**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**20 Marks Non CIE Component**

**CS54: Java Programming TERM: Aug - Dec 2019**

**Title of the Project: STUDENT MARKS DETAILS**

#### PROJECT TEAM MEMBERS

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No** | **Semester Section** | **USN** | **Name** |
| 1. | V ‘A’ | 1MS17CS021 | ATUL |
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**INTRODUCTION:**

**Microservices** are a [software development](https://en.wikipedia.org/wiki/Software_development) technique —a variant of the [service-oriented architecture](https://en.wikipedia.org/wiki/Service-oriented_architecture) (SOA) structural style— that arranges an [application](https://en.wikipedia.org/wiki/Application_(computing)) as a collection of [loosely coupled](https://en.wikipedia.org/wiki/Coupling_(computer_programming)) services. In a microservices architecture ,services are [fine-grained](https://en.wikipedia.org/wiki/Service_granularity_principle) and the [protocols](https://en.wikipedia.org/wiki/Protocol_(computing)) are lightweight.

A microservice is not a layer within a monolithic application (example, the web controller, or the backend-for-frontend). Rather it is a self-contained piece of business functionality with clear interfaces, and may, through its own internal components, implement a layered architecture. From a strategy perspective, microservices architecture essentially follows the [Unix philosophy](https://en.wikipedia.org/wiki/Unix_philosophy) of "Do one thing and do it well". [Martin Fowler](https://en.wikipedia.org/wiki/Martin_Fowler_(software_engineer)) describes a microservices-based architecture as having the following properties:

* Lends itself to a [continuous delivery](https://en.wikipedia.org/wiki/Continuous_delivery) software development process. A change to a small part of the application only requires rebuilding and redeploying only one or a small number of services.
* Adheres to principles such as [fine-grained](https://en.wikipedia.org/wiki/Service_granularity_principle) [interfaces](https://en.wikipedia.org/wiki/Software_interface) (to independently deployable services), business-driven development (e.g. [domain-driven design](https://en.wikipedia.org/wiki/Domain-driven_design)).

It is common for microservices architectures to be adopted for [cloud-native applications](https://en.wikipedia.org/wiki/Cloud_application), and applications using lightweight [container](https://en.wikipedia.org/wiki/Operating-system-level_virtualization) deployment. According to Fowler, because of the large number (when compared to monolithic application implementations) of services, decentralized continuous delivery and [DevOps](https://en.wikipedia.org/wiki/DevOps) with holistic service monitoring are necessary to effectively develop, maintain, and operate such applications. A consequence of (and rationale for) following this approach is that the individual microservices can be individually scaled. In the monolithic approach, an application supporting three functions would have to be scaled in its entirety even if only one of these functions had a resource constraint. With microservices, only the microservice supporting the function with resource constraints needs to be scaled out, thus providing resource and cost optimization benefits.

**PROBLEM STATEMENT:**

* It is an on-line test simulator to take online examination, test in an efficient manner and no time wasting for manually checking of the test paper.
* The main objective of this web based project is to efficiently evaluate the student thoroughly through a fully automated system that not only saves lot of time but also gives fast and accurate results.
* For students it give papers according to their convenience from any location by using internet and time and there is no need of using extra thing like paper, pen etc.
* It also provides the results immediately after the examination with 100% accuracy and security.
* Student can enter to perform exam only with their valid username and password.
* The examination contains multiple choice questions and appropriate number of options. There are no limitations on number of options.
* This provides time limit. The student can see their results after completing the exam.
* This helps the students to write the exam from far distance and which can provide security and simplicity and other beneficial features to the user.
* For faculty, it gives medium to login through correct username and password and set up tests for different sections with different question.

**FUNCTIONAL REQUIREMENTS:**

Required project is for conducting online examination and providing results. The system should satisfy the following requirements:

**User Requirements**:

• **Faculty Aspect:**

1. Logging into the system.

2. Setting up test for different semester and different section.

3. Setting time limit, Date of the test.

4. Set marks.

5. Adding/editing/deleting the questions of any test.

6. Posting multiple options to respective question.

7. Marking correct answer within the given options.

• **Student Aspect**:

1. Logging into the system.

2. Choosing the test from the available tests for his/her section.

3. Appearing for the examination.

4. Reviewing the given responses

**DISCRIPTION:**

* **signup.jsp**:
  + For signing up for the system for students.
* **login.jsp**:
  + In this page student can login by providing correct username and password.
  + If the faculty box is ticked, the same fields are checked for faculty validation.
* **loginAuthenticate.jsp**:
  + Fields values from the login page are sent to this for validation and then is redirected to homepage.
* **homepage.jsp**:
  + If student, list of tests would be shown for his/her section and the shall select from them.
  + If faculty, list of tests created by that faculty would be shown.
* **viewtest.jsp**:
  + If student, particular test details are shown whichever you choose from the homepage.
  + If faculty, particular test details are shown whichever you choose from the homepage and edit option for it. Also createtest button to create new test.
* **createtest.jsp**:
  + After pressing the createtest button from viewtest page as a faculty this page is opened.
  + In this test is created, for different sections different tests can be created.
  + Time Interval, Date, Name, Marks, etc., for the test is set in this page.

* **taketest.jsp**:
  + After pressing the test from viewtest, student can take up for it in this page.
  + Submit button for completion of test.
* **evaltest.jsp**:
  + After submitting the test by the student in taketest page, result is shown in this page.
* **testSave.jsp**:
  + After creating a test in createtest page by the faculty, A success message is shown in this page.
* **logout.jsp**:
  + logging out of pages both for faculty and student.
  + Redirected to login page.

**IMPLEMENTATION:**

JSP Pages:

signup.jsp:

<%@ page import=*"java.sql.\*"* %>

<!DOCTYPE html>

<html lang=*"en"*>

<head>

<link rel=*"stylesheet"* type=*"text/css"* href=*"style2.css"*>

<link rel=*"stylesheet"* type=*"text/css"* href=*"css/common.css"*>

<meta name=*"viewport"* content=*"width=device-width, initial-scale=1"*>

<meta charset=*"UTF-8"*>

</head>

<body>

<%

**if**(request.getParameter("username")!=**null**){

Class.forName("com.mysql.cj.jdbc.Driver");

Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/student\_marks\_system?useUnicode=true&useJDBCCompliantTimezoneShift=true&useLegacyDatetimeCode=false&serverTimezone=UTC", "root", "");

Statement stmt = con.createStatement();

String testName=request.getParameter("test\_name");

String sql="INSERT INTO `user` VALUES('"+request.getParameter("username")+"','"+request.getParameter("password")+"','"+request.getParameter("sem")+"','"+request.getParameter("sec")+"')";

**if**(stmt.executeUpdate(sql)!=0){

out.print("Signup succesful!,You will be redirected to login page");

response.sendRedirect("login");

}**else**{

out.print("Signup unsuccesful!,Try again");

}

}

%>

<form class=*"modal-content"* method=*"post"*>

<h2 style="text-align:*center*">Signup</h2>

<input type=*"text"* placeholder=*"Enter Username"* name=*"username"* required>

<input type=*"password"* placeholder=*"Enter Password"* name=*"password"* required>

<input type=*"text"* placeholder=*"Enter your Semester"* name=*"sem"* required>

<input type=*"text"* placeholder=*"Enter your Section"* name=*"sec"* required>

<button type=*"submit"*>Signup</button>

<a href=*"login"*>Login</a>

</form>

</div>

</body>

</html>

login.jsp:

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

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

<%@page import=*"java.sql.\*"* %>

<%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"* %>

<%@ taglib uri=*"http://java.sun.com/jsp/jstl/sql"* prefix=*"sql"* %>

<!DOCTYPE html>

<html lang=*"en"*>

<head>

<meta charset=*"utf-8"*>

<title>Log in with your account</title>

<link rel=*"stylesheet"* type=*"text/css"* href=*"css/common.css"*>

</head>

<body>

<div class=*"modal-content"*>

<form method=*"POST"* action=*"/loginAutenticate"* class=*"form-signin"*>

<h2 class=*"form-heading"*>Log in</h2>

<div class=*"form-group"*>

<input name=*"username"* type=*"text"* class=*"form-control"* placeholder=*"Username"*

autofocus=*"true"*/>

<input name=*"password"* type=*"password"* class=*"form-control"* placeholder=*"Password"*/>

<label>

<input type=*"checkbox"* name=*"faculty"* unchecked> Faculty

</label>

<button class=*"submit-btn"* type=*"submit"*>Log In</button>

<h4 class=*"text-center"*><a href=*"/signup"*>Signup</a></h4>

<input type=*"hidden"* name=*"*${\_csrf.parameterName}*"* value=*"*${\_csrf.token}*"*/>

</div>

<font color=*"red"*><c:if test=*"*${**not empty** param.errMsg}*"*>

<c:out value=*"*${param.errMsg}*"* />

</c:if></font>

</form>

</div>

</body>

</html>

loginautenticate.jsp:

<%@taglib uri=*"http://java.sun.com/jsp/jstl/core"* prefix=*"c"* %>

<%@taglib uri=*"http://java.sun.com/jsp/jstl/sql"* prefix=*"s"* %>

<%@page contentType=*"text/html"* pageEncoding=*"UTF-8"*%>

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN""http://www.w3.org/TR/html4/loose.dtd">

<html>

<head>

<meta http-equiv=*"Content-Type"* content=*"text/html; charset=UTF-8"*>

<title>Authentication page</title>

</head>

<body>

<c:if test=*"*${ **empty** param.username **or empty** param.password}*"*>

<c:redirect url=*"login"* >

<c:param name=*"errMsg"* value=*"Please Enter UserName and Password"* />

</c:redirect>

</c:if>

<c:if test=*"*${**not empty** param.username **and not empty** param.password}*"*>

<s:setDataSource var=*"ds"* driver=*"com.mysql.cj.jdbc.Driver"*

url=*"jdbc:mysql://localhost:3306/student\_marks\_system?useUnicode=true&useJDBCCompliantTimezoneShift=true&useLegacyDatetimeCode=false&serverTimezone=UTC"*

user=*"root"* password=*""*/>

<c:choose>

<c:when test=*"*${**empty** paramValues.faculty}*"*>

<s:query dataSource=*"*${ds}*"* var=*"selectQ"*>

select count(\*) as kount from user

where name='${param.username}'

and password='${param.password}'

</s:query>

</c:when>

<c:otherwise>

<s:query dataSource=*"*${ds}*"* var=*"selectQ"*>

select count(\*) as kount from faculty

where name='${param.username}'

and password='${param.password}'

</s:query>

</c:otherwise>

</c:choose>

<c:forEach items=*"*${selectQ.rows}*"* var=*"r"*>

<c:choose>

<c:when test=*"*${r.kount **gt** 0}*"*>

<c:set scope=*"session"*

var=*"loginUser"*

value=*"*${param.username}*"*/>

<c:set scope=*"session"*

var=*"faculty"*

value=*"*${**not empty** paramValues.faculty}*"*/>

<c:redirect url=*"homepage"*/>

</c:when>

<c:otherwise>

<c:redirect url=*"login"* >

<c:param name=*"errMsg"* value=*"Username/password does not match"* />

</c:redirect>

</c:otherwise>

</c:choose>

</c:forEach>

<c:otherwise>

</c:otherwise>

</c:if>

</body>

</html>>

homepage.jsp:

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

pageEncoding=*"ISO-8859-1"*%>

<%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"* %>

<%@page import=*"java.util.\*"*%>

<%@ taglib uri=*"http://java.sun.com/jsp/jstl/sql"* prefix=*"sql"* %>

<%@ taglib uri = *"http://java.sun.com/jsp/jstl/functions"* prefix = *"fn"* %>

<!DOCTYPE html>

<html>

<head>

<link rel=*"stylesheet"* type=*"text/css"* href=*"css/common.css"*>

<meta name=*"viewport"* content=*"width=device-width, initial-scale=1"*>

<link rel=*"stylesheet"* type=*"text/css"* href=*"css/common.css"*>

<script>

**function** redirectToTest(t){

**var** test\_name=t.firstElementChild.innerHTML;

window.location.href = "viewtest?test\_name="+test\_name;

}

</script>

</head>

<body>

<div style ="height: *5%*;background-color: *rgb(0, 0, 51)*;font-size:*0px*;">

<div style="font-size: *30px*;width: *100%*;text-align: *center*;color:*white*"><b>HOMEPAGE</b></div>

<div style="font-size: *20px*;width: *100%*;text-align: *center*;color:*white*">

Welcome,${sessionScope.loginUser }

</div>

</div>

<div class=*"test-view"*>

<sql:setDataSource

var=*"myDS"*

driver=*"com.mysql.cj.jdbc.Driver"*

url=*"jdbc:mysql://localhost:3306/student\_marks\_system?useUnicode=true&useJDBCCompliantTimezoneShift=true&useLegacyDatetimeCode=false&serverTimezone=UTC"*

user=*"root"* password=*""*

/>

<sql:query var=*"user"* dataSource=*"*${myDS}*"*>

SELECT sem,sec FROM user where name='${sessionScope.loginUser}' ;

</sql:query>

<c:forEach items=*"*${user.rows}*"* var=*"r"*>

<c:set scope=*"session"*

var=*"sem"*

value=*"*${r.sem}*"*/>

<c:set scope=*"session"*

var=*"sec"*

value=*"*${r.sec}*"*/>

</c:forEach>

<c:choose>

<c:when test=*"*${sessionScope.faculty==**false**}*"*>

<sql:query var=*"list\_users"* dataSource=*"*${myDS}*"*>

SELECT \* FROM test where sem=${sessionScope.sem} and sec='${sessionScope.sec}' ;

</sql:query>

</c:when>

<c:otherwise>

<sql:query var=*"list\_users"* dataSource=*"*${myDS}*"*>

SELECT \* FROM test where creator\_name='${sessionScope.loginUser}' ;

</sql:query>

</c:otherwise>

</c:choose>

<table class=*"test-view"*>

<tr><th colspan=*"5"*>Your tests</th></tr>

<c:forEach var=*"user"* items=*"*${list\_users.rows}*"*>

<tr class=*"tr-links"* onclick="redirectToTest(this)">

<td><c:out value=*"*${user.test\_name}*"* /></td>

<td><c:out value=*"*${user.date}*"* /></td>

<td><c:out value=*"*${user.duration}*"* /></td>

<td><c:out value=*"*${user.start\_date}*"* /></td>

<td><c:out value=*"*${user.end\_date}*"* /></td>

</tr>

</c:forEach>

</table>

</div>

<div>

<c:if test=*"*${sessionScope.faculty==**true** }*"*>

<div>

<a href=*"/createTest"* class=*"linkbtn"*> Create Test</a>

</div>

</c:if>

<a class=*"linkbtn"* href=*'logout'* class=*"linkbtn"*>logout</a>

</div>

</body>

</html>

viewtest.jsp:

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

pageEncoding=*"ISO-8859-1"*%>

<%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"* %>

<%@ taglib uri=*"http://java.sun.com/jsp/jstl/sql"* prefix=*"sql"* %>

<%@ taglib uri=*"http://java.sun.com/jsp/jstl/fmt"* prefix=*"fmt"* %>

<!DOCTYPE html>

<html>

<head>

<meta name=*"viewport"* content=*"width=device-width, initial-scale=1"*>

<link rel=*"stylesheet"* type=*"text/css"* href=*"css/common.css"*>

<script>

**function** redirectToTest(){

window.location.href = "takeTest?test\_name="+'${param.test\_name}';

}

</script>

</head>

<body>

<div style ="height: *5%*;background-color: *rgb(0, 0, 51)*;font-size:*0px*;">

<div style="font-size: *30px*;width: *100%*;text-align: *center*;color:*white*"><b>MARKS</b> </div>

<div style="font-size: *20px*;width: *100%*;text-align: *center*;color:*white*">

Welcome,${sessionScope.loginUser }

</div>

</div>

<jsp:useBean id=*"date"* class=*"java.util.Date"* />

<fmt:formatDate pattern=*"yyyy-MM-dd"* type=*"DATE"* var=*"cur\_date"* value=*"*${date}*"* />

<sql:setDataSource

var=*"myDS"*

driver=*"com.mysql.cj.jdbc.Driver"*

url=*"jdbc:mysql://localhost:3306/student\_marks\_system?useUnicode=true&useJDBCCompliantTimezoneShift=true&useLegacyDatetimeCode=false&serverTimezone=UTC"*

user=*"root"* password=*""*

/>

<sql:query var=*"list\_users"* dataSource=*"*${myDS}*"*>

SELECT \* FROM test

where test\_name='${param.test\_name}';

</sql:query>

<table class=*"test-view"*>

<tr><th>Test Details</th></tr>

<c:forEach var=*"user"* items=*"*${list\_users.rows}*"*>

<tr><td><c:out value=*"*${user.test\_name}*"* /></td></tr>

<tr><td><c:out value=*"*${user.date}*"* /></td></tr>

<tr><td><c:out value=*"*${user.duration}*"* /></td></tr>

<tr><td><c:out value=*"*${user.start\_date}*"* /></td></tr>

<tr><td><c:out value=*"*${user.end\_date}*"* /></td></tr>

<fmt:formatDate value=*"*${user.start\_date}*"* type=*"DATE"* pattern=*"yyyy-MM-dd"* var=*"start\_date"*/>

<fmt:formatDate value=*"*${user.end\_date}*"* type=*"DATE"* pattern=*"yyyy-MM-dd"* var=*"end\_date"*/>

</c:forEach>

<c:if test=*"*${sessionScope.faculty==**true**}*"*>

<sql:query var=*"marks"* dataSource=*"*${myDS}*"*>

SELECT \* FROM `${param.test\_name}\_answers`;

</sql:query>

<table class=*"student-marks"*>

<tr><th>student</th><th>marks</th></tr>

<c:forEach var=*"usermarks"* items=*"*${marks.rows}*"*>

<tr><td><label><c:out value=*"*${usermarks.name}*"* /></label></td><td>

<label><c:out value=*"*${usermarks.marks}*"* /></label></td></tr>

</c:forEach>

</table>

</c:if>

<c:if test=*"*${sessionScope.faculty==**false**}*"*>

<sql:query var=*"marks"* dataSource=*"*${myDS}*"*>

SELECT \* FROM `${param.test\_name}\_answers` where name='${sessionScope.loginUser}';

</sql:query>

<c:choose>

<c:when test=*"*${marks.rowCount == 0}*"*>

<c:choose>

<c:when test=*"*${cur\_date<start\_date }*"*>

<tr><td>The test has not started</td></tr>

</c:when>

<c:when test=*"*${cur\_date>end\_date}*"*>

<tr><td>The Test deadline is over</td></tr>

<tr><td>You have not taken this test</td></tr>

</c:when>

<c:otherwise>

<tr><td><input type=*"button"* value=*"Take Test"* onclick="redirectToTest()" /></td></tr>

</c:otherwise>

</c:choose>

</c:when>

<c:otherwise>

<c:choose>

<c:when test=*"*${cur\_date<start\_date }*"*>

<tr><td>The test has not started</td></tr>

</c:when>

<c:when test=*"*${cur\_date>end\_date}*"*>

<tr><td>The Test deadline is over</td></tr>

<c:forEach var=*"row"* items=*"*${marks.rows}*"*>

<tr><td>You have Scored ${row.marks} Marks in this test</td></tr>

</c:forEach>

</c:when>

<c:otherwise>

<c:forEach var=*"row"* items=*"*${marks.rows}*"*>

<tr><td>You have Scored ${row.marks} Marks in this test</td></tr>

</c:forEach>

</c:otherwise>

</c:choose>

</c:otherwise>

</c:choose>

</c:if>

</table>

<a href=*'homepage'* class=*"linkbtn"*>homepage</a>

<a href=*'logout'* class=*"linkbtn"*>logout</a>

</body>

</html>

taketest.jsp:

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

pageEncoding=*"ISO-8859-1"*%>

<%@ page import=*"java.util.\*"* %>

<%@ page import=*"java.sql.\*"* %>

<!DOCTYPE html>

<html>

<head>

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

<link rel=*"stylesheet"* type=*"text/css"* href=*"css/common.css"*>

<title>Take test</title>

</head>

<body>

<%

**int** dur=0;

Class.forName("com.mysql.cj.jdbc.Driver");

Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/student\_marks\_system?useUnicode=true&useJDBCCompliantTimezoneShift=true&useLegacyDatetimeCode=false&serverTimezone=UTC", "root", "");

Statement stmt = con.createStatement();

String testName=request.getParameter("test\_name");

String sql="SELECT \* FROM test where test\_name='"+testName+"'";

ResultSet rs = stmt.executeQuery(sql);

**while**(rs.next()) {

out.println("id: " + rs.getString(1));

out.println("Date: " + rs.getDate(2));

out.println("Dur: " + rs.getInt(3));

dur=rs.getInt(3);

out.println("sDate: " + rs.getDate(4));

out.println("eDate: " + rs.getDate(5));

}

%>

<script>

**var** t = <%=dur%>\*60000;

**var** x = setInterval(**function**() {

**var** hours = Math.floor((t%(1000 \* 60 \* 60 \* 24))/(1000 \* 60 \* 60));

**var** minutes = Math.floor((t % (1000 \* 60 \* 60)) / (1000 \* 60));

**var** seconds = Math.floor((t % (1000 \* 60)) / 1000);

document.getElementById("timeRemaining").innerHTML = hours + "h " + minutes + "m " + seconds + "s ";

**if** (t < 0) {

clearInterval(x);

document.getElementById("timeRemaining").innerHTML = "EXPIRED";

}

t-=1000;

}, 1000);

window.onload=**function**(){

**var** duration=<%=dur%>

window.setTimeout(**function**() { document.answersForm.submit(); }, duration\*60000 );

};

</script>

<%

sql="SELECT \* FROM "+testName+"";

rs = stmt.executeQuery(sql);

%>

<div style ="background-color: *rgb(0, 0, 51)*;font-size:*0px*;">

<div style="font-size: *30px*;width: *100%*;text-align: *center*;color:*white*"><b>Exam</b></div>

<br>

<div style="display:*block*;width:*100%*;background-color: *rgb(0, 0, 51)*;visibility: *visible*;" >

<div id=*"topNavigation"* class=*"tab"* style="width:*100%*; display: *inline-block*;background-color:*rgba(204, 0, 102, 0.63)*;color:*white*">

<!--div in which the tabs for sections are added-->

<div width style="display:*inline-block*;font-size:*18px*;float:*right*;" id=*"timeRemaining"*></div>

</div>

</div>

</div>

<form action =*"evalTest?test\_name=*<%=testName %>*"* method = *"POST"* name=*"answersForm"* id=*"answersForm"*>

<div class=*"content"* style="border:*2px*;border-block-color: *black*">

<div id=*"a"* class=*"tabcontent"* style="display: *block*;">

<ol class=*"questions"*>

<%

**while**(rs.next()) {

String q\_name=rs.getString(1);

out.println("<li><textarea class='questions\_ta' rows='4' style='width:100%;border:none;'>" + rs.getString(2)+"</textarea>");

**for**(**int** i=1;i<=4;i++){

out.print("<label><br><input type='radio' name='"+q\_name+"' value="+i+"><textarea class='options' style='width: 70%;'>"+ rs.getString(3)+"</textarea></label>");

}

out.print("<br></li>");

}

%>

</ol>

</div>

</div>

<input type=*"submit"* attr=*"subbtn"* onclick="shareData()" value=*"Submit"* />

<input type=*"hidden"* name=*"*${\_csrf.parameterName}*"* value=*"*${\_csrf.token}*"*/>

</form>

</body>

</html>

createtest.jsp:

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

pageEncoding=*"ISO-8859-1"*%>

<!DOCTYPE html>

<html>

<head>

<meta name=*"viewport"* content=*"width=device-width, initial-scale=1"*>

<link rel=*"stylesheet"* type=*"text/css"* href=*"css/common.css"*>

<script type=*"text/javascript"* src=*"jquery.js"*></script>

</head>

<body>

<script type=*"text/javascript"*>

**var** sectionData={};

**function** shareData(){

giveNames();

**var** sectionDataAsString = JSON.stringify(sectionData);

document.getElementById("sectionDataField").value=sectionDataAsString;

}

**function** ShowHideDevBtns(chkBtn) {

**var** btnList = document.getElementsByClassName("toDisable");

**var** btnPreviewDisable = document.getElementById("submitAnswersDisable");

**var** checked = chkBtn.checked?"none":"block";

**var** unchecked = chkBtn.checked?"block":"none";

**var** uncheckedDisable = chkBtn.checked?**true**:**false**;

**for**(**var** i=0;i<btnList.length;i++){

btnList[i].style.display=checked;

}

btnPreviewDisable.style.display=unchecked;

btnPreviewDisable.disabled=uncheckedDisable;

}

**function** reAssignValue(listElement){

/\*function to reassign values to the options when any option is deleted for a question\*/

**var** opt\_list=listElement.children;

**for**(**var** j=1;j<opt\_list.length-2;j++){

**var** sub\_list=opt\_list[j].children;/\*because the options have severel elements\*/

sub\_list[1].value=j;

}

}

**function** removeOption(option){

/\*function toreassign value to options when a ption is deleted\*/

**var** question=option.parentElement;

option.remove();

reAssignValue(question);

}

**function** add\_option(name, value) {

/\*creating a label to append radiobutton and textfield\*/

**var** label = document.createElement("label");

/\*creating a radio button and textfield for new option\*/

**var** radio =document.createElement("input");

radio.type = "radio";

radio.name = name;

radio.value = value;

**var** opt=document.createElement("textarea");

opt.style="width:70%";

opt.className="options";

/\*opt.setAttribute("style","width:auto;");\*/

/\*creating delete option button \*/

**var** deleteOption = document.createElement("input");

deleteOption.onclick=**function**(){removeOption(**this**.parentElement)};

deleteOption.type="button";

deleteOption.value="x";

deleteOption.innerHTML="x";

deleteOption.className="toDisable";

deleteOption.setAttribute("style","float:right;");

/\*creating a br element for displaying diffrent options in diffrent lines\*/

**var** br = document.createElement("br");

/\*appending radio ,input and delete button to label\*/

label.appendChild(radio);

label.appendChild(opt);

label.appendChild(deleteOption);

label.insertBefore(br,radio);

/\*returning label element\*/

**return** label;

}

**function** giveNames(){

**var** question=document.getElementsByClassName("questions\_ta");

**for** (i = 0; i < question.length; i++) {

question[i].name=question[i].nextSibling.firstElementChild.nextElementSibling.name.slice(0, 3) + 'u' + question[i].nextSibling.firstElementChild.nextElementSibling.name.slice(3,question[i].nextSibling.firstElementChild.nextElementSibling.name.length);

}

**var** options=document.getElementsByClassName("options");

**for** (i = 0; i < options.length; i++) {

options[i].name=options[i].parentElement.firstElementChild.nextElementSibling.name.slice(0, 3) + 'o' +options[i].parentElement.firstElementChild.nextElementSibling.name.slice(3,options[i].parentElement.firstElementChild.nextElementSibling.name.length)+options[i].parentElement.firstElementChild.nextElementSibling.value;

}

}

**function** extra\_option(question,groupName){

/\*calculate number of options that already exist,which is the new index\*/

**var** new\_index=question.childNodes.length;

new\_index=new\_index-2;/\*-3+1\*/

/\*create a option with the new index\*/

**var** opt=add\_option(groupName,new\_index);

/\*insert the created uption before the add option button\*/

question.insertBefore(opt,question.lastChild.previousSibling);

}

**function** set\_active(tabName) {

/\*getting a list of all the tabs\*/

**var** tabContent = document.getElementsByClassName("tabcontent");

/\*setting display to none for all tabs, so its not visible\*/

**for** (**var** i = 0; i < tabContent.length; i++) {

tabContent[i].style.display = "none";

}

/\*setting display of active tab to block, so its visible\*/

document.getElementById(tabName).style.display = "block";

}

**function** changeSectionName(toChangeSectionName){

/\*getting section name as input(prompt) from user\*/

newSectionName=prompt("Enter new section name");

**if**(newSectionName){

**var** toChange=document.getElementsByName(toChangeSectionName)[0];

/\*changing tab name and value\*/

toChange.name=newSectionName;

toChange.innerHTML=newSectionName;

/\*Changing content id for the changed tab name\*/

**var** divToChange=document.getElementById(toChangeSectionName);

/\*checking if the section has questions and reassigning radiobutton names\*/

**if**(divToChange!=undefined){

**var** eleToChange=document.getElementById(toChangeSectionName).children[0].children[0];

updateNames(newSectionName,eleToChange);

}

/\*changing id of div of the section \*/

divToChange.id=newSectionName;

/\*changing the section name in section data\*/

temp=sectionData[toChangeSectionName];

**delete** sectionData[toChangeSectionName];

sectionData[newSectionName]=temp;

}

}

**function** addTab(){

/\*console.log(document);\*/

/\*Inputting section name from user\*/

sectionName=prompt("Enter section name");

**if**(sectionName){

/\*creating a tab(button) with the given name\*/

**var** tab\_btn = document.createElement("input");

tab\_btn.type="button";

tab\_btn.innerHTML = sectionName;

tab\_btn.value = sectionName;

tab\_btn.className="tablinks";

tab\_btn.name=sectionName;

tab\_btn.onclick=**function**(){set\_active(**this**.name)};

tab\_btn.ondblclick = **function**(){changeSectionName(**this**.name)};

/\*adding the tab to the like navigation bar\*/

document.getElementById("topNavigation").appendChild(tab\_btn);

/\*adding click event to tab,to switch tabs \*/

tab\_btn.addEventListener("click", **function**() {

**var** current = document.getElementsByClassName("active");

**if** (current.length > 0) { current[0].className = current[0].className.replace(" active", "");}

**this**.className += " active";

});

/\*Creating a section with the given name\*/

**var** div = document.createElement('div');

**var** par = document.createElement('p');

div.id=sectionName;

par.innerHTML = document.getElementById("template").innerHTML;

div.append(par);

div.className="tabcontent";

document.getElementsByClassName("content")[0].appendChild(div);

/\*To set the added tab as active\*/

tab\_btn.click();

/\*send no of tab to php \*/

sectionData[sectionName]=0;

}

}

**function** createQuestion(sectionId){

**var** ques\_list=document.getElementById(sectionId).firstElementChild.firstElementChild;

/\*to give index to the question\*/

**if**(!ques\_list.firstElementChild){

ques\_count=1;

}

**else**{

ques\_count=ques\_list.childNodes.length;

}

**var** radioGroupName=sectionId+"\_q\_"+ques\_count;

/\*creating a li element for the list\*/

**var** listElement=document.createElement("li");

/\*creating a textarea for entering the question\*/

**var** ques=document.createElement("textarea");

ques.className="questions\_ta";

ques.setAttribute("rows",4);

ques.setAttribute("style","width:100%;border:none;");

/\*creating a delete Question button incase we need to\*/

**var** deleteButton=document.createElement("input");

deleteButton.type="button";

deleteButton.value="Delete";

deleteButton.setAttribute("style","float: right;");

deleteButton.onclick=**function**(){deleteQuestion(**this**.parentElement)};

deleteButton.innerHTML="Delete";

deleteButton.className="toDisable";

/\*creating a button to add more options for the questions \*/

**var** addOption=document.createElement("input");

addOption.onclick=**function**(){extra\_option(**this**.parentElement.parentElement,**this**.parentElement.parentElement.children[2].children[1].name)};

addOption.type="button";

addOption.id="add\_btn";

addOption.innerHTML="Add Option";

addOption.value="Add Option";

addOption.className="toDisable";

**var** btn\_wth\_space=document.createElement("label");

**var** br = document.createElement("br");

btn\_wth\_space.appendChild(br);

btn\_wth\_space.appendChild(addOption);

/\*creating 4 options\*/

**var** rb1=add\_option(radioGroupName, "1");

**var** rb2=add\_option(radioGroupName, "2");

**var** rb3=add\_option(radioGroupName, "3");

**var** rb4=add\_option(radioGroupName, "4");

/\*appending all the necessary elements of question to a li element\*/

listElement.appendChild(ques);

listElement.appendChild(rb1);

listElement.appendChild(rb2);

listElement.appendChild(rb3);

listElement.appendChild(rb4);

listElement.appendChild(btn\_wth\_space);

listElement.appendChild(deleteButton);

/\*appending the li element to the list of questions\*/

ques\_list.appendChild(listElement);

sectionData[sectionId]+=1;

}

**function** deleteQuestion(question){

/\*storing the id of li element and id of tabconent to pass to updateNames function \*/

**var** currentName=question.parentElement.parentElement.parentElement.id;

**var** parentName=question.parentElement;

/\*removing the question\*/

question.remove();

/\*calling the updateNames function to rearrange the questions so as to have correct index order\*/

updateNames(currentName,parentName);

sectionData[currentName]-=1;

}

**function** updateNames(newName,list){

**if**(list){

**var** ques\_list=list.children;

**for**(**var** i=0;i<ques\_list.length;i++){

**var** opt\_list=ques\_list[i].children;

console.log(opt\_list);

**for**(**var** j=2;j<opt\_list.length-1;j++){

**var** changedName=newName+"\_q\_"+(i+1).toString();

**var** sub\_list=opt\_list[j].children;/\*because the options have severel elements\*/

sub\_list[1].setAttribute("name",changedName);

}

}

}

}

</script>

<div style ="background-color: *rgb(0, 0, 51)*;font-size:*0px*;">

<div style="font-size: *30px*;width: *100%*;text-align: *center*;color:*white*"><b>Exam</b></div>

<br>

<div style="display:*block*;width:*100%*;background-color: *rgb(0, 0, 51)*;visibility: *visible*;" >

<div id=*"topNavigation"* class=*"tab"* style="width:*100%*; display: *inline-block*;background-color:*rgba(204, 0, 102, 0.63)*;color:*white*">

<!--div in which the tabs for sections are added-->

<input type=*"button"* class=*"toDisable"* id=*"tabLinkAdd"* style="float:*right*" onclick="addTab()" value=*"Add Section"*/>

<div width style="display:*inline-block*;font-size:*18px*;float:*right*;" id=*"timeRemaining"*></div>

</div>

</div>

</div>

<form action =*"testSave"* method = *"POST"*>

<div class=*"content"* style="border:*2px*;border-block-color: *black*">

<!--div in which the questions or tabcontent are added-->

<div id=*"template"* class=*"tabcontent"* hidden>

<ol class=*"questions"*>

</ol>

<input type=*"button"* class=*"toDisable"* onclick="createQuestion(this.parentElement.parentElement.id)"value=*"Add Question"*></input>

</div>

</div>

<div class=*"todisable"*><input type=*"checkbox"* onclick="ShowHideDevBtns(this)" />Preview</div>

<div class=*"toDisable"* id=*"testInfoInput"*>

<input type=*"text"* id=*"sectionDataField"* name=*"elements"* style="display:*none*" />

<label for=*"testName"*>Test Name</label>

<input type=*"text"* id=*"testName"* name=*"testName"* placeholder=*"Enter test name"*/><br>

<label for=*"testSDate"*>Start Date </label>

<input type=*"date"* id=*"testsdate"* name=*"testSDate"* /><br>

<label for=*"testEDate"*>End Date</label>

<input type=*"date"* id=*"testedate"* name=*"testEDate"* /><br>

<label for=*"testDuration"*>Duration</label>

<input type=*"text"* id=*"testDuration"* name=*"testDuration"* placeholder=*"duration in minutes"*/><br>

<label for=*"testSem"*>Semester</label>

<input type=*"text"* id=*"testSem"* name=*"testSem"* placeholder=*"semester"*/><br>

<label for=*"testSec"*>Section</label>

<input type=*"text"* id=*"testSec"* name=*"testSec"* placeholder=*"section"*/>

</div>

<input type=*"submit"* class=*"toDisable"* attr=*"subbtn"* onclick="shareData()" value=*"CREATE"* />

<input type=*"hidden"* name=*"*${\_csrf.parameterName}*"* value=*"*${\_csrf.token}*"*/>

</form>

<a href=*'logout'* class=*"linkbtn"*>Logout</a>

<a href=*'homepage'* class=*"linkbtn"*>Homepage</a>

</body>

</html>

evaltest.jsp:

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

pageEncoding=*"ISO-8859-1"*%>

<%@ page import=*"java.util.\*"* %>

<%@ page import=*"java.sql.\*"* %>

<!DOCTYPE html>

<html>

<head>

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

<title>Test Result</title>

<link rel=*"stylesheet"* type=*"text/css"* href=*"css/common.css"*>

</head>

<body>

<table class=*"answers-list"*>

<tr><th>question</th><th>your answer</th><th>key</th></tr>

<%

**try**{

ResultSetMetaData md;

Class.forName("com.mysql.cj.jdbc.Driver");

Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/student\_marks\_system?useUnicode=true&useJDBCCompliantTimezoneShift=true&useLegacyDatetimeCode=false&serverTimezone=UTC", "root", "");

Statement stmt = con.createStatement();

con.setAutoCommit(**false**);

String testName=request.getParameter("test\_name");

String sql="INSERT INTO "+testName+"\_answers VALUES ('"+session.getAttribute("loginUser")+"',";

String sql\_to\_select="select \* FROM "+testName+"\_answers where name='key'";

ResultSet rs = stmt.executeQuery(sql\_to\_select);

md = rs.getMetaData();

**int** marks=0;

**int** count = md.getColumnCount();

HashMap<String,Integer> hm = **new** HashMap<>();

**while**(rs.next()){

**for** (**int** i=2; i<count; i++) {

hm.put(md.getColumnName(i),rs.getInt(i));

}

}

HashMap<String,Integer> question\_answer=**new** HashMap<>();

**for** (Map.Entry<String, Integer> entry : hm.entrySet()) {

**int** ans=(request.getParameter(entry.getKey())!=**null**)?Integer.parseInt(request.getParameter(entry.getKey())):0;

**if**(ans==entry.getValue()){

marks+=1;

}

out.print("<tr><td>"+entry.getKey()+"</td><td>"+(request.getParameter(entry.getKey())!=**null**?request.getParameter(entry.getKey()):0)+"</td><td>"+

entry.getValue()+"</td></tr>");

sql+=((request.getParameter(entry.getKey())!=**null**)?request.getParameter(entry.getKey()):0)+",";

}

sql+=marks+");";

stmt.executeUpdate(sql);

con.commit();

out.print("<tr><td colspan='3'>You scored"+marks+"marks</td></tr>");

}**catch**(Exception e){}

%>

</table>

<form action=*'homepage'*><input type=*'submit'* class=*'submitbtn'* value=*'Go Back'*/></form>

<form action=*'logout'*><input type=*'submit'* class=*"submitbtn"* value=*'Log Out'*/></form>

</body>

</html>

testsave.jsp:

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

pageEncoding=*"ISO-8859-1"*%>

<%@ page import=*"java.util.\*"* %>

<%@ page import=*"java.sql.\*"* %>

<!DOCTYPE html>

<html>

<head>

<script type=*"text/javascript"* src=*"jquery.js"*></script>

<link rel=*"stylesheet"* type=*"text/css"* href=*"css/common.css"*>

<title>Save test</title>

<%

**try**{

Class.forName("com.mysql.cj.jdbc.Driver");

Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/student\_marks\_system?useUnicode=true&useJDBCCompliantTimezoneShift=true&useLegacyDatetimeCode=false&serverTimezone=UTC", "root", "");

Statement stmt = con.createStatement();

String testName=request.getParameter("testName");

String testSDate=request.getParameter("testSDate");

String testEDate=request.getParameter("testEDate");

String testDuration=request.getParameter("testDuration");

String testSem=request.getParameter("testSem");

String testSec=request.getParameter("testSec");

con.setAutoCommit(**false**);

String sql="INSERT INTO test(`test\_name`, `duration`, `start\_date`, `end\_date`, `creator\_name`, `sem`, `sec`) VALUES('"+testName+"',"+testDuration+",'"+testSDate+"','"+testEDate+"','"+(String)session.getAttribute("loginUser")+"',"+testSem+",'"+testSec+"');";

String sql\_create\_answers="create table "+testName+"\_answers(name varchar(30) primary key,";

String sql\_insert\_answers="Insert "+testName+"\_answers values('key',";

stmt.executeUpdate(sql);

sql="create table "+testName+" (qname varchar(20),question varchar(100),o1 varchar(50),o2 varchar(50),o3 varchar(50),o4 varchar(50),Answer int);";

stmt.executeUpdate(sql);

PreparedStatement ps = con.prepareStatement("INSERT INTO "+testName+" VALUES (?, ?, ?, ?, ?,?,?)");

/\*taking the key which was set by the makeTest.php page\*/

String str = request.getParameter("elements");

/\*obtaing the question:key from the string that was sent from the makeTest page\*/

String values=str.substring(1,str.length()-1);

String[] elements = values.split(",");

HashMap<String,Integer> hm = **new** HashMap<>();

**for**(**int** i=0;i<elements.length;i++){

String[] list = elements[i].split(":");

String key=list[0].substring(1,list[0].length()-1);

String value=list[1];

hm.put(key,Integer.parseInt(value));

}

HashMap<String,Integer> question\_answer=**new** HashMap<>();

**for** (Map.Entry<String, Integer> entry : hm.entrySet()) {

**for**(**int** i=1;i<=entry.getValue();i++){

ps.setString(1,entry.getKey()+"\_q\_"+i);

sql\_create\_answers+=entry.getKey()+"\_q\_"+i+" int,";

ps.setString(2,request.getParameter(entry.getKey()+"\_qu\_"+i));

**for**(**int** j=1;j<=4;j++){

ps.setString(j+2,request.getParameter(entry.getKey()+"\_qo\_"+i+j));

}

ps.setInt(7,Integer.parseInt(request.getParameter(entry.getKey()+"\_q\_"+i)));

sql\_insert\_answers+=request.getParameter(entry.getKey()+"\_q\_"+i)+",";

ps.executeUpdate();

}

}

sql\_create\_answers+="marks int)";

sql\_insert\_answers+="0)";

stmt.executeUpdate(sql\_create\_answers);

stmt.executeUpdate(sql\_insert\_answers);

out.print("<h2>Test created</h2>");

con.commit();

}**catch**(Exception e){e.printStackTrace();}

%>

</head>

<body>

<br>

<a href=*'homepage'* class=*"linkbtn"*>homepage</a>

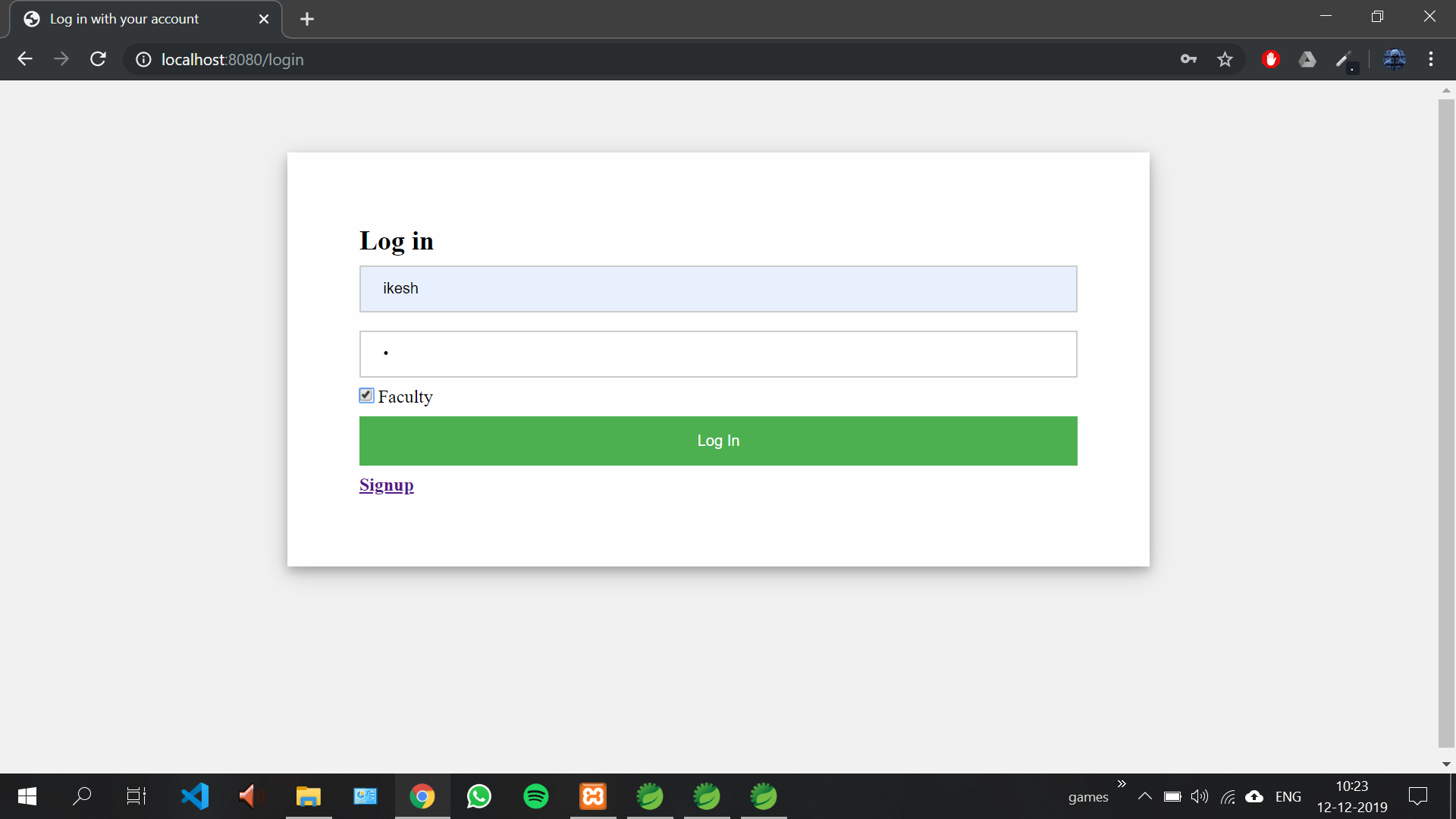
<a href=*'logout'* class=*"linkbtn"*>logout</a>

</body>

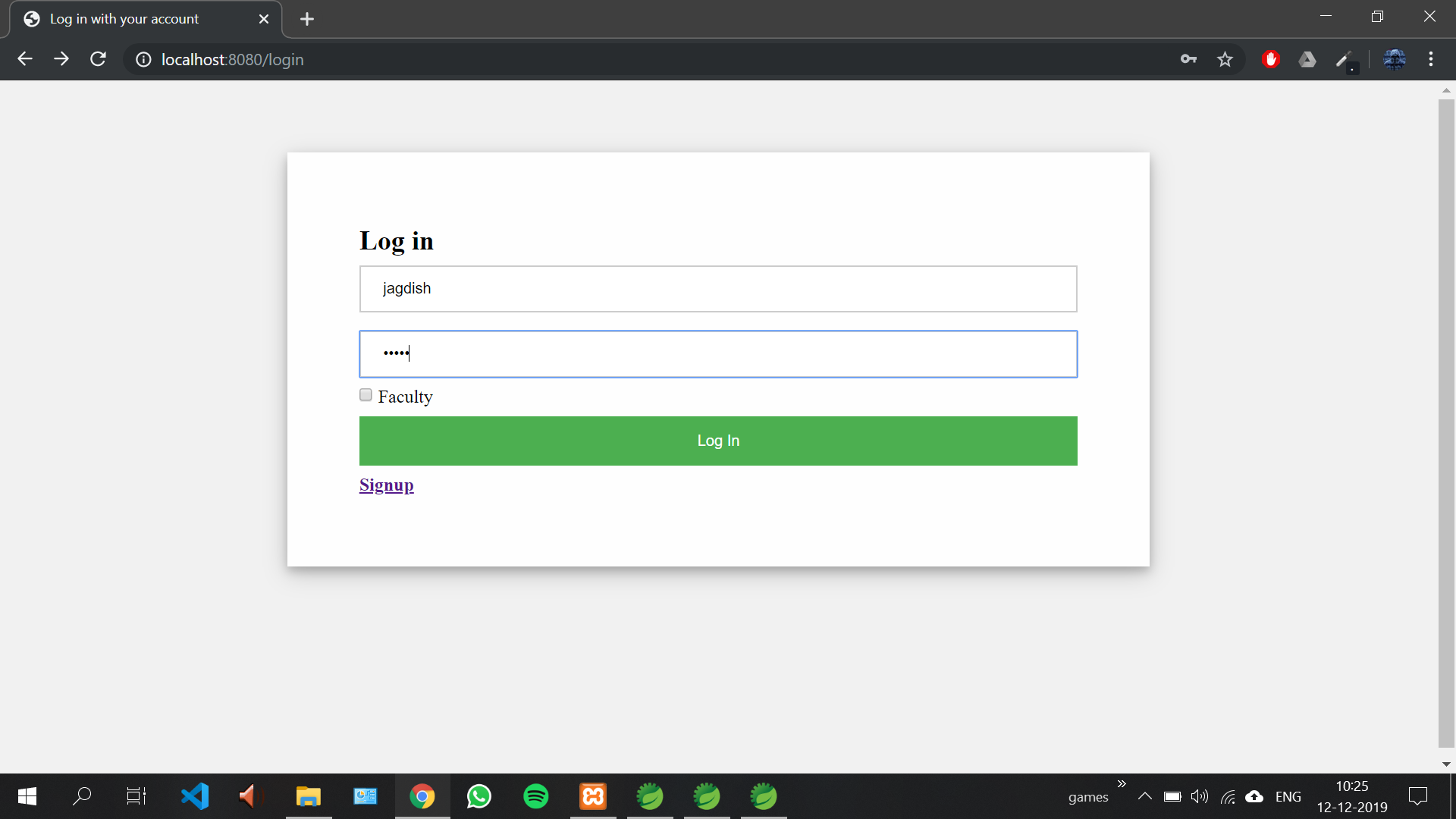
</html>

**RESULT:**

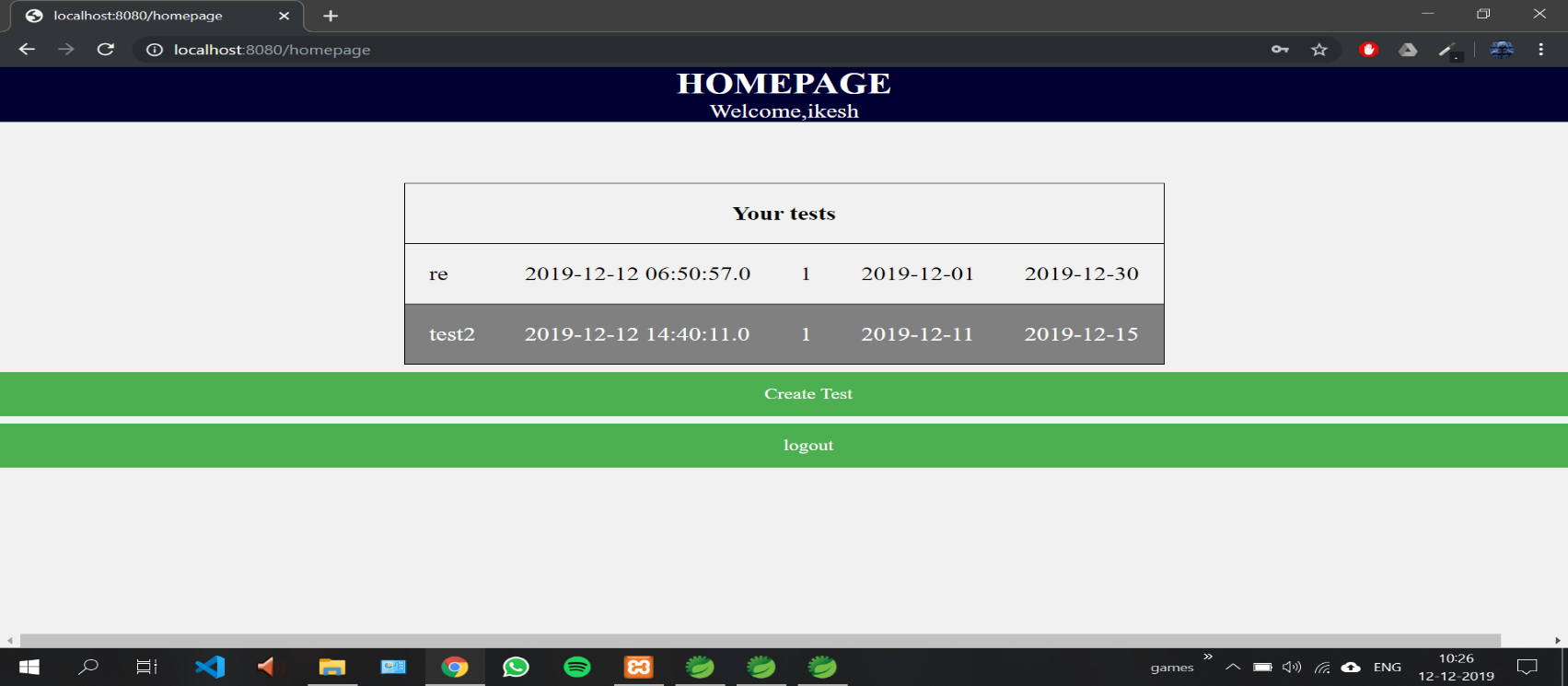
**student-login:**



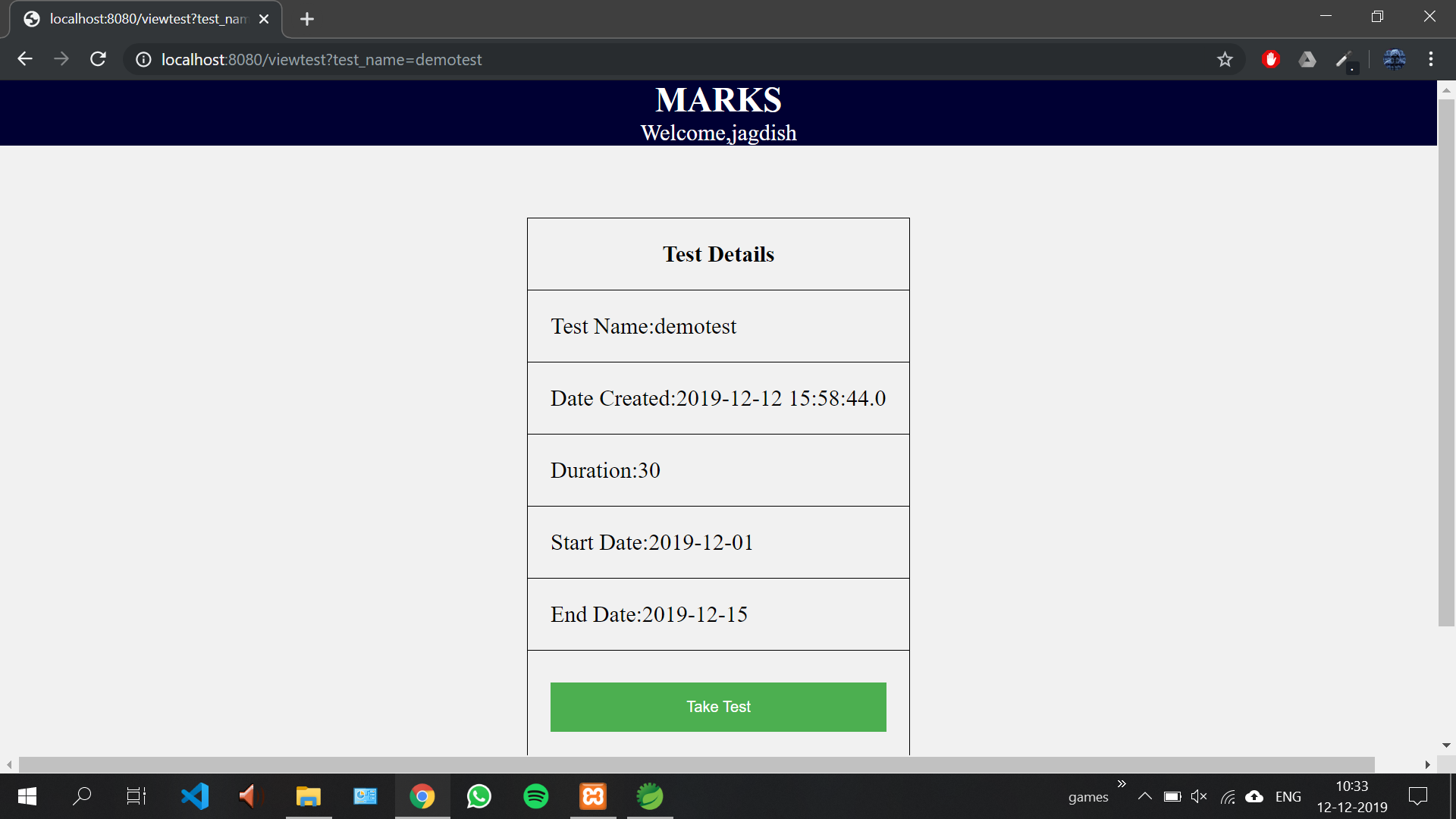
**faculty-login:**

****

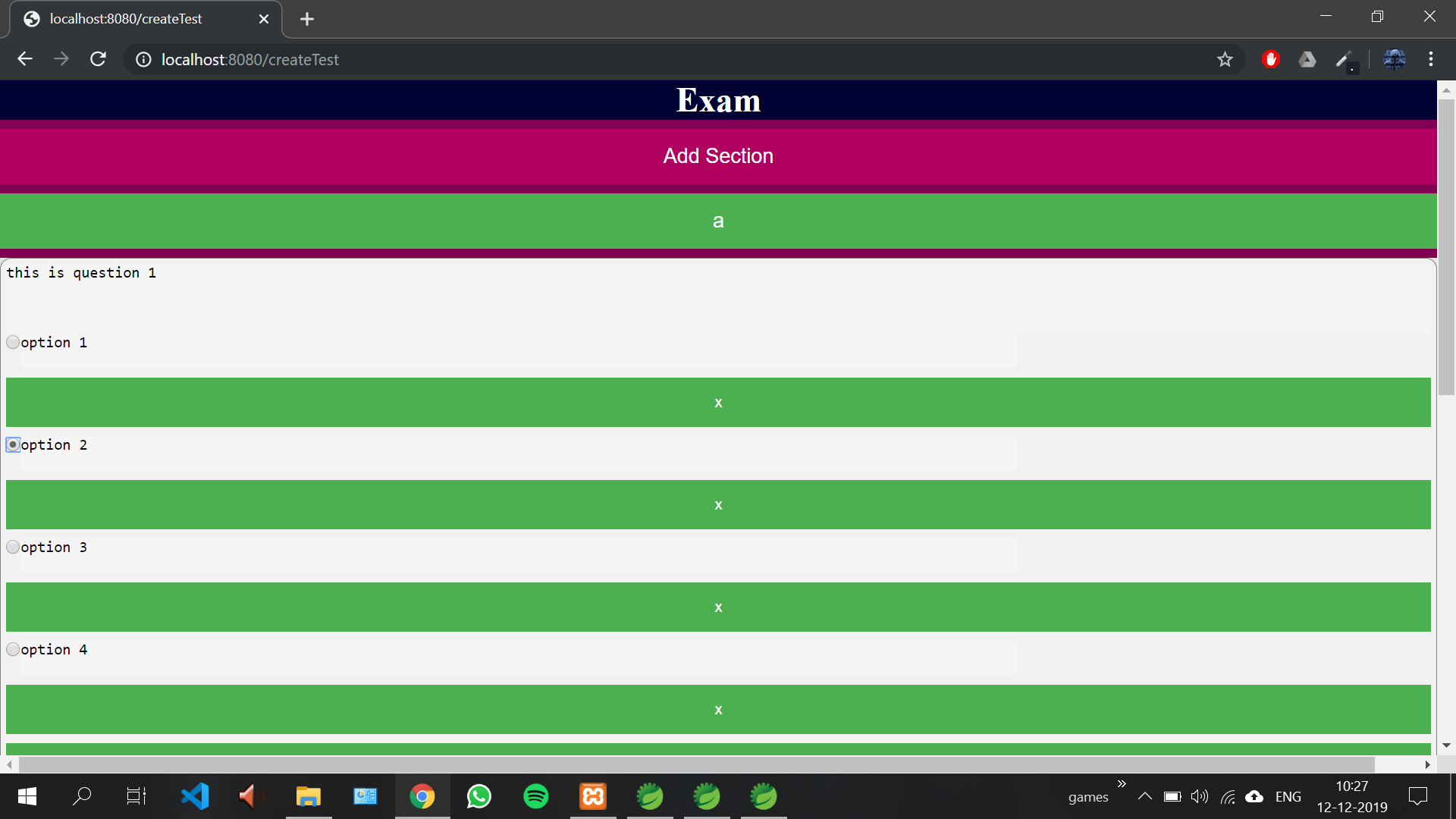
**faculty-homepage-before-create:**

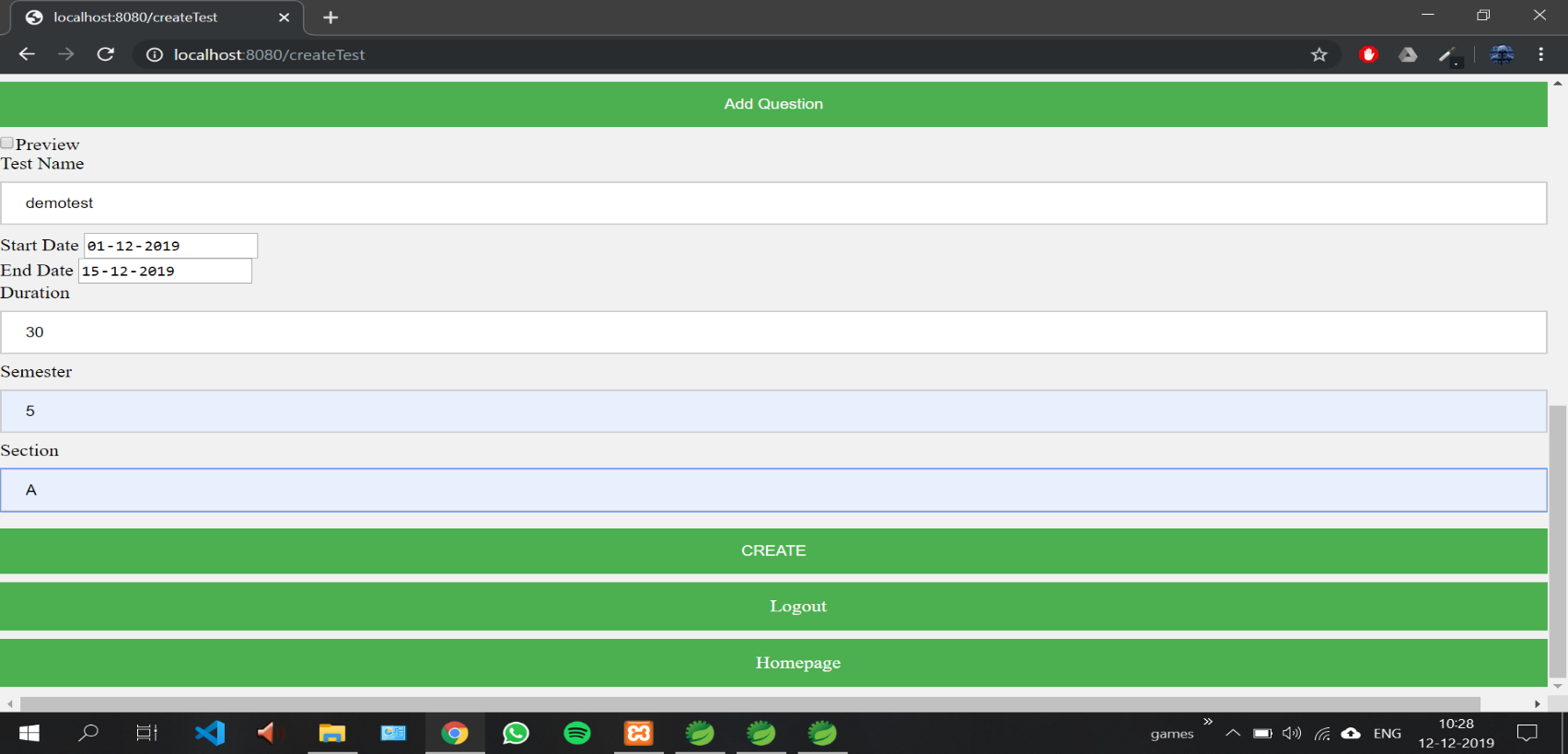
****

**student-view-test:**

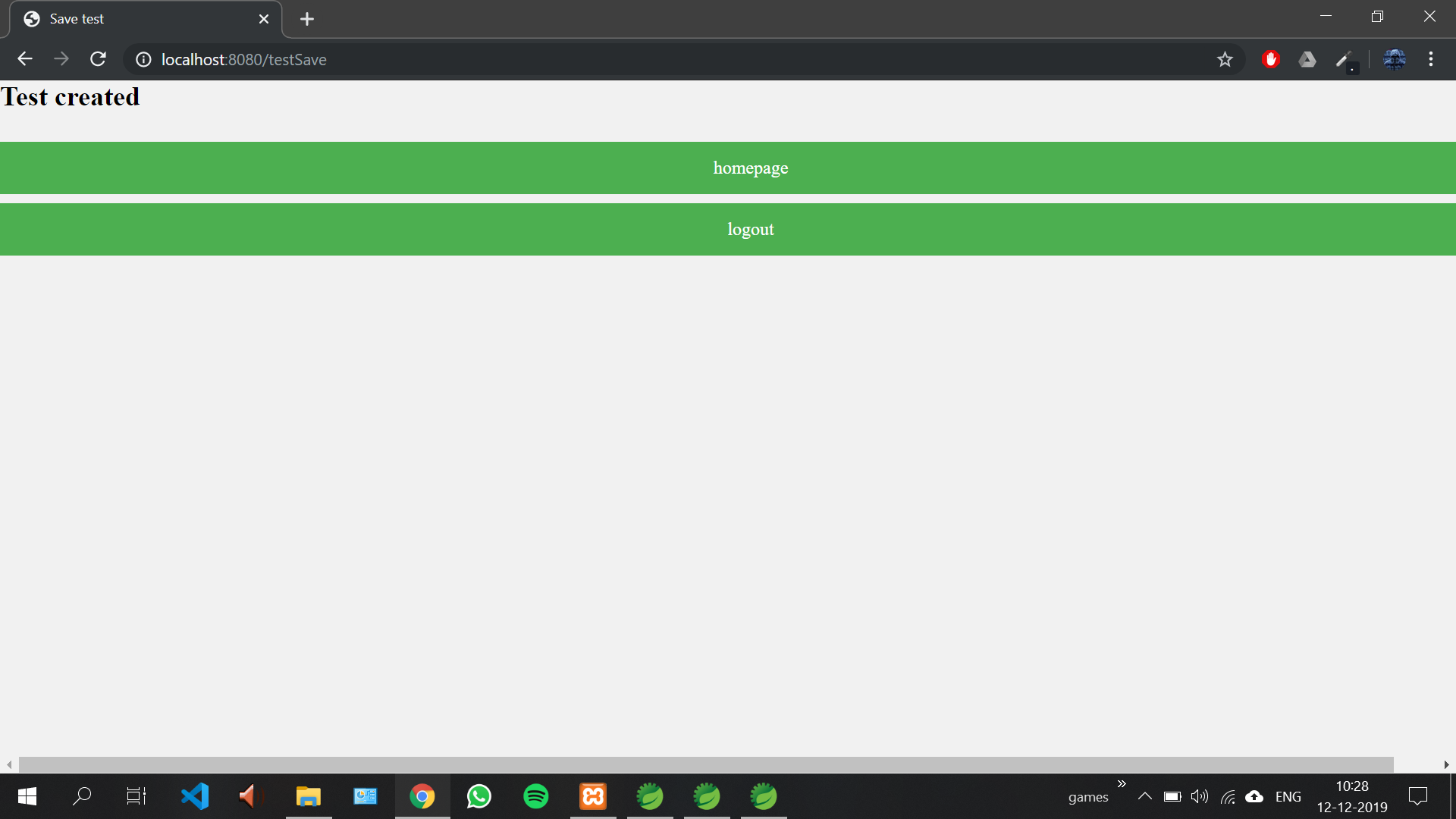
****

**faculty-create-test1:**

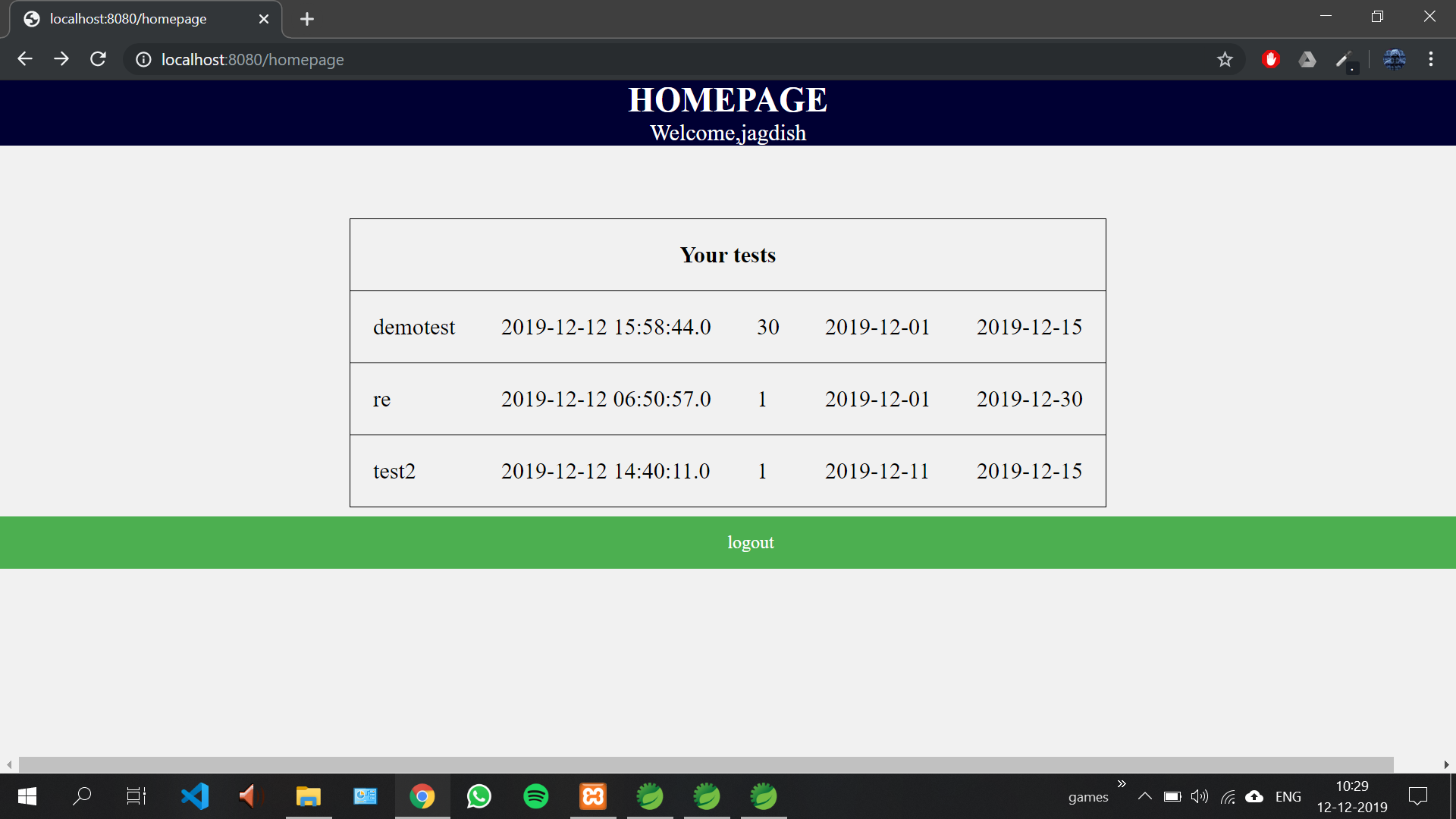


**faculty-create-test2: **

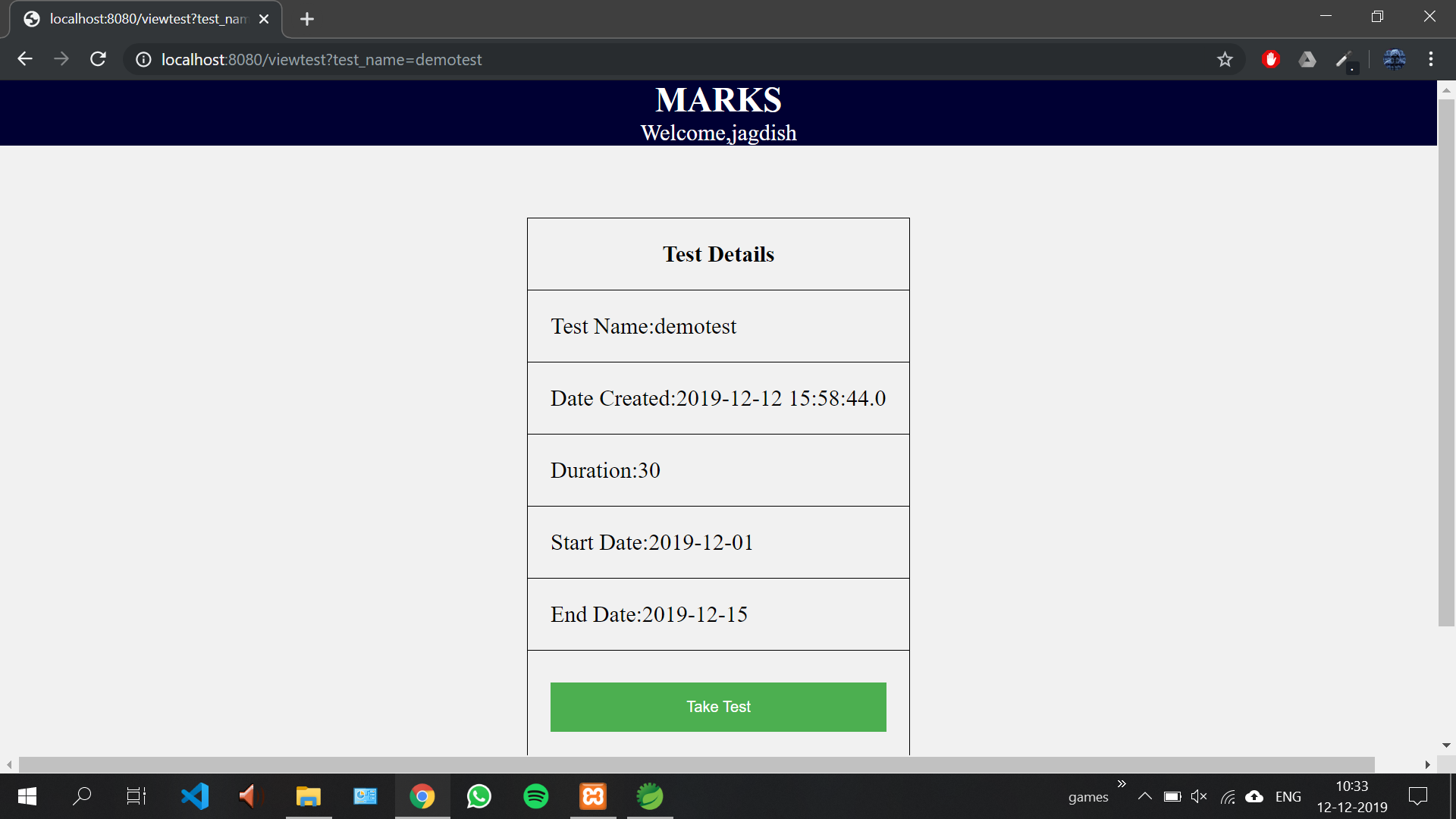
**faculty-save-test:**



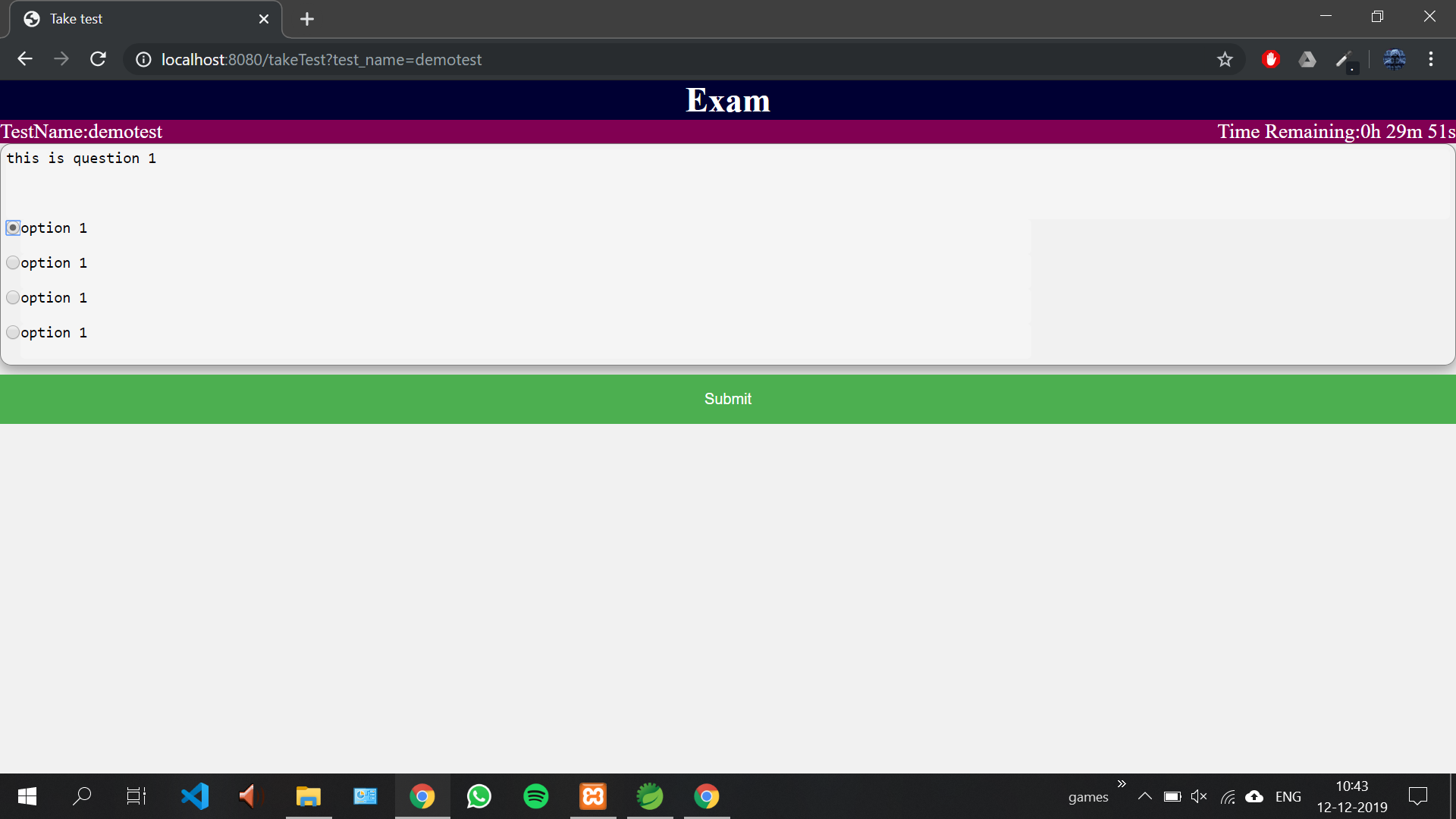
**student-homepage-after-create:**



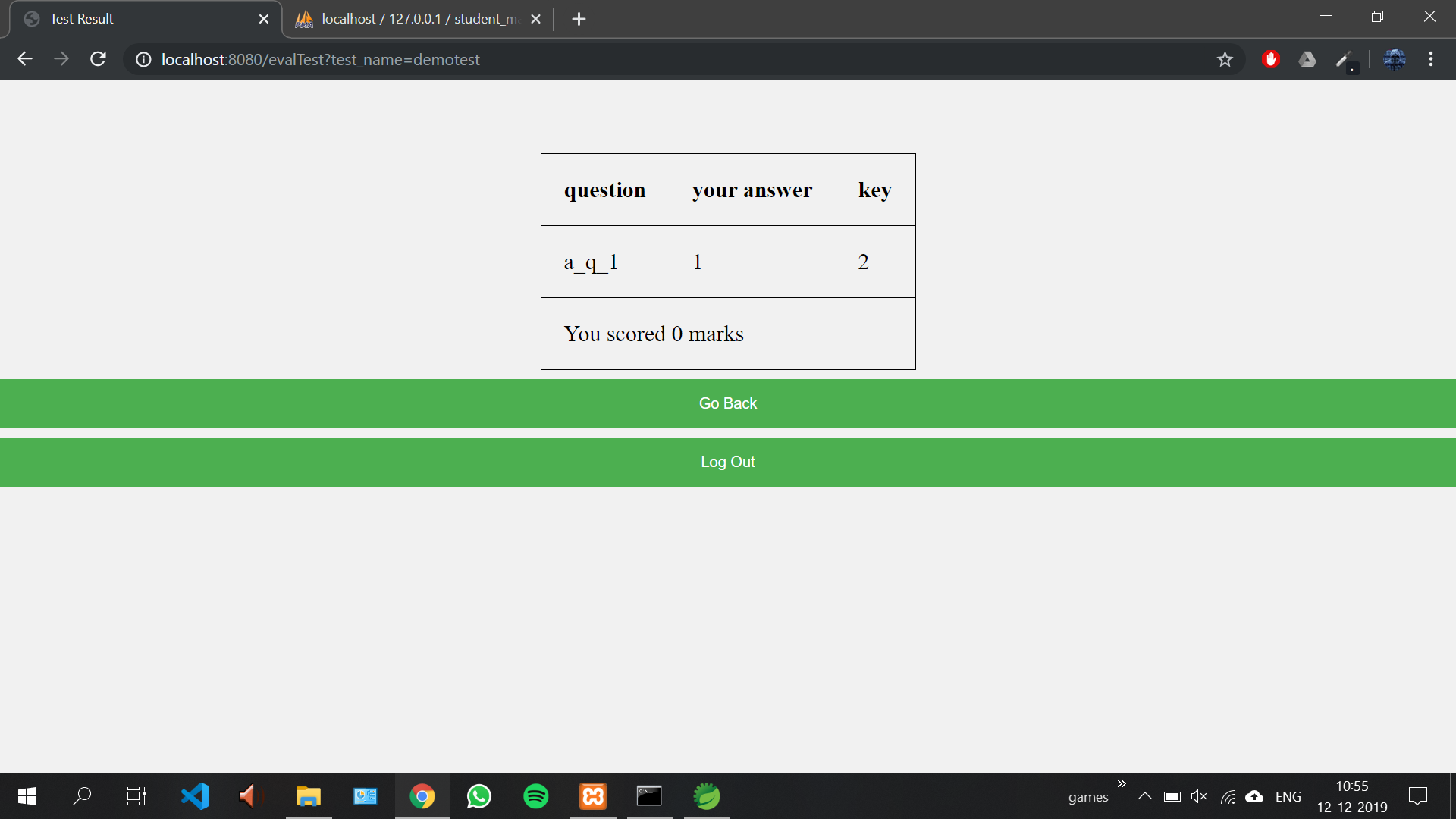
**student-view-test:**



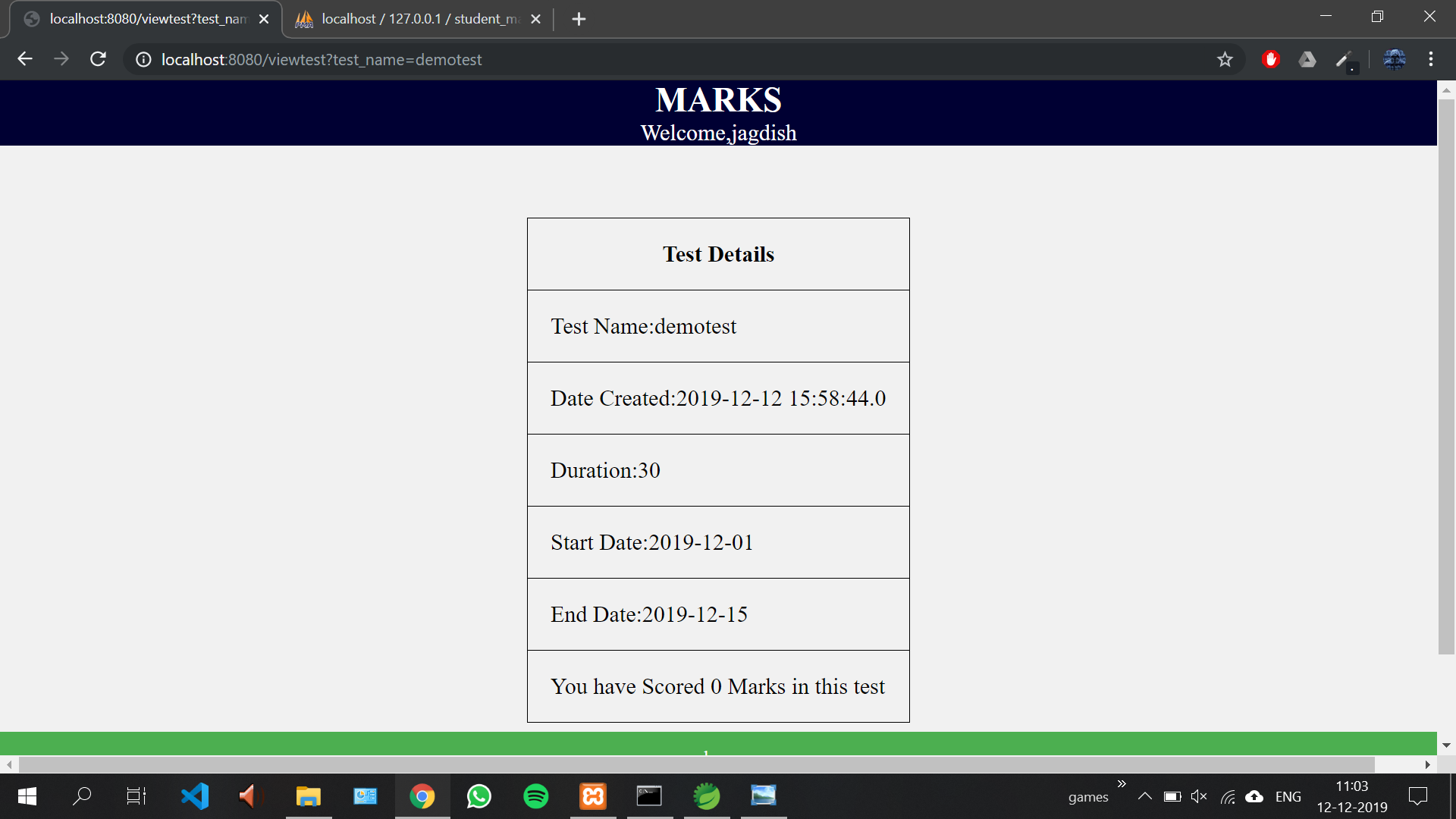
**student-take-test:**



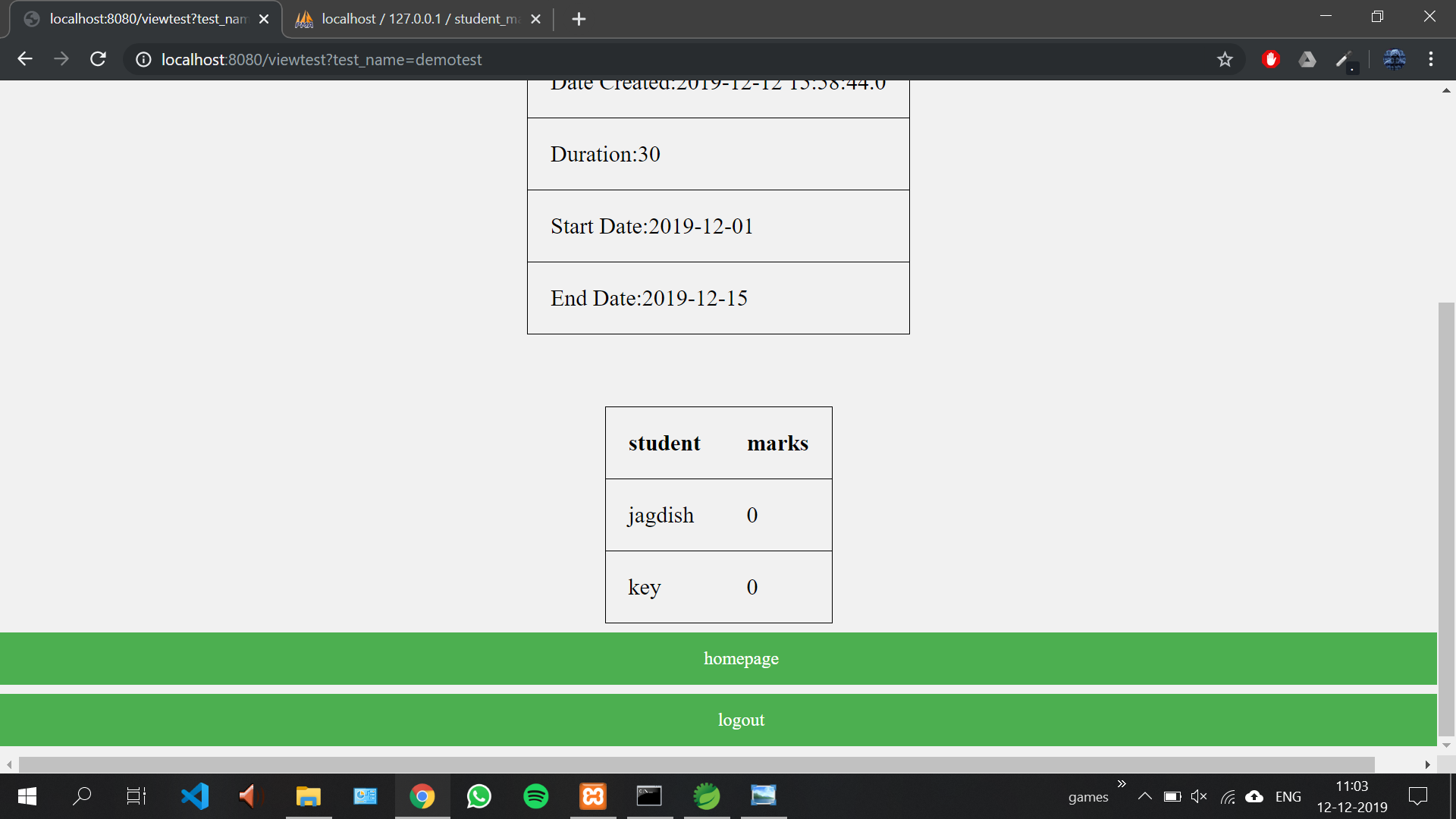
**student-test-result:**



**student-view-test-after-taking-test:**



**faculty-view-test – after-student-taking-test:**



**READ ME FILE**:

1. **Creating database- the source of tool used**

* **MYSQL**

1. **Database connectivity**

* **XAMP**

1. **Deploying it in cloud as micro service**

* **SPRING BOOT**