL Workbench
SELECT * FROM mvc.questions;
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Table: admin_login
Columns:
emailid varchar(255) PK
password varchar(255)





Application.properties

spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver
spring.datasource.url=jdbc:mysql://localhost:3306/mvc

```
spring.datasource.username=root
spring.datasource.password=Prateek#1974
spring.jpa.properties.hibernate.dialect=org.hibernate.dialect.MySQL8Dialect
spring.jpa.hibernate.ddl-auto=update
```

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>2.6.11</version>
		<relativePath/> <!-- lookup parent from repository -->
	</parent>
	<groupId>com.example</groupId>
	<artifactId>OnlineQuiz</artifactId>
	<version>0.0.1-SNAPSHOT</version>
	<name>OnlineQuiz</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>
```

Conclusion

- In this quiz admin creates a set of questions along with their answers.
- Once admin is authenticated, an access token is generated that can be used to add and modify quizzes, questions, and users.
- For creating a new quiz, the admin user enters a quizid and selects questions from the database using the questioned.
- Once the quiz is released, website users can start taking it.
- The user uses the register API to create an account The user attempts the quiz using quizid and gives the possible answers.
- After completing the quiz, the user checks the scores and compares their standings with other users.