

SSN COLLEGE OF ENGINEERING, KALAVAKKAM
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Internet Programming Lab – CS8661

Programming Assignment 12 – Online Exam Web Application using JSP with MVC Architecture

Write programs in Java to create three-tier applications using servlets for conducting on-line examination for displaying student score using MVC architecture. Create Questions tables in the mysql server as follows to store the information about the students and Questions with choices:

Questions table

Question	Choice_A	Choice_B	Choice_C	Choice_D	Answer
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Create three controllers, namely, *Exam Controller* and *Result Controller*. The application first displays the index.jsp to display the rules for the online exam. When the start button is clicked, Exam Controller is invoked.

The *Exam Controller* is responsible for communicating with the QuestionsDao to display the questions from Questions table in Exam.jsp. When submit button in Exam.jsp is clicked, Result Controller is invoked.

The *Result Controller* is responsible for preparing AnswerBean and communicates with AnswerDao to check answers in Questions table and returns the score to *Result Controller*. It forwards the score to result.jsp and displays the score as follows:

Online Examination Score

Score: 78 out of 100

To summarize, create the following components of MVC architecture to realize the Online Exam Web Application.

Controllers:

Exam Controller
Result controller

Views:

Index.jsp
Exam.jsp
Result.jsp

Beans:

Answer
Questions

Daos:

QuestionsDao
AnswerDao

CODE:

index.html

```
<html>
<body>
<form method="post" action ="examcontrol">
<h1>QUIZ!!!!!!</h1>
<pre>1. There are 4 questions on the quiz with four options. Only choose one.
```

2. There is no negative marking.

3. Each question carries twenty-five marks.

4. Do not leave any question blank.

5. Do not indulge in malpractice.

```
6. At the end, the score will be displayed</pre>
<input type ="submit" value="Agree and continue">
</form>
</body>
</html>
```

web.xml

```
<web-app>

<servlet>
    <servlet-name>loginservlet</servlet-name>
    <servlet-class>examcontroller</servlet-class>
</servlet>

<servlet-mapping>
    <servlet-name>loginservlet</servlet-name>
    <url-pattern>/examcontrol</url-pattern>
</servlet-mapping>

<servlet>
    <servlet-name>answservlet</servlet-name>
    <servlet-class>anscontroller</servlet-class>
```

```

</servlet>

<servlet-mapping>
    <servlet-name>anwservlet</servlet-name>
    <url-pattern>/anscontrol</url-pattern>
</servlet-mapping>

</web-app>

```

examcontroller.java

```

import Bean.questionbean;
import DAO.questionDAO;
import javax.servlet.http.*;
import javax.servlet.*;
import java.io.*;
public class examcontroller extends HttpServlet
{
    public void doPost(HttpServletRequest req,HttpServletResponse res) throws
    IOException,ServletException
    {
        res.setContentType("text/html");
        PrintWriter out=res.getWriter();
        //questionbean qbean=new questionbean();
        questionDAO dao=new questionDAO();
        questionbean qbean=dao.calldao();
        HttpSession s=req.getSession(true);
        s.setAttribute("qbean",qbean);
        req.getRequestDispatcher("exam.jsp").forward(req,res);
    }
}

```

questionbean.java

```

package Bean;
public class questionbean
{
    private String q[]=new String[5];
    private String ch1[]=new String[5];
    private String ch2[]=new String[5];
    private String ch3[]=new String[5];
    private String ch4[]=new String[5];
    public void setQ(int i,String q1)
    {
        this.q[i]=q1;
    }
}

```

```

    }
    public void setCh1(int i,String ch)
    {
        this.ch1[i]=ch;
    }

    public void setCh2(int i,String ch)
    {
        this.ch2[i]=ch;
    }
    public void setCh3(int i,String ch)
    {
        this.ch3[i]=ch;
    }
    public void setCh4(int i,String ch)
    {
        this.ch4[i]=ch;
    }
    public String getQ(int i)
    {
        return q[i];
    }
    public String getCh1(int i)
    {
        return ch1[i];
    }
    public String getCh2(int i)
    {
        return ch2[i];
    }
    public String getCh3(int i)
    {
        return ch3[i];
    }
    public String getCh4(int i)
    {
        return ch4[i];
    }
}

```

questionDAO.java

```

package DAO;
import java.sql.*;
import java.io.*;
import Bean.questionbean;

```

```

public class questionDAO
{
public questionbean calldao()
{
String db_url="jdbc:mysql://localhost:3306/exam";
String user="root";
String pass="vaishu";

questionbean qbean=new questionbean();
try
{
Class.forName("com.mysql.jdbc.Driver");
Connection con=DriverManager.getConnection(db_url,user,pass);
Statement stmt=con.createStatement();
ResultSet rs=stmt.executeQuery("select * from questions");
int i=0;
while(rs.next())
{
qbean.setQ(i,rs.getString(2));
qbean.setCh1(i,rs.getString(3));
qbean.setCh2(i,rs.getString(4));
qbean.setCh3(i,rs.getString(5));
qbean.setCh4(i,rs.getString(6));
i++;
}
return qbean;
}
catch(Exception e)
{
System.out.println("Exception"+e);
}
return qbean;
}
}

```

exam.jsp

```

<% @ page import="Bean.questionbean" %>
<% @ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<% @ taglib uri="http://java.sun.com/jsp/jstl/sql" prefix="sql" %>

<html>
<body>
<%
int i,j;
String q[]=new String[4];

```

```

String ch1[]=new String[4];
String ch2[]=new String[4];
String ch3[]=new String[4];
String ch4[]=new String[4];
questionbean qbean=(questionbean)session.getAttribute("qbean");
for(i=0;i<4;i++)
{
q[i]=qbean.getQ(i);
ch1[i]=qbean.getCh1(i);
ch2[i]=qbean.getCh2(i);
ch3[i]=qbean.getCh3(i);
ch4[i]=qbean.getCh4(i);
}
session.setAttribute("q",q);
session.setAttribute("ch1",ch1);
session.setAttribute("ch2",ch2);
session.setAttribute("ch3",ch3);
session.setAttribute("ch4",ch4);
%>
<form method="post" action="anscontrol">
<c:forEach var="i" begin="0" end="3">
  <c:out value="{q[i]}" /><br>
  <input type="radio" name="{i}" value="a">
  <c:out value="{ch1[i]}" />
  <input type="radio" name="{i}" value="b">
  <c:out value="{ch2[i]}" />
  <input type="radio" name="{i}" value="c">
  <c:out value="{ch3[i]}" />
  <input type="radio" name="{i}" value="d">
  <c:out value="{ch4[i]}" /><br><br>
</c:forEach>
<input type="submit" value="End quiz">
</form>

</body>
</html>

```

anscontroller.java

```

import Bean.ansbean;
import DAO.ansDAO;
import javax.servlet.http.*;
import javax.servlet.*;
import java.io.*;
public class anscontroller extends HttpServlet {

```

```

public void doPost(HttpServletRequest req,HttpServletResponse res) throws
IOException,ServletException
{
    res.setContentType("text/html");
    PrintWriter out=res.getWriter();
    ansbean abean=new ansbean();
    ansDAO dao=new ansDAO();
    int i;
    for(i=0; i<4; i++) {
        String ch = req.getParameter(""+i);
        String ans =
(ch.equals("a")?"a":ch.equals("b")?"b":ch.equals("c")?"c":ch.equals("d")?"d":"e");
        abean.setAns(i, ans);
    }
    int score = dao.calcScore(abean);
    HttpSession s=req.getSession(false);
    s.setAttribute("score",score);
    req.getRequestDispatcher("score.jsp").forward(req,res);
}
}

```

ansbean.java

```

package Bean;

public class ansbean{
    private String ans[] = new String[5];

    public void setAns(int i, String ch) {
        this.ans[i] = ch;
    }

    public String getAns(int i) {
        return ans[i];
    }
}

```

ansDAO.java

```

package DAO;
import Bean.ansbean;
import java.sql.*;
import java.io.*;
import Bean.questionbean;
public class ansDAO

```

```

{
public int calcScore(ansbean b)
{
String db_url="jdbc:mysql://localhost:3306/exam";
String user="root";
String pass="vaishu";
int score=0;
try
{
Class.forName("com.mysql.jdbc.Driver");
Connection con=DriverManager.getConnection(db_url,user,pass);
Statement stmt=con.createStatement();
ResultSet rs=stmt.executeQuery("select ans from questions");
int i=0;
while(rs.next())
{
    if(b.getAns(i).equals(rs.getString(1))) {
        score += 20;
    }
    i++;
}
return score;
}
catch(Exception e)
{
System.out.println("Exception"+e);
}
return score;
}
}

```

score.jsp

```

<% @ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<html>
<body>
<%
    int score = (int)session.getAttribute("score");
%>

<c:out value="Thank You for taking the quiz."/><br>
<c:out value="Your score is : ${score}"/>
</body>
</html>

```


OUTPUT:

← → ↻ ⓘ localhost:8080/QuizMVC/

QUIZ!!!!!!

1. There are 4 questions on the quiz with four options. Only choose one.
2. There is no negative marking.
3. Each question carries twenty-five marks.
4. Do not leave any question blank.
5. Do not indulge in malpractice.
6. At the end, the score will be displayed

Agree and continue

←

→

↺

localhost:8080/QuizMVC/examcontrol

capital of india

☒ delhi ☐ lucknow ☐ chennai ☐ andhra

capital of pakistan

☒ lahore ☐ islamabad ☐ karachi ☐ hyderabad

capital of china

☒ beijing ☐ wuhan ☐ hongkong ☐ shangai

capital of usa

☒ texas ☐ newyork ☐ washington ☐ arizona

End quiz

←

→

↺

localhost:8080/QuizMVC/anscontrol

Thank You for taking the quiz.
Your score is : 40